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[*Photographs by C. P. Raffill.*

BAMBOO GARDEN, KEW, IN WINTER.

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THE
Gardeners' Chronicle

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ILLUSTRATIONS.

THE RUGOSA ROSES.

THE period from the middle of May till the end of June, before the ordinary Roses open in any quantity, is the time when we most appreciate the Rugosa Roses. They all flower again, it is true, but when we have the H.P.s, H.T.s, and Tea Roses they are apt to be neglected and passed over.

They are nearly all delightfully sweet-scented; some of them are among the most fragrant Roses we possess; they are very hardy, and thrive even with indifferent treatment, and they flower a second time, a few of them being almost constantly in flower throughout the season, while the autumn berries of the fruiting section are very bright and cheerful.

No doubt they have somewhat serious limitations. One that has perhaps restricted their popularity more than any other is that they are not of much use as cut flowers in the house or at the shows. Nearly all the Roses of the group soon flag and fade in water, and their sphere of usefulness is, therefore, in the garden. Then the form of the flower in the double Rugosas is generally poor. Even Conrad F. Meyer, which is, perhaps, the best of the group in the matter of form, produces a large number of badly-shaped flowers. In colour, again, they leave something to be desired. The whites are generally good, and many of the pinks are soft and pleasing, but the red shades, for the most part, have a certain tint of violet or blue in them which soon gives to the flowers a dingy appearance.

They have been long known and grown in gardens. It was as far back as 1784 that Thunberg obtained the carmine Rosa rugosa and the white form, rugosa alba, from Japan. Not, however, till the closing years of the nineteenth century was much attempted in improving them. Since that time a number of hybrids have begun to appear, notably as the result of the work of M. Jules Gravereaux, Dr. Müller, Bruant, Lambert, Cochet, and in this country Paul and Son, and we now have upwards of 160 varieties of this race of Roses. These were for the most part obtained by hybridising the Rugosa with the Tea Rose. When these hybrids first began to appear it seemed to some of us that the Rugosa Roses, if developed so as to retain the new qualities, and if the defects of the race could be eliminated, promised great things for the Rose gardens of this country, where hardihood is so particularly desirable a quality. But without in any way abandoning our hope for what the future may have in store for us, it may be at once admitted that this desirable consummation has not yet been realised.

To begin with, it was found that the first effect of the admixture of an alien strain at once caused the resulting hybrid to lose the characteristic autumn fruit. There is, for instance, a very pretty little hybrid between R. rugosa and R. foliolosa which is constantly in flower, and in many respects is highly attractive, but the seed pods wither as soon as the flowers fade, and no fruit is produced. Although in some cases something has been added to the length of flowering period, yet not only have the bright-coloured fruits gone, but the power to last in water as cut flowers has not yet been acquired. And even where an improvement has been effected in the formation of double flowers, with some approach to form such as Conrad F. Meyer, Nova Zembla and Mme. Georges Bruant, we are fully conscious that this should properly be regarded as an instalment only, these Roses producing a rather undue proportion of poorly-formed flowers.

Although the Rugosas do not as yet in any way rival the garden Roses, yet they are extremely useful in filling in the gap before the bulk of the Roses come into flower. For this reason their appropriate position is not in the Rose garden itself, but rather in its outskirts.

The number of Roses that make satisfactory hedges is extremely limited. A few of the species will do this; for instance, several of the Scotch Roses and some of the older hybrids such as Rosa alba; but their period of flowering is very short, and a good dense hedge may be made of the Wichuraiana hybrids, if they are supplied with a hurdle to fasten them to; but among the garden roses proper, if we except the Bourbon Zéphirine Drouhin and, perhaps Grüss an Teplitz, the Roses that will make a good hedge are negligible.

With the Rugosas it is otherwise, nearly all of them make excellent hedges, and this is one of the best ways of growing them. They require no support; all that is necessary is to tie the growths diagonally, either to a few stakes or to one another, while some do not even require this attention. Thus treated they quickly make a very pleasing fence from 4 to 7 feet high, as may be desired. If not grown as hedges, then they should be allowed to expand into big isolated bushes. I have tried some of them as pillars, but only a few are adapted for this treatment, and when I mention that the best for this purpose are those with something of the Dijon Tea habit, like Conrad F. Meyer, Mme. Lucienne Willeminot, Nova Zembla, Daniel Leseuer and Mme. Alvarez del Campo, it will be realised that plenty of room must be allowed them when they are grown in this manner.

In the ensuing review I have grouped the colours of the flowers. Those that make orange or red autumnal fruits usually grow 4 to 6 feet high. The hybrids vary considerably in the vigour of their growth. We have (i.) big growers like Conrad F. Meyer, (ii.) bushes from 4 to 7 feet high, such as America, and (iii.) low growers 2 to 4 feet high, such as Schneezwerg, Mercedes, and the hybrid with foliolosa I referred to above.

Among the whites there are two excellent varieties bearing red berries in autumn. For the most part the berry-bearing Rugosas are single, or nearly so; but one of these is an exception. The old Rugosa alba (Thunberg, 1784) is quite one of the most pleasing. The flowers are a very good white, and have a good outline; the plant makes a bush about 4 to 5 feet high.

BLANC DOUBLE DE COUBERT (Cochet, 1892) is one of the best of the family. The flowers are double and a good white, and though not so perfect in outline as the single alba, are much more freely and constantly produced. In fact, my bushes of this variety are never without flowers from the time they begin, about the third week in May, to the October frosts.

REPENS ALBA (Paul and Son, 1903) is a huge grower, with long sinuous stems which, if it be in a position where it can develop rapidly, makes an enormous bush. It is said to have been obtained by crossing R. rugosa with R. wichuraiana.

MME. GEORGES BRUANT (Bruant, 1887), a hybrid between R. rugosa and the Tea Rose Sombreuil, is one of the best-shaped of the Rugosas. The flowers are a good white and freely produced, but, like the last, it is not a berry bearer.

SOUV. DE PHILEMON COCHET (Cochet, 1899), a seedling from Blanc Double de Coubert. The colour is a good white and the flowers are double, but flat centred.

SCHNEEZWERG (Lambert, 1911) is a charming little plant with white flowers, which seems promising for the rockery.

FIMBRIATA (Morlet, 1891), the result of a cross between Mme. Alfred Carrière and R. rugosa, is an extremely pretty little flower: white-tinged blush, with fringed petals, reminding one of the pinks. Though hardy enough, it is not so strong a grower as some.

MME. HENRI GRAVEREAUX (Gravereaux, 1905), from Marie Zahn × Conrad F. Meyer, is creamy white, with a blush pink centre.

Nova Zembla (Mees, 1906), said to be a white sport from Conrad F. Meyer, is often very pleasing and better shaped than its parent. In wet weather the flowers are apt to become dirty; but it is useful and distinct. When grown as a free bush it is about 8 feet high.

Daniel Leseuer (Dr. Müller, 1909), said to have the parentage of Pierre Notting × Safrano × rugosa, is the only approach to yellow in the group. It is a big grower, of the habit rather of the Dijon Teas, with brittle stems. The flowers are large and double and often attractive, of a nankeen yellow, with a faint salmon flush.

Mme. Ancelot (Gravereaux, 1906) is said to have the attractive origin Reine des Iles Bourbons × Maréchal Niel × Perle des Jardins × Germanica. It is healthy and a huge grower, but not too free in flowering, and its flowers are flesh pink.

Thusnelda (Müller, 1889), from Rugosa alba × Gloire de Dijon. This is one of the most pleasing and most constantly in flower, early and late. Among the first and the last in flower, the colour is a pale salmon pink.

Mme. Alvarez del Campo (Gravereaux, 1904) is of a rosy flesh colour. I have tried several of the Rugosas as pillar plants, but this is one of the few I have retained for this purpose.

Mercedes (Guillot, 1900) is a very pale pink, or, rather, a pink on a white ground. It is quite one of the prettiest of the semi-double varieties, but not nearly so robust as the type, my plant, which I have had for some years, being about 18 inches high and rather spreading.

Of the pinks and rose-pinks of the typical Rugosa shape, single or semi-double, there are a considerable number. The best of them, to my taste, is Delicata (Cooling, 1898), a soft rose-pink which is very pleasing in the early summer garden. Another good one is Rose Apples (Paul and Son, 1896), a silvery rose-pink. And slightly darker are Chedane Guinoisseau (Guinoisseau, 1895), and Souvenir de Christophe Cochet (Cochet 1894), and darker still Calocarpa (Bruant, 1895), from Rugosa × Common China, one of the best for fruiting.

There are several pinks and rose-pinks among the double varieties. The greater number of these are of the old-fashioned, flat-centred type of flower. I may mention Bienvêtu (Gravereaux, 1906), salmon pink; Mme. Ballu (Gravereaux, 1905); Mme. Laborie (Gravereaux, 1905); Mme. Rénée Gravereaux (Gravereaux, 1906); and Madeline Filot (Gravereaux, 1907). These are all plants growing 4 to 6 feet high, and less of interest in themselves than as steps in the direction we may hope to go in this race.

Of the taller growers we have Conrad F. Meyer (Müller, 1899), which will make a huge bush 12 feet high if allowed, or may be trained in a 4-feet hedge. This is the best-shaped double Rugosa we have down to the present. It was obtained by crossing a seedling from Gloire de Dijon × Duc de Rohan with the Rugosa Germanica. Slightly paler, but also a big grower, is Mme. Lucien Willeminot (Gravereaux, 1904), said to have come from Conrad F. Meyer × Safrano. Though not quite so full as Conrad F. Meyer, it is more free in flowering with me, but otherwise is of similar habit of growth to that of Conrad F. Meyer.

Among the double reds, two deserve special mention, if only for their perfume. They are among the most fragrant of Roses. Rose à Perfum de l'Hay (Gravereaux, 1904) is the result of crossing a seedling from R. damascena × Général Jacqueminot with the Rugosa Germanica. The flowers are large and of a good carmine red when young. This Rose was selected by M. Jules Gravereaux as the most highly scented of all Roses from which to make a Rose perfume. The flowers are sometimes quite a fair shape, but are often apt to come with a confused centre, and are decidedly heavy. The other double red I would name is Mrs. Anthony Waterer, said to be a cross between Général Jacqueminot and an hybrid Rugosa. The bush is very spreading, but only some 3 feet high, and the flowers are a good dark crimson, slightly larger than those of the common China and semi-double. They are so fragrant that when in full flower the bush quite scents the air round it.

Most of the other double reds are of little interest save so far as they may be stepping-stones to something better. Perhaps Le Cid (Vigneron, 1908) is the best of them. It came from Conrad F. Meyer × Belle Poiterine.

But there are three single reds I must mention:—

America (Paul and Son, 1899) is a dark crimson lake, and I have been told it was sent over to the firm who brought it out in 1892 by Prof. Sargent, of Harvard University Botanic Gardens. It is the first in flower of all the Rugosas, and has large fruits covered with long spines.

Carmen (Lambert, 1906) is a good crimson with the least trace of mauve, but very constantly in flower and bright and attractive. However, it makes no fruits.

Atropurpurea (Paul and Son, 1899) is perhaps the most attractive of all the singles except the white. The buds are deep blackish-crimson, opening to maroon-crimson flowers, and the foliage a pleasing lightish green.

Rubra, or Thunberg's type, and Regeliana, which is very like it, are of a rather ugly, purplish, or violet red. Souvenir de Pierre Leperdrieux, a deep vinous, purple red, however, is worth notice for its fine perfume.

Some of the hybrids of R. rugosa with other species are quite interesting; but I must deal with them later. I have, however, perhaps said enough to show that the Rugosas and their hybrids are worthy of a place of their own in the garden, and may yet repay the rosarian who will be at the pains of careful hybridisation and selection. *White Rose.*

PUYA CHILENSIS.

The flowering of Puya chilensis out-of-doors in the Botanic Garden, Cambridge, is the event of its kind for the year in that garden. Almost eighteen years ago a small plant, kindly presented by Mr. T. A. Dorrien-Smith, was received from the fine mass at Scilly. For three years it was grown in the Succulent House, and it was then planted out in the bay formed by the Corridor (at the back), the Succulent House and the Orchid House. Here it was about twelve years in forming the fine head that was figured in the *Gardeners' Chronicle*, 1910, November 26, p. 390, which measured 6 feet through. In February of this year the flower spike began to rise, and the first information of it was that it had pushed through a pane of glass of the "light" that had been set overhead to keep off wet. From that time it gradually rose and before the opening of the first flower on

Fig. 1.—Puya chilensis flowering out-of-doors in Cambridge Botanic Garden.

May 24 had attained a height of 9 feet 7½ inches. The inflorescence itself was 2 feet 5¼ inches in height from base to apex and the stalk from its origin among the leaves about 3½ feet long. The scape grew in height at the rate of about half an inch per day until the branches of the inflorescence began to grow, and when they had nearly ceased growth the flowers began to open. The flowering period lasted just about a month and the flowers were of slightly greenish yellow colour, as nearly as possible the Pyrethrum yellow of the *Répertoire de Couleurs*, published by the Société Français des Chrysanthémistes, distributed by the Royal Horticultural Society. The accompanying illustrations, one of the entire plant and flower, another of the inflorescence, and a third of the young rising scape showing the very fine bracts, show well what the general appearance was. In the rising of the scape there was a

Fig. 2.—inflorescence of puya chilensis.

very interesting feature which seemed almost abnormal at the time. It appeared after the time of the small illustration of the early rising stage. The large bracts of one side extended over the top, covering and forming a sort of cowl over the growing point; but as the inflorescence grew to be quite symmetrical, this must have been quite normal. It seemed evidently to form a protection for the top, but apparently no protection against rain can be necessary in its native country. Since the illustration of 1910, side growths have extended so that the width of the mass is now about 8 feet 1¼ inches. At the base of the scape a shoot is growing so that the symmetry of the mass may not much be spoilt by the loss of the original and central crown. The growing and flowering of this plant is a good example of what can be done in a warm and sheltered corner outside plant-houses. *R. Irwin Lynch, Botanic Garden, Cambridge.*

CELERY "BLIGHT" OR "RUST"

(*SEPTORIA PETROSELINI* VAR. *APII*) AND ITS PREVENTION.

(*Concluded from Vol. LIII., page 416.*)

Experiments with Remedies.

An experiment was devised to test the value of spraying in stopping the further spread of the disease. About the middle of May the seedling plants were transferred to trenches in the open ground in the usual way; no discrimination was made, the diseased plants being planted along with the healthy ones in the row. The trenches were 84ft. long and 2ft. wide, with two rows of plants, 1ft. apart, in the trench. Thus at the time the spraying experiment started a considerable proportion of the plants already bore the disease, so that it was as severe a test of the value of spraying as could be wished for. To make the test as drastic as possible, Solid White was chosen for treatment as being the worst affected. One complete row of Solid White was sprayed, while two-thirds of the adjoining row, consisting of exactly similar plants of the same variety from the same bed, were left unsprayed as a "control." The mixture used for spraying was home-made Bordeaux mixture, prepared as follows :—

Copper sulphate ("bluestone")	2 lbs.
Quicklime (in lumps)	2 lbs.
Water	25 gallons.

The 2 lbs. of bluestone are dissolved in 2 gallons of water (this can be done at once with hot water, or in a few hours with cold water if the bluestone is suspended in a piece of sacking). A wooden receptacle (pail or tub) must be used. The 2 lbs. of quicklime (freshly burnt—*i.e.*, in lumps) are placed in a tin or wooden pail and slaked by adding water. A few pints of water are first sprinkled over the lumps of quicklime, which causes them to crack, give off steam, and finally to crumble down. A little more water is added as soon as the slaking lime tends to get dry. In this way, after a few minutes, a thick, creamy paste is obtained. (The operation of slaking lime is hastened if hot water is used, and if the pail is covered with a sack.) Water is added to the slaked lime, thereby making "milk of lime." until there are 2 gallons in the pail. Stir and strain through a coarse strainer into a tub holding 21 gallons of water. Stir well; the tub will now contain 23 gallons of "milk of lime." Pour in the 2 gallons of bluestone solution, when a chemical action takes place at once, and Bordeaux mixture is formed. By this method 25 gallons of Bordeaux mixture of the best quality are obtained. The mixture when made should be used as soon as possible, as it deteriorates on keeping, and should never be kept longer than 48 hours. To obtain the best results only freshly-mixed Bordeaux mixture should be used. It should be applied with a nozzle throwing a very fine, "misty" spray, when it will be found that it is remarkably adherent, and remains on foliage for a month or longer. The Bordeaux mixture should be strained through a fine copper gauze strainer (as provided with most knapsack sprayers.

In our experiments the Vermorel "Eclair" knapsack sprayer was used, with the finest nozzle. The spraying rod was fitted with two adjustable nozzles (as supplied for Potato-spraying). In spraying Celery the best method is as follows : With the nozzle directed upward, spray the under-side of the leaves on each side of the row; then, with the nozzle directed downwards, spray the upper surface of the leaves. Care should be taken to see that the spray gets well into the crown of the plant. When the spray is dry a bluish deposit is seen over the sprayed parts. If the spraying is well done all the fresh growth of the plant is protected by this deposit.

The first spraying of the row of Solid White was given on June 25, by which time the plants had made a fair growth. On the older leaves of the plants a fair amount of the disease was present; the aim of spraying was to cover the fresh growth with the fungicide in order to protect it from infection. One of the effects of this spraying was to kill off rapidly the lower leaves which had been spotted with the disease. In the adjoining unsprayed "control" row similarly affected leaves died off more gradually under the continued progress of the disease.

On July 17 the dead leaves from both the sprayed and unsprayed rows were removed and burnt. On July 18 the sprayed row was given a second spraying. At this time the plants in the sprayed row showed, on the whole, a more vigorous growth in comparison with the unsprayed plants, and their leaves were of a decidedly darker and healthier green.

On August 9 the row of Solid White was given its third and final spraying. At this date the plants in the sprayed row were conspicuously

Fig. 3.—puya chilensis; showing the large bracts before the flowers expanded.

taller and more vigorous, with much darker green leaves, the difference between the sprayed and unsprayed rows being greater than on July 18.

On September 14 the difference between the sprayed and unsprayed rows was so great as to strike the eye at a distance. The sprayed plants were carefully examined, and it was found that through the fresh growth having been unsprayed, the disease was apparent in a few spots on the upper leaves, though none of the diseased leaves was in any way withered or seriously affected. This slight infestation of the fresh growth of the sprayed row after the last spraying was inevitable under the circumstances, with the adjoining and neighbouring rows of badly infested Celery.

By October 11, when the season's growth had finished, it was seen that the plants in the sprayed row were nearly double the size of the unsprayed plants. (See Fig. 4.) The tall, fine plants of the sprayed row seemed none the worse for the slight traces of disease on a few of the leaves, none of which was withered; while plants in the unsprayed rows were poor and stunted, and had many withered leaves on them.

All the plants in the unsprayed, short row, and the same number of plants from the sprayed row, were dug up, and after the removal of

the roots, were washed and weighed. The results were as follows :—

Weight of sprayed plants	672 lbs.
Weight of unsprayed plants	281 lbs.
Increase in weight of plants due to three sprayings with Bordeaux mixture	391 lbs.

The plants in the sprayed row were worth from 1s. 3d. to 1s. 6d. per dozen, and were quite up to, if not exceeding, the average for the variety. The plants in the unsprayed row would not have paid for sending to market. Through the ravages of the disease only a very small centre in each could be used, so that the plants were not of sufficient value to be worth the labour of lifting and washing. At the most, the value of the unsprayed plants was 3d. per dozen.

The actual nett profit due to the spraying can be estimated as follows : There were 274 plants in the sprayed row. These were worth from 1s. 3d. to 1s. 6d. per dozen—average,

Fig. 4.—"Solid White" celery ; the plant to the left lifted from the sprayed row, to the right from the unsprayed row.

1s. 4½d. ; while the plants in the unsprayed row were, at the most, worth 3d. per dozen, so that the increased value due to spraying was 1s. 1½d. per dozen plants. We have now to deduct the expenses of the treatment.

In spraying the 274 plants three times 50 gallons in all of Bordeaux mixture were used. The cost of this can be put at 1s. 6d. For the labour of mixing, spraying, wear of machine, etc., the sum of 3s. 6d. may be allowed, making the total cost of the treatment 5s. Thus we have :—

Increased Value of Plants due to Spraying.

23 dozen plants, at 1s. 1½d. per dozen	£1	5	10½
Less cost of spraying	0	5	0
Nett profit due to spraying ...	£1	0	10½

With such a variety as Solid White, when the plants are infested at an early stage with the disease, spraying means (after deducting expenses) an added value of 11d. per dozen plants.

All the other varieties of Celery planted out in the experimental vegetable garden at Wye College contracted the disease, the severity of infestation of the various varieties being in the following order : Solid White, worst of all ; Clark's Early Market, nearly as bad ; then Superb Pink, Giant Red and Standard Bearer ; and Celeriac least of all.

Conclusions.—(1) Although the Celery "blight" disease is generally first noticed in July or later, it is usually present on the plant much earlier, and inflicts serious damage all through the growing period of the plant. (2) Three sprayings with home-made Bordeaux mixture in June, July and August will protect Celery plants during the growing period from attacks of the Celery "blight." (3) In view of the evidence to hand, outbreaks of the disease very early in the season, even in the seed-bed, may be expected to occur. It would probably be a good plan, when the disease is noticed on the seedling plants, to dip them in Bordeaux mixture at the time of transplanting them to the trench.

It may be mentioned that the Celery is liable to be attacked by other fungous pests—e.g., Cercospora and Phoma. Further, Mr. H. Wormald has found on Celery at Wye a bacterial disease. I should be glad during the coming season to receive from gardeners, for examination, specimens of Celery suffering from any disease.

I wish to acknowledge the help of my assistant, Mr. H. Wormald, A.R.C.S., B.Sc., in carrying out the experiments and in supplying the photographs. *E. S. Salmon, Mycologist to the South-Eastern Agricultural College, Wye, Kent.*

FORESTRY.

THE SPRUCE APHIS.

In the issue of this journal, Vol. LIII., p. 279, attention was drawn to the occurrence of Aphis abietina on Spruce trees, many of which "had been killed outright in various parts of the country." On my arrival last April in Ireland I found the pest doing considerable damage at the Avondale and Dundrum Forestry Stations, especially to the Sitka Spruce, which is now being largely planted in parts of the new areas that have been acquired for afforestation by the Department of Agriculture.

So far as I know this insect has never been reported in any publication to have done serious damage to forest trees until the present year. The mild winter is supposed to be responsible for the epidemic, as the insect has been noticed at work ever since last autumn. I have made considerable enquiries, and find that the aphis is widely distributed throughout Ireland, and has been observed in both the north and south of England, but does not seem to have attracted any attention in Wales.

The aphis has not been noticed on any genus except Picea, and is very diverse in its occurrence and in the extent of the damage done to the different species of Spruce. Some species are not, or very rarely, visited by the aphis ; others are visited but suffer little from the attack ; while trees of other species become entirely defoliated and subsequently die. The varying damage on the various species is well illustrated in the Conifer collection at Kew. On the side next the lake, planted mainly with American species, P. sitchensis, P. Engelmannii, and P. pungens here suffered severely, many of the trees (including some 30 feet or more high) being entirely stripped of their leaves. Some trees of P. nigra and P. alba escape, whilst others sustain severe damage. On the other side of the path, where European and Asiatic species are planted, the damage is much less, the only trees seriously injured being certain varieties of P. excelsa, like var. Clanbrasiliana and var. gigantea.

The damage is not confined to young trees, though these are generally worse attacked than mature specimens. In a large nursery in the south of England nearly the whole of the stock of P. sitchensis, P. pungens, and P. alba has been seriously damaged or killed. I hear also that a good many young plants of the common Spruce have died in one of the northern nurseries.

The report drawn up for me by Mr. Black at Avondale illustrates the usual conditions that prevail as regards the incidence and severity of the attack. There, P. pungens, four years planted, and P. sitchensis, six years planted, are much hurt, the leaves having turned brown and subsequently fallen off nearly completely. P. excelsa, P. nigra, P. rubra, P. alba, and P. Morinda are infested with the aphis, but the trees are not defoliated to the same extent as in the Sitka Spruce. The insects are numerous on P. Engelmannii and on P. orientalis, but no defoliation has ensued in these two species. In the case of three species, viz., P. polita, P. hondoensis, and P. Omorica, aphis has not been observed. The same results practically hold good for the same species in Kew Gardens. At Kew, however, while one tree of P. Omorica near the Forestry

Fig. 5.—Sitka spruce defoliated by the spruce aphis.

Museum has not been visited by aphis, the five fine trees of this species, 30 to 35 feet high, in the collection on the side next the nursery, were infested at an early period this year, but showed no signs of damage when I inspected them on June 13.

It is remarkable how selective the aphis is. At Avondale, within a few yards of a flourishing specimen of P. Omorica, about 8 feet high, which is free from any trace of the insect, a slightly smaller tree (see fig. 5) of P. sitchensis is entirely bare of leaves and in a dying state. At Rostrevor, Sir John Ross-of-Bladensburg showed me a Sitka Spruce almost entirely defoliated, while there was no sign of attack on his specimens of P. Omorica, P. Schrenkiana, P. polita, and P. Engelmannii. In his plantations, above the aboretum, the common Spruce was slightly affected.

In certain parts of England the aphis appears to be doing little harm. In the Cambridge Botanic Garden no trace of it was observed on any of the Spruces in May. At Culford, near Bury St. Edmunds, all the species in the nursery, as well as large trees of the common Spruce in the plantations, were untouched ; but some large trees of P. sitchensis, twenty-five years old, were

attacked, according to a letter I received from Mr. Hankins, dated May 17.

For trees in a nursery or isolated specimens spraying with paraffin emulsion is recommended. Soft soap and quassia extract may also be tried. *A. Henry.*

UNUSUAL GROWTH OF ELM.

WE are indebted to Mr. T. E. Stephens, Claybury, Woodford Bridge, Essex, for the photograph reproduced in fig. 6, showing an extraordinary growth of Elm. Mr. Stephens writes as follows:—

"I enclose a photograph of a part of an old Elm tree I recently had felled. The tree had at some time been pollarded, and the section shown was cut near to the crown, which was found to be hollow. The cortex has formed on the two 'wings' inside the tree; the departure from the natural formation is apparently due to a stone which had at some time become embedded in the cortex and cambium. I had the stone whitened over to enable its position to be more easily discerned in the photograph."

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

FESTIVAL DINNER, JUNE 25, 1913.

As announced in these pages last week, the seventy-fourth annual dinner of the Gardeners' Royal Benevolent Institution took place on the 25th ult., in the Whitehall Rooms of the Hôtel Métropole. The Chairman, Mr. Leopold de Rothschild, was supported on the right hand by Mrs. Baxendale, Colonel the Right Hon. Mark Lockwood, M.P., Sir F. Flannery, Bart., the Hon. W. T. Mackenzie, High Commissioner for the Dominion of New Zealand, Sir Stuart M. Samuel, Bart., M.P., Sir E. Stern, D.L., Mrs. J. W. Campbell, and Mr. N. N. Sherwood. On his left were Sir Jeremiah Colman, Bart., and Lady Colman, Sir Walter Smythe, Bart., Mr. Leopold Salomons, J.P., and Mrs. Salomons, Sir Harry and Lady Veitch, Sir G. Pragnell and Lady Pragnell, and the Master of the Worshipful Company of Gardeners. There were upwards of two hundred guests present; the heads of the side tables were Mr. T. N. Cox, Mr. W. O. Hiehle, Mr. Jas. Hudson, Mr. W. Y. Baker, Mr. Geo. Monro, Mr. Joseph Rochford, and Mr. J. W. H. Barr.

The toast of the evening, "Continued Prosperity to the Gardeners' Royal Benevolent Institution," was proposed by the Chairman. He reminded those present that the Institution was founded in the year 1838. The Duke of Cambridge was its first President, and Queen Victoria its Patron. At the present time the King was the Patron, and Queen Mary and Queen Alexandra were Patronesses. He had been reminded by Mr. Ingram, the Secretary, that it was just twenty-five years ago that he had presided at the Festival Dinner of the Institution. Much progress had been made since that time; there were then only 134 pensioners on the books—today there were 258 gardeners and gardeners' widows, whose maintenance amounted in the aggregate to a sum of £4,500 (four thousand five hundred pounds) per annum. Only a small portion of the income of the Institution was obtained from annual subscriptions. The Committee had to look for the greater part of it to other sources, including, of course, such occasions as the Annual Festival Dinners. He was desirous of assisting the cause of those who were unfortunately compelled to seek the benefits of the Institution. In pleading for them, he was pleading for those whose work had so greatly contributed to the pleasure of those present, for those whose toil was so completely in the service of beauty and things beautiful. Most of those present were better acquainted with the circumstances than he himself, and the objects of the Institution had been eloquently described again and again. For instance, on his left hand he was pleased to see his friend, Sir Jeremiah Colman, who presided at the Festival Dinner last year, and whose appeal was so successful in raising funds for the use of the Institution. Mr. Rothschild spoke of the development which had taken place in horticulture within his own experience; of the wonderful hold which the love of flowers had taken on the people of these islands; how the flowers themselves had become more numerous, both in the larger markets and in the flower shops, and even upon the street barrows. He could remember a time when there were only two shops of this kind in Covent Garden—one at one end, and one at the other. Nowadays choice flowers were to be seen everywhere, and very few people indeed were without appreciation of them. In the olden days the chief plants at the few exhibitions which were held consisted of trained Azaleas and other plants suitable for forming into specimens; but these trained plants had now become out-of-date. Although many of the plants which used to be popular have now passed almost out of cultivation, at the same time we had more flowers, and more beautiful ones, now, than was the case formerly. Notwithstanding all the progress that was being made, he had noticed an article in the *Times* of a recent date, in which the R.H.S. was criticised, the writer stating that their Exhibitions were composed too much of well-known plants, whereas they should consist of new ones, more or less unfamiliar to the general public. All he could say was that these exhibitions delighted

FIG. 6.—ABNORMAL GROWTH OF ELM TRUNK.

and attracted him whenever it was his privilege to be able to attend them. Mr. Rothschild coupled with his toast the name of Sir Harry J. Veitch, Chairman and Treasurer of the Institution.

Sir Harry J. Veitch, in reply, thanked the Chairman for being present that evening, and said that the supporters of the Institution could not but remember that it was the second time that he had helped them in this manner. Nor could they help recalling that for sixty years the members of the Rothschild family had supported the Institution with most liberal subscriptions from year to year. Six members of that family had presided at festival dinners. Sir Harry also said that the executive were very grateful for the assistance that had been rendered them in their effort to relieve the distress of poor and aged gardeners and their widows. Notwithstanding the sacrifices made, however, and all the work that had been done, they were bound to recognise that their efforts fell far short of what is desired. For instance, at the last election there were forty-one unsuccessful candidates, in spite of the fact that all these candidates had been selected by the committee as suitable applicants for relief. Their oldest pensioner at present was ninety-nine years of age. She had succeeded her husband, who had contributed in subscriptions twenty-five guineas to the Institution. Altogether the Institution had contributed to the support of this pensioner and her husband, the sum of £428 to date. The two youngest pensioners were forty-six and forty-seven years old respectively. They were totally incapacitated, but neither had subscribed anything to the funds. They were, however, elected, as was right and proper; for this being a *benevolent* Institution, while giving a certain preference to those who have subscribed, reserved its full right to elect on occasion those who were previously unknown to it. As evidence that progress had been made, he would mention that since Mr. Rothschild presided, twenty-five years ago, at the Festival Dinner, two subsidiary funds had been founded. The Victorian Era Fund was for the assistance of candidates while awaiting election; and the Good Samaritan Fund, having for its object the relief of those who had not subscribed to the funds, also assisted those who, under this category, were awaiting their enrolment under the main fund. Sir Harry referred to certain special donations which had been received by the Institution during the past year, including the amount contributed by the Directors of the Royal International Horticultural Exhibition of 1912. He also thanked those proprietors of gardens who were in the habit of throwing open their gardens on certain occasions for the benefit of the Institution, and stated that by these and many other means those who were interested in the relief of distress were doing their utmost to increase the power of the Institution for usefulness. He reminded those present that the expenses of organisation were very few, and that the salaries and expenses of all descriptions were more than covered by investments. For this reason he could assure those who were about to contribute that their donations would go straight to the relief of the necessitous, without any deductions for management purposes. The Institution had already distributed a sum exceeding £145,000.

The next toast, "Horticulture in all its Branches," was proposed by the Hon. W. T. Mackenzie, High Commissioner for the Dominion of New Zealand, and responded to by Colonel the Right Hon. Mark Lockwood, M.P. Mr. N. N. Sherwood, V.M.H. (Trustee), then proposed the toast of "Our Chairman." He said that it was the 44th Festival Dinner he had attended, and that he could testify to the exceedingly liberal support which had always been received by this premier gardening charity from the Rothschild family in general. The list of donations included the following:—

	£	s.	d.
Mr. Leopold de Rothschild	105	0	0
Messrs. N. M. Rothschild and Son ...	105	0	0
Duke of Bedford	250	0	0
Messrs. James Veitch and Sons	105	0	0
Sir Harry J. Veitch	26	0	0
Lady Veitch	26	5	0
N. N. Sherwood, Esq., V.M.H. ...	50	0	0
William Sherwood, Esq.	50	0	0
Edward Sherwood, Esq.	50	0	0
Mrs. J. W. Campbell	35	0	0
Messrs. Sutton and Sons	100	0	0
Mr. Arthur Sutton	20	0	0
Sir Jeremiah Colman, Bart.	52	10	0
Lady Colman	5	5	0
Mr. and Mrs. Leopold Salomons ...	31	10	0
Sir Frank Crisp, Bart.	38	13	9
Anthony Waterer, Esq.	35	0	0
James Sweet, Esq., V.M.H.	30	0	0
Edward White, Esq.	21	0	0
Mrs. Edward White	5	5	0
Messrs. George Bunyard and Co., Ltd.	21	5	0
Messrs. Barr and Sons	15	15	0
Mr. James Hudson, V.M.H.	155	0	0
Mr. H. G. Alexander	75	0	0
Mr. R. W. Wallace	62	0	0
Messrs. W. Wood and Son	50	0	0
Francis Robinson, Esq.	21	0	0
Mr. R. J. Cuthbert	26	0	0
T. A. Rivers, Esq.	15	15	0
James O'Brien, Esq., V.M.H.	15	15	0
A. McKellar, Esq., V.M.H.	15	0	0
J. Roberts, Esq.	12	12	0
Joseph Rochford, Esq.	26	5	0
A. Watkins, Esq.	15	15	0
Messrs. George Monro, Ltd.	26	5	0
George Monro, Esq., Junr.	26	5	0
John Rochford, Esq.	15	15	0
John Heal, Esq., V.M.H.	9	14	0
George Harrow, Esq.	8	15	0
H. J. Clayton, Esq.	8	13	0
P. C. Veitch, Esq., J.P.	7	10	0
Bailey Wadds, Esq.	11	10	0
J. Mallender, Esq.	5	5	0
C. Bignell, Esq.	5	10	0
H. Porteous, Esq.	5	10	0
Covent Garden Tables:—			
Mr. George Monro, V.M.H.	192	0	0
Mr. W. O. Hiehle	70	0	0

The following donors each gave £10 10s.:—
W. Atkinson, Esq., J.P.; N. F. Barnes, Esq.; Charles Davis, Esq.; J. C. Geiselbrecht, Esq.; E. Hazelton,

Esq.; Master of the Worshipful Company of Gardeners; J. McKerchar, Esq.; Robert Sydenham, Esq.; David W. Thomson, Esq.; S. T. Wright, Esq.

The following donors each gave £5 5s.:—

Messrs. Anderson and Sons; Walter Cobb, Esq.; W. L. Corry, Esq.; T. N. Cox, Esq.; Donald McDonald, F.R.S.; Arthur Dye, Esq.; J. Jennings, Esq.; R. B. Leech, Esq.; J. F. McLeod, Esq.; Mrs. Geo. Monro; Messrs. Pulham and Sons; Ernest Stevens, Esq.; Arthur Stevens, Esq.; J. P. Rochford, Esq.; A. Watkins, Esq.; Mrs. A. Watkins; and *Gardeners' Chronicle.*

HOW TO FIGHT DROUGHT.

DURING a hot, dry period when the sun is at its highest altitude and drying winds are prevalent there are many plants which suffer from the consequent drought, and any means by which this risk of damage may be reduced, especially at a time when labour is in the greatest demand, are welcome. Naturally, the first impulse of the conscientious gardener is to supply the water which is lacking, but in many cases it would be better to take other means. When water is given to the ground great care should always be used to supply it in a form as nearly resembling the falling of rain as possible; by this means it is broken up into numerous small particles which have sufficient time to become warmed before reaching the roots. Moreover, when water is given in this way it has time to percolate gradually into the soil without causing a hard crust to form on the surface, and even when the greatest care is exercised it is advisable to move the surface soil as soon as it is sufficiently dry, so that the percolation tubes caused by the water passing into the ground are broken at the surface. This effectually stops evaporation, and consequently less water is needed to keep the soil in a moist condition.

On heavy soils it is seldom necessary to give any water to growing plants for the simple reason that the subsoil contains enough surplus water to carry them over any period of drought such as we experience in the United Kingdom: that is, providing the proper measures are taken to conserve the water in the sub-soil. In many hot, dry countries this conservation of water is carried on under the name of "dry farming" to an extent which is astonishing, and gives better results than irrigation, and this with the use of much less labour. The invention of many new tools for carrying out this form of culture has no doubt helped to spread this practice, but it might be adopted to a far greater extent than it is at present.

The first movement of the soil should be made with a toothed "cultivator," which makes the work far easier and more speedy of accomplishment than with a "Dutch" hoe. Care should be given, not so much to the cutting of weeds, as to the thorough breaking up of the surface; then a hoe over, and the ground will continue in a soft, friable state, easily and speedily worked, and it will act as a blanket, conserving the moisture in the soil and yet allow the air to penetrate with beneficial results.

If soil is treated in the way outlined above, the root action will be perfect if everything else is right, and all the water that will be required is a light spraying after the sun is off the plants.

As much, or even more, benefit can be derived from the considered use of a spraying machine than from root watering; there never was a time in the history of horticulture when the engineering part of spraying was so perfect, and so easily manipulated, and yet in many of our large establishments a spraying machine is seldom used for the simple spraying of water on outside subjects. We go on spraying plants which are in greenhouses, never realising the great benefit which would follow from the same operation outside, added to which is the economy both in water—which is a great consideration when it has to be carried a distance—and labour. The time when plants make the most growth is "after the turn of the day." At this time the nights become longer, and plants are subject to heavy dews, and hence are able to obtain all the water they require. Now if this happy state can be realised earlier in the year by artificial spraying, the crop will give in many cases a double yield, and fully repay the little extra work. It is wonderful to watch how quickly a plant recovers from the utter exhaustion of a sunny day, when it receives a gentle fine spray *under* the foliage. It has the same effect that a bath has on a tired man, and it should be practised, especially on heavy land, to the exclusion, or nearly so, of root watering.

Mulching of garden crops with short manure is another means by which water can be conserved in the soil, but possibly there are more reasons against this practice than appear on the surface, especially for plants growing in the open ground. It is often assumed that plants gain a considerable amount of nourishment from the manure used, but this can only be true where there is plenty of time for the plant food to become available, and even then rain or artificial watering is needed to bring the food in contact with the roots. The filthy practice of using manure for the bedding of strawberries requires no comment.

Shading is a means of helping plants to give the best results, which deserves more attention in these days of cheap material suitable for the purpose.

The writer had the pleasure a short time ago of perusing a pamphlet containing a description of an invention by one of his predecessors. This invention, for which a gold medal was awarded by the Caledonian (or Scottish) Horticultural Society, some eighty years ago, was, roughly, a shallow box fastened round trees on walls, which had an arrangement of tiffany curtains which could be drawn in front of the trees at will, for several purposes, among which was the retarding of the ripening process of Peaches. The price of tiffany was given as 5d. per yard. It can be purchased now for less than half that price, and when it is fastened to roughly made frames there are a variety of uses to which it can be put; shading is one of these. There are many tender subjects which will benefit by their use, and for Sweet Peas, which burn with the sun, they are indispensable. *T. W.*

FOREIGN CORRESPONDENCE.

CULTIVATION OF WITLOOF CHICORY IN BELGIUM.

As I live in the centre of the Belgian chicory district, I was much interested in Professor Chevalier's article on the subject of Chicory growing (see Vol. LIII., p. 405). But I fear that the average gardener, having but little land at his disposal, would be somewhat discouraged by this description of the method of growing this useful vegetable. Here it is forced by a much simpler and less expensive method, and as this method is followed by most of the growers in Evere, Haaren, Saventhem and Louvain, it may be of interest to your readers. The greater part of the cultivators here are "smallholders," working a very few acres each. I cannot find that such trenching as M. Chevalier describes is practised at all: the ground is well manured, ploughed in the late autumn, and left in a rough condition all the winter. The ploughing is usually done by a couple of cows, so it is easy to believe that the ground is not worked very deeply. The land is exceptionally good for root crops, consisting of light loam to a depth of 3 or 4 feet. I see that M. Chevalier says if the leaves are removed from the stalks the roots will suffer; but here it is necessary to do this in the summer in order to provide food for the cows, as there is hardly any grass land. The cows are stabled all the year round, and are used on the land for ploughing, carting, etc. The leaves are therefore stripped for food as soon as full grown, apparently without injuring the forcing qualities of the roots at all. Witloof is, indeed a most useful plant. The cows feed on the leaves in the summer, the heads are then forced for market, after which the roots are chopped up and used for winter fodder! When the roots are lifted in October, after the leaves are all cut off, they are laid in the ground in thick clumps. The trench which is dug for their reception is about 3 feet wide and 10 or 20 feet long. The crowns are placed just level with the surface of the ground, and as each clump is laid in it is covered with ordinary garden soil to a depth of about 1 foot. The beds are then left without any other covering until the crowns are required for forcing. This system has the advantage of allowing the beds to settle with the weather, which makes the heads firm and close. When the beds are required for forcing a pit about 2 feet square and 2 feet deep is dug at either end. In this a fire is made with bricks and mud, similar to the old-fashioned arrangement which used to be employed for heating greenhouses. A trench is then dug along each side of the bed, close to the roots, in which a stove-pipe 3 or 4 inches in diameter is laid. This communicates with the fire at one end, and rises slightly therefrom, so as to be on a level with the crowns at the opposite end. A short length of pipe is then attached to the stove-pipe to carry off the smoke, the piping thus serving both as a heating medium and a chimney. The short pipe is placed upright, not too near the manure with which the whole bed is finally covered. The manure is fresh and is spread over the whole bed, except where the fire-pits are; it is piled into a ridge 3 feet high in the centre, and rough straw mats are laid on the top to keep off heavy rains. The fire is kept burning for twelve or fourteen days, according to the weather, and the bed is then left for four or five days without fire. After this process has been repeated three times, or four in very severe weather, the chicory is found to be ready for cutting. A very small fire is found sufficient—half a pailful in each pit. If two beds are laid close together three fires are sufficient, the middle one serving to heat one end of each bed. For the purpose of placing their produce on the market the growers here have formed a kind of co-operative society, of which the local clergyman is the secretary. The Chicory is collected and sent to the large centres in consignments, the expenses of cartage, etc., and finally the returns on the transactions, being divided among the growers according to the amount they have contributed to the consignment. In this way they are able to compete with large growers. I use the same system that I have described above for forcing the Chicory in my gardens, except that my beds are much smaller—about 3 feet wide and 6 feet long. By starting a bed every fortnight I am able to keep up a constant supply all through the winter. I consider Chicory a most useful vegetable and distinctly superior to Sea-kale. *E. C., Brabant.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

NATIONAL INSURANCE ACT.—The following further decisions from the National Insurance Commissioners are of interest to gardeners:—

————446.—A man is employed as groundsman of a cricket club from March to September at a wage of £2 a week. During the winter months he contracts with the club to do all the necessary work in connection with the club grounds for a fixed sum of £5. He does the work in his own time, and no control is in practice exercised over him as to the way in which the work is to be done. The question asked is whether the man is employed under a contract of service during the winter months. [*Decision.*—That the groundsman of the —— Cricket Club, who is en-

gaged during the winter months for certain work under the conditions set out in the application, is not during these months employed under a contract of service within the meaning of the National Insurance Act, and is accordingly not liable to be insured thereunder for such period. —Question 1359.]

————224.—A graduate of a University who is engaged in research work at the School of Agriculture is employed by the authorities of a college as garden steward. Her duties are to manage the garden generally, to appoint and control the gardener and his assistants, and to present a monthly account of expenses entailed in the upkeep of the garden. Her duties occupy about twelve hours a week, and she works for twenty-nine weeks in the year, the amount of time devoted to the work being left to her discretion, provided that the work is done to the satisfaction of the College Council. [*Decision.*—That the employment of the garden steward at a college connected with a University, under the conditions set out in the application, is employment for part-time service only at a rate of remuneration exceeding the equivalent of £160 a year for whole-time service, and is accordingly not employment within the meaning of the National Insurance Act.—Question 1300.] *A. C. Hill, secretary, United Horticultural Benefit and Provident Society.*

REMINISCENCES OF THE YORKSHIRE GALAS—After an interval of thirty years I again visited this famous flower show a week or so ago. The huge "Chelsea" tent was a real acquisition—its capaciousness, airiness, and huge proportions admitted of a whole-picture effect in the general arrangement of the exhibits. Yet something remains to be done in this direction. As in all big flower fêtes, by far the greater part of the exhibits are staged by the "trade," and are honorary; and whilst this is a progressive feature from a national and commercial point of view, it is to be feared that the high-class productions of the private gardener of a few years ago are becoming correspondingly fewer, and this is a point of possible decadence. One of the outstanding features of 1883, as impressed upon my mind, were the gigantic Crotons and other foliage and flowering stove and greenhouse plants staged by Mr. Letts, of Aske Hall, the late Mr. James Cypher, of Cheltenham, Mr. Tudgey, Mr. W. Cole, of Wittington, and others. Mr. Simpson, of Selby, who with his late father exhibited at the old shows (and still continues without a break), smiled aloud at the mention of one of the finest plants ever grown of Erica ventricosa, and shown by Mr. Tudgey at York. Phænocoma prolifera and Hederoma tulipifera are names merely to the present-day gardener. These, in common with the so-called "New Holland" plants, require great skill and much patience to produce the specimens such as were seen in the old days at York. I would not dare suggest the absence of skill to-day, but it will probably be admitted that up-to-date gardening conditions have put patience to flight. But if we deplore the loss of the high culture in specimen plants, there is much compensation to be found in the newer and highly artistic grouping of smaller and well-grown plants. These marvellous groupings in our leading shows have called into practice latent artistic powers in the modern gardener previously unknown, and this to the general advantage. Another of my early impressions was the fruit—in single dishes and in collections—and such fruit! put up by such men as McIndoe, McIntyre, Elphinstone and others—the forenamed are, I think, all departed—but if I remember aright there is still among us an honoured name who figured in 1883 in the prize list, Mr. Goodacre, of Elvaston Castle. It would be interesting to turn up the back pages of the *Gardeners' Chronicle* for a report of the fruit section of York Show in that year and compare with your very studiously moderate remarks on this occasion. I, too, will emulate your reporter and refrain from characterising this year's display, but I must not be misunderstood either, for there were several very fine dishes in the somewhat meagre display. One of the fruit judges in 1883 was the late Mr. R. Gilbert, of Burghley. I can easily imagine the word "decadence" falling from his lips had he been present this year. It is a temptation to recall other prominent features and incidents which occur to the mind in connection with 1883, including the great cart-wheel-trained Show, Fancy and Zonal Pelargoniums. In this same tent in the old days were gigantic, well-flowered Fuchsias and huge multi-coloured Coleses. These are seen no more at York. Roses in 1883 were well staged, particularly on boards, but not so numerous as at present; and the mention of Roses reminds me of an incident which Mr. Avey declares to be impossible now. It was no unusual thing for exhibitors from a distance to put in the few hours "between lights" on the exhibition boards, some falling into the arms of Morpheus, others by the flickering of their penny dips (no electric light in those days) endeavouring to gain inspiration for arranging their exhibits when daylight appeared, whilst one very wide-awake individual perambulated and explored such exhibits as were to his liking, and honestly—or at least openly—appropriating such flowers from the various Rose bushes as enabled him to stage a winning stand on the morrow. York was a great show in 1883. It is a greater show in 1913. There have been many changes for better and worse. It is the same old ground—but much improved. There is the same spirit of determination apparent in the powers that be to succeed. There is the same substantial backing to the efforts of those responsible in the glorious and changeless old city; and there is the same rugged, hearty geniality in the indefatigable secretary and his committee in their generous and unanimous "Welcome to York." "*On the Walls.*"

THE PLAGUE OF CATERPILLARS IN THE DUNKELD DISTRICT.—The enormous damage done to forest trees in the above district must be seen before one can effectually realise the extent to which caterpillars can devastate the young foliage on nearly all kinds of trees. Of course, this is no new thing in the district, as visitations of more or less severity occur every year, but this season the pest seems to have reached unprecedented dimensions. For the benefit of those who have not had the pleasure of feeling the influence of the grandeur of these parts, which were made famous in *Macbeth*, a few details of the country will not be out of place. The well-wooded heights of Birnam and the mountains surrounding the River Tay at this point form a basin, which has been likened to a cauldron, in which the air has little or no chance of circulating quickly, and consequently it is oppressively hot and still—a set of circumstances which are entirely helpful to the propagation of insect pests when they are once established, and the absence of rain which we have experienced during the past few weeks has been favourable to their development. All kinds of trees, excepting Firs, seem to be subject to this devastating influence, and the Oak especially, which at Inver is defoliated, has been in its line of route during this season. Beech, Birch, Limes, Planes, Acers, and Larch have not suffered to the same extent, although Larch was subject to the most severe defoliation two years ago. This naturally leads one to enquire for a probable cause as to why one kind of tree should suffer most in one season, and another kind later. The caterpillar swings on a silken thread and is so light that the direction of the swing is in the same way as the wind. If the direction prevailed for any length of time in one quarter the caterpillars might easily move a considerable distance. If we also apply this theory in regard to the movement of the winged males and wingless female when she is seeking a suitable place to deposit her eggs, we can readily conceive sufficient movement to account for the infestation being in a new quarter, determined by the direction of the prevailing wind during the migratory periods in the life history of the pest; the kind of tree would then be determined, not by its constitution, but by outside influence. This would also account for the fact of trees in the midst of the most affected part being comparatively free when there is an open space on one side of a plantation, but open spaces in the locality are more the exception than the rule. It is much easier to state the fact and suggest the cause than it is to invent a remedy. Birds are the natural enemy of the pest, and they have had a grand time among them in the worst infested part: but possibly, like animals more intelligent, they can get a surfeit of a good "high" feed, especially when it is so easily captured. Possibly something could be done to let more air into this area so that the strong gales could help to clear the caterpillars from the trees, but anything in this way would have to materially alter the climate of this part before it would do any good. And that could only be brought about at the expense of the beauty of the landscape. The conditions at present prevailing would make a splendid object lesson to those who have charge of the afforestation scheme, and they might do worse than send a few men there to study the matter to gather and record information so that it will be available for any scheme which might be advanced. *T. W.*

YEW-WOODS AND BEECHWOODS ON THE CHALK.—Mr. Sprague (p. 364) believes that Beeches have invaded and replaced Yew-wood on chalk escarpments, but he offers no evidence that such a process is going on. His belief appears to be based on cases of the invasion of chalk scrub by Beechwood. Such cases I also have observed, though I do not find the process very general. But the conditions of chalk scrub are very different from the conditions of Yew-wood, and one cannot argue from the one case to the other. The Yew rejuvenates by seed quite successfully in many places on the chalk escarpment, and there appears no reason why naturally occurring gaps in Yew-wood should not be replaced by young Yews, rather than by young Beeches. On the other hand there is a reason, as I have pointed out, why Beechwood should not, in general, invade Yew-woods, and in the absence of evidence that such a process occurs I think we are justified in disbelieving it. Mr. Sprague believes that the invasion of the chalk escarpment by Beech took place from Beech plantations on the top of the escarpment. It is certainly true that many such plantations exist, but it is hard to believe that any of them are old enough to have given origin to the extensive invasion of the escarpment that would have to be postulated if we suppose that all the Beechwoods on the escarpment originated by invasion from above. Mr. Sprague does not definitely state that this is his view, but he implies it. It is the general belief of botanists who know the south-east of England well that the Beech is native on the chalk escarpments, and a careful consideration of the whole of the available evidence convinces me that this view is probably justified. If the "summit plantations" are antecedent to the escarpment woods whence came the Beech that was used for the plantations? That there are local cases of invasion of chalk scrub by Beech plantations above may well be true. It seems to me probable that in some cases Oak woods, in others mixed Oak and Beech woods, especially covered parts of the chalk plateau. I should be inclined to doubt the general extension of heaths on the chalk plateaus suggested by Mr. Sprague; I think the former distribution of woodland and heath on these plateaus is largely a question of the variation of soil, which is very wide. But the whole question of the relation of woodland to heath in south-eastern England presents another and also a difficult problem. I do not at present see any reason for modifying the views expressed in *Types of British Vegetation* on all these questions, except that I am now prepared to believe that the Yew-woods of the chalk may be older, at least in some cases, such as the magnificent Kingley Vale wood near Chichester, than the Beechwoods, and that when the invasion of the Beech came it failed to displace the existing Yew-woods. In conclusion, I should like to say that I do not recognise any valid method of approaching these or any other problems concerning the distribution of vegetation except that of "studying the present vegetation in a limited (not too limited!) tract of country, and endeavouring to reconstruct the original vegetation from the portions that remain." On the other hand, one must use not only the results of study of existing distribution and of the changes now going on, but also considerations based on well-ascertained conditions existing in various types of vegetation which tend to prevent, retard or encourage the replacement of one kind of vegetation by another. Of these shade is an obvious example, but there are many others, particularly soil conditions, of which we know at present very little, and which must be made the subject of careful investigation and experiment. *A. G. Tansley.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Calanthe and Phaius. — Deciduous Calanthes of the C. Veitchii and C. vestita sections are growing vigorously, and well-rooted plant need plentiful supplies of water. Very great care must be exercised in applying moisture to plants that are not yet well established or the young leaves will soon become spotted. The best-rooted plants may be afforded weak liquid manure made from cow dung at alternate waterings; the drainings from the farmyard are also suitable as a fertiliser for these Orchids. Do not use the stimulant at too great a strength at first; about one part to three parts of water will be sufficient for the first few waterings, afterwards increasing the amount to about one-half of each liquid. This will favour the development of stout, healthy pseudo-bulbs and strong flower-spikes. Generally, at this season, many young roots appear on the surface of the compost, and if a thin layer of fibrous yellow loam be placed lightly over them they will root quickly into this material with benefit to the plants. Keep the house warm with sun heat; there will be no danger from scorching if the glass immediately over the plants is lightly stippled; a denser shading is only necessary for a few hours during the hottest part of the day. With this thin shading gradually increase the amount of ventilation, especially on hot, sunny days. Under these conditions the plants will dry quickly, but if an abundance of water is afforded the treatment will greatly benefit them. Do not crowd the plants, but arrange them so that each growth obtains plenty of light and air, and grow them near to the roof-glass. Back pseudo-bulbs that were placed in Sphagnum-moss a few months ago for purposes of propagation should be examined, and those that have formed new growths re-potted. The distinct Eulophia guineensis may be treated exactly as the Calanthes as regards potting, watering and resting, but it does not, while growing, require such a light situation. The large rose-lipped flowers last a long time fresh, and the plant is a good garden subject. Such evergreen Calanthes as C. veratrifolia, C. macroloba, C. Masuca, C. japonica, C. densiflora and C. Cecilia may be re-potted if necessary, using similar compost to that advised for the deciduous kinds. When these plants are in full growth they require liberal supplies of water and occasionally weak liquid cow manure; the stimulant is especially beneficial when the flower-spikes begin to develop. Do not expose these plants to direct sunshine after the young growths have started, but place them in a shady position in the Cattleya house, but if at any time they show signs of spotting or damping remove them at once to the intermediate house.

Habenaria.—Such species as H. rhodochila and H. pusilla (militaris) are in full growth and require an abundance of water at the roots. These plants are grown in a rather shallow layer of compost, and the principal roots being on or just below the surface of the soil, the plants should be constantly examined to see if water is necessary. Grow the plants in the hottest house, and stand them on inverted pots close to the roof-glass, so that they may obtain plenty of light, but not direct sunshine. Diffused light coming through open lattice-wood blinds suits their requirements; whereas they seldom produce fine, dwarf spikes of bloom when grown in denser shade. A light spraying overhead at closing time is beneficial all through the growing season.

Catasetum, Cycnoches, Mormodes and Cyrtopodium.—The different species and varieties of these singular and interesting Orchids are growing vigorously, and all well-rooted plants need plentiful supplies of water, but specimens that are not yet well-established need watering with extra care. The flower-spikes generally appear as the pseudo-bulbs become matured. After the plants have bloomed they should be exposed gradually to full sunshine, and be watered at the roots till the new pseudo-bulbs are ripe. At that stage the leaves commence to fall, when root-waterings should be reduced. These plants grow best on the lighter side of a very warm house, and, if convenient, they should be suspended from the roof with their foliage within one foot from the glass. A temperature such as is maintained in a Pine stove, Cucumber or Melon house in summer, is suitable for Cycnoches and Mormodes. Such plants as Cyrtopodium Andersonii, C. St. Ledgerianum. and C. punctatum require a similar treatment to that recommended above. But these Orchids flower during the early spring months, the spikes appearing in conjunction with the young breaks.

Eulophiella.—E. Elizabethæ and E. Peetersiana are generally considered difficult subjects to cultivate, but with proper treatment and suitable conditions generally no trouble will be found in growing both species successfully. Both plants appear to thrive best in a moist, shady position in the hottest house. Immediately new roots grow from the young rhizomes an abundance of water must be afforded, and the plants liberally treated in every way till the growths are fully matured. The plants of E. Peetersiana at Burford are attached firmly to their original clumps of Platycerium into which the new roots have penetrated freely. A loose layer of living Sphagnum-moss has been placed around the bases of the Ferns, and into this the old roots are pushing large numbers of rootlets. The Fern and Sphagnum-moss is sprayed several times daily, so that at no time is a thorough soaking with water necessary. Plants of E. Elizabethæ grow and root well in a mixture of Osmunda-fibre and Sphagnum-moss, baskets being the more suitable receptacles. Thrips and red-spider soon infest the young growths, especially the under sides of the leaves, and constant attention is needed to keep them in check.

Pleione.—The Indian Crocuses, as these Orchids are termed, are in full growth, and if the plants are strong specimens they should be supplied plentifully with water at the roots supplemented by occasional doses of weak liquid manure, made from cow dung. This treatment should be continued until the foliage shows signs of maturity, when the use of manure water should be discontinued. When the leaves begin to fall moisture should be withheld gradually. Grow these Pleiones in a light position, suspended near to the roof-glass either in the intermediate or Cattleya house.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Spring-flowering Plants.—Transplant seedling Wallflowers, Pansies, Aubrietias, Alyssums, and Silenes in the open as soon as the plants are large enough for shifting. If the soil is very dry, it should be soaked with water, levelled, and raked to a fine tilth. During very hot weather it will be an advantage to shade the plants for a day or two after they are replanted. Polyanthuses may be pricked out first into boxes, to be transplanted in the open when they are larger. Delphinium, Anchusa, Chelone or any perennials which have been raised from seed this spring may be set out in well-prepared ground in the reserve garden. Let the soil be broken thoroughly, and, if it is of a stiff texture, mix plenty of light material with it, so that when shifting the plants in the autumn they may be lifted with plenty of soil attached to the roots.

The Wild Garden.—The same bright effects cannot be had in the wild garden during the summer and autumn months as in the spring, when the bulbs and early flowering shrubs are in their full glory, but much can be done to make this part of the pleasure grounds interesting, if not showy, during the next two or three months. The foliage of spring-flowering bulbous plants having now sufficiently ripened, it may be cut level with the grass, but care must be taken that other plants are not damaged when carrying out this work. Plants of Oriental Poppies which have finished flowering may be cut partly back. Subjects suitable for planting or plunging in the wild garden comprise not only bedding plants, but any species which have been employed in the greenhouse or conservatory. Stove plants also may be used beneath trees provided they have been somewhat hardened in preparation. Scented-leaved Pelargoniums are excellent subjects for the purpose; others include Daturas, Crinums, Aloysia (lemon-scented Verbena), Agapanthus, Abutilons and Humeas. Before putting out the plants it is advisable to give the soil a thorough soaking by means of the hosepipe.

Humea elegans.—These plants attract considerable attention when in flower, but unfortunately they cannot always be relied upon to last in good condition throughout the season. They often die suddenly when they have reached the height of their beauty without any apparent reason. For this reason they should not be made use of extensively in positions of importance. The utmost care is necessary in applying water to the roots when they have been placed in their flowering quarters, as irregularities in this matter are, in my opinion, one of the chief causes of failure. Provided they are regularly supplied with water, the plants succeed best plunged in the ground in their pots in a position that is partially shaded. If seeds are not already sown for raising plants for next season lose no time before inserting them, as the Humea requires a long season to grow into a good specimen. More than ordinary care is necessary in the treatment of the seeds of this plant. They should be sown in shallow pans in a very fine, sandy compost and covered only slightly with fine soil or sand. Place a sheet of glass over the seed-pan and cover the glass with damp moss till the seeds have germinated. Place the pan in a moderately warm pit and keep it shaded.

Pinks.—It is necessary to raise fresh stocks of Pinks each season or the clumps will become weak and straggly. This work may be done now either by layering the grass in the same manner as Carnations, or by striking cuttings. The latter method is usually adopted. The cuttings may be pulled off the old plants and, after trimming off the lower leaves, inserted in boxes of sandy soil placed in a close frame for a week or two and kept shaded. As soon as the pipings are rooted they should be inured gradually to more light and air.

Geum Mrs. Bradshaw.—Seeds of this pretty border plant should be sown to furnish plants for flowering early next spring. The seeds should be sown in boxes filled with light compost, and the soil watered with a fine-rose can. Stand the seed-boxes in a cold frame and keep them shaded until the seeds have germinated. When the seedlings are large enough for re-potting place them singly in 60-sized pots and plunge them in ashes in a cold frame, where they may remain for the winter. Another sowing may be made in the autumn to furnish plants for flowering later.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Morello Cherries.—Trees of the Morello Cherry trained against north walls should be examined carefully for the presence of black aphis, which infests the points of the new shoots. If there are bad infestations the growths most affected should be cut off and burned, and the tree syringed afterwards, first with an insecticide and later with clear water. These trees are trained very similar to the Peach. Shoots growing at right angles to the wall — known as foreright shoots, and others that are not required for fruiting, should be cut clean away, for the Morello Cherry requires a different treatment to the Sweet Cherry, which develops its fruits on spurs. A sufficient quantity of young wood should be trained in annually on Morello Cherries to furnish the fruiting wood of next season. In tying the growths take care not to cramp the soft points of the shoots, but tie them loosely and encourage a healthy, clean growth. In these gardens we get good results with Morellos as standards. When trained in this way the growths need rather closer restrictions, and, at the time when summer pruning is done, it is sometimes an advantage to cut out some of the older wood and allow young shoots to grow in its place. The shoots may be spurred in a little to encourage the development

of fruiting wood towards the central parts, much in the same way as is practised in the case of bush Apples.

Peaches.—The crop of Peaches in the open is generally a light one, and as those fruits which have set will be the more valuable in consequence, they should receive every encouragement to ripen. The trees should also be given every attention, as the next season's crop largely depends upon the growth which is made now. All lateral growths arising from strong shoots of the current year should be kept constantly removed, except when young trees are required to furnish the wall space quickly, in which case a few of the more forward breaks may be allowed to remain. Lateral growths may, however, be encouraged to develop on rank-growing trees, as these ripen better and prove more fruitful than the thick, sappy branches from which they arise. If these laterals are trained in carefully, they will add to the neat appearance of the trees. They should be tied loosely at first, or they may be pegged back with light pieces of Birch stuck between the wires or older parts of the tree. The latter system is certainly preferable at this busy season than tying done hastily and carelessly. Let the trees be watered regularly whenever they require moisture, and those with fair crops may be afforded a little stimulant, but I do not advise applying food to trees bearing few or no fruits, as this may cause them to develop rank wood and set up gumming, whilst the few fruits that have developed may split their stones. A good mulching of light stable litter may be placed on the border, as this will keep the soil moist and encourage the roots to grow near the surface.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Broccoli and Cauliflowers. — Autumn Broccoli should be planted now. Varieties intended for use before the New Year should be planted in the richest ground available, allowing a space of 2 feet between the plants each way. Make the soil firm about the roots and afford the latter a copious watering. Moisture should be afforded on frequent occasions until the plants are well established. Broccoli intended to remain over the winter for use in the spring should not be planted in very rich soil, as this would cause growth to be succulent and tender and unable to withstand the cold of winter. Let the ground be made moderately firm before the plants are put out in order to promote stocky growth. If Halloween Giant Cauliflower is planted at the present time the heads should be ready for use just before the autumn Broccoli; this is a splendid late Cauliflower and the heads are well covered with foliage, which protects them from early frosts. Water all Cauliflower plants liberally during times of dry weather and stir the soil after each application of water.

Preparing the Ground for Winter Crops.—All plots recently occupied by early crops should be cleared and prepared for plantations of Coleworts and other winter vegetables. Ground which has been occupied by early Peas and other spring crops should be planted with some vegetable which will be removed in time to prepare the soil for plantations of early Potatos or Cauliflowers. If these matters are settled before the winter crops are planted there will be less difficulty in finding sheltered positions for the early spring crops.

Onions.—Plants that were set out in April for the purpose of furnishing extra large bulbs should be plentifully supplied with moisture at the roots. Liquid manure from the farmyard may be applied freely, but take care not to use it at too great a strength. Soot is an excellent stimulant for this crop and should be applied when the atmosphere is moist. Spring-sown Onions growing in light soil must receive careful attention. In dry weather a mulching of horse droppings is beneficial, and by keeping the ground moist reduces the labour of watering.

Late Peas.—Do not wait until the plants show signs of injury from drought before applying moisture to the roots. Soft water is best, and it should be given in sufficient quantity to reach the lower roots, for culinary Peas require much moisture when they are growing freely. Place the stakes in position when the plants are a few inches high, using new sticks as far as possible, as they will best withstand the rough winds of autumn.

Lettuce.—Make weekly sowings of Lettuce in order to secure an unbroken supply. It is better to sow the seeds thinly and allow the plants to mature in the same position than to transplant the seedlings. In this way the plants will afford a succession of heads and grow better during the next few weeks, especially if the weather is dry.

Chicory.—Chicory raised from seeds sown a month ago should be ready for thinning; this is best done when the plants are very young. Allow a distance of 9 inches between the individual plants in the rows. Another sowing may be made to furnish plants for use during the spring. When the plants are well through the ground stir the soil on frequent occasions with the hoe to promote a free growth.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Chrysanthemums.—Chrysanthemums which are intended to flower in small receptacles, and which are now in 3-inch pots, should be transferred to 5-inch ones, in which they will flower. The compost for this final potting should consist of three parts rich loam and one part leaf-mould, coarse sand, and wood ash. To each barrowload of this compost, add a 9-inch potful of soot and the same measure of fine bones. After potting, the roots should be soaked with water, and, if the weather is hot and dry, the pots may be plunged in ashes. The plants should be stopped until the end of July, if the flowers are required late in the season; otherwise the stopping should be done according to circumstances. The plants must not be allowed to suffer for want of water, especially as the pots become filled with roots; and they should be liberally supplied with liquid manure and soot-water. Regular and frequent syringings will be necessary, using some effective insecticide, as a preventive of green fly and other pests.

Souvenir de la Malmaison Carnations.—Preparations should now be made for layering Carnations of the "Malmaison" type. If sufficient frames are not available it is a good plan to make an improvised frame of a few old boards and rest some fair-sized lights upon them. A border should be chosen which is not exposed to the full glare of the sun, and the soil carefully prepared of good sifted loam, leaf-mould and coarse sand in equal quantities. The plants and growths should be prepared and cleaned for layering; the foliage should not be removed too high up the growth, as nothing is gained by the production of a short layer. The cut should not be too drastic; it is much better to cut too lightly than to penetrate too deeply, and when inserting the peg care must be taken not to break the part of the stem which is left after making the cut. The layers should be kept as near to the glass as possible, well watered and shaded during the day, and syringed both night and morning. Until the layers begin to root they should be kept rather close; afterwards they may be allowed a free circulation of air, and when well established the lights may be removed altogether. They should be well soaked before potting, as this will make the lifting process much easier. When they are being potted do not knock the pots on the bench to make the soil firm, as this is apt to split the stem of the young plant, often causing total withering. Border Carnations grown in pots should be layered and treated generally in the same way as "Malmaisons," but they can also be layered outside in the open border with good results.

Statice Suworowii.—The seeds of this plant may now be sown, in a pot or pan, using finely sifted loam mixed with plenty of sand, leaf-mould and fine peat. Place the pans on a shelf in a warm house, first watering the soil well; keep the plants shaded from direct sunshine. When the seedlings are large enough to handle they should be pricked off, placing three in each 60-sized pot, and grown in a frame or on a shelf in a glasshouse. They should finally be transferred to 4-inch or 5-inch pots and placed to flower in a greenhouse. Batches of seeds should be sown at different periods, to keep up a succession of flowers.

General Work.—Chrysanthemums should be staked, to secure the growths from damage by wind and rain. Standard Heliotropes should be ready for their final potting, and Browallia seedlings for stopping and potting for autumn flowering. Examine Tree-carnations for the presence of green fly, which may attack the plants at this stage. Re-pot Clerodendron fallax, Plumbago rosea, and plants of late batches of Begonia Gloire de Lorraine. As Hydrangeas pass out of flower the dead trusses should be removed and the plants placed out-of-doors to ripen. As the foliage dries up cut it off, and store the plants closely together until the flower-spikes appear.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Pineapples.—At this season many fruits may ripen together. This is a disadvantage, and measures should be taken to retard some of the plants, selecting those with fruits just about to colour. These plants should be taken to a more airy house, where the conditions are cooler, and allowed less moisture at the roots and no stimulants. Specimens with the fruits swelling must be watered with especial care. At each application a small quantity of guano may be added to the water. The weather may now be expected to be sufficiently warm to enable most of the fire heat to be dispensed with in the pits. It will be advisable to make the most of the sun's heat by closing the houses at 4 p.m., allowing the temperature to rise as high as 90° or 100°. At the same time the plants may be sprayed lightly, and the paths and bare surfaces damped freely in order to provide plenty of atmospheric moisture. Should the weather turn dull, wet, and cold, it will be necessary to keep the temperature up by means of the hot-water system. Ventilate the pits early in the morning on all bright days, and admit sufficient air, as nothing is more detrimental to Pines in all their stages than a close atmosphere, which causes the growth to become drawn. Plants of the smooth-leaved Cayenne and Charlotte Rothschild varieties which have been resting during May and June, with a view to furnishing ripe fruits during the winter, may now be started into growth by increasing the temperature and providing more moisture. Both these are strong-growing varieties, and care must be taken that the plants do not become dry at the roots; whilst drought is harmful, guard against an excess of moisture, as the result of syringing too freely Plants of the Queen variety, from which the pines have been cut, with suckers required for purposes of propagation, should receive every encouragement to make strong growth. Attend to such details as syringing and watering, with extra care, for it is important to have the suckers fairly well rooted in 6 inch pots before the winter arrives.

Successional Pines.—Plants intended for fruiting next season are growing rapidly and filling their pots with roots; they will therefore need great care in watering, as the soil may become dry quickly. At the same time, moisture must not be applied to the roots unless it is required, and then it should be given copiously. Applications of soot water and weak guano water may be given with benefit. During times of warm weather, when bright sunshine prevails, attend to the ventilation of the house early in the day, increasing the amount of fresh air up to noon, as this treatment will keep the plants robust. Close the house at 5 p.m. on the afternoons of fine days, and allow the temperature to rise as high as 90° to 95°. At the same time spray the leaves very lightly, but prevent any water accumulating in the axils of the foliage. During fine, summer weather, there should be no difficulty in maintaining a minimum night temperature of 70° without the use of much fire heat. If however, the conditions are not favourable, the hot-water system must be utilised to provide a minimum warmth of 70°. In the culture of successional Pines the grower should guard against the plants becoming prematurely pot-bound, and also against the growth being soft and immature.

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Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

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APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JULY 8—
Wolverhampton Floral Fête (3 days). Baltic Rose and Sweet Pea Sh. at the Merchants' Hall, London. Roy. Scottish Arbor. Soc. Exh. and general meet. at Paisley (4 days). Cork Fl. Sh. (2 days).

WEDNESDAY, JULY 9—
Dover Fl. Sh. Elstree Fl. Sh. Saltaire Fl. Sh. West Surrey Fl. Sh. at Camberley Park.

THURSDAY, JULY 10—
Potter's Bar Fl. Sh. Weybridge Fl. Sh. Women's Agric. and Hort. Soc. Sh. at Botanic Gardens, Regent's Park.

FRIDAY, JULY 11—
Manchester Fl. Sh. (2 days).

SATURDAY, JULY 12—
Nat. Amateur Gard. Assoc. Sh. Congleton Rose Sh. Edgware and Little Stanmore Fl. Sh. Co-partnership Festival at Hampstead Garden Suburb.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—62.4.

ACTUAL TEMPERATURES :—
LONDON.—*Wednesday, July* 2 (6 p.m.); Max. 70°, Min. 53°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Thursday, July* 3, (10 a.m.); Bar. 29.7; Temp. 61.
Weather—Overcast.
PROVINCES.—*Wednesday, July* 2, Max. 64°, Aberdeen, Min. 56°, Paisley.

SALES FOR THE ENSUING WEEK.

THURSDAY NEXT—
Special sale of Orchids at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

The Food of Wild Birds.

Mr. Collinge has done good service to horticulturists in bringing together in this volume the results of his laborious investigations into the nature of the food of our British birds. The importance of such investigations is manifest. No one desires the indiscriminate destruction of bird life, and no one would wish our own countryside reduced to the dismal state of that of some parts of Europe where wild birds are not, and where a dozen guns are levelled at any small feathered interloper misguided enough to stray thereto. We are all aware that the small birds are some the friends and some the foes of the garden. We know that some do much harm to the fruit and buds and seedlings, and some seem to revel in destruction from pure devilment—choosing a quiet Sunday for uprooting and laying out rows of seedlings—yet even many of the worst offenders have the grace to mix good with evil, and to clear our fields and gardens of many of the insect pests which infest them.

Further, as Mr. Collinge has shown, in not a few cases a bird may be an insectivorous friend at one period of its life and a fruit-eating nuisance at another. For these specific reasons, therefore, as well as for the fact that the collection of knowledge is good for man, the task which Mr. Collinge has undertaken is to be commended. In illustration of the difference between adult and nesting birds Mr. Collinge describes the daily food ration of the young house wren. Judd observed in the case of this bird that the young were fed 67 times in the course of three hours. The author refers also to Newstead's similar observations on the starling. This bird was seen to make 169 journeys to the nest during some 17 hours. The importance of this greediness on the part of young birds is considerable, for if, as appears to be the case, a young bird consumes during the first few days of its life a weight of food in excess of its own weight, and if, as appears probable, the food consists in most cases of insects, worms and slugs, much must be forgiven the adults for the sake of the annual "weeding" which they perform on behalf of their young.

Into the detailed feeding habits of the various birds which are described in the present volume we cannot go now, but anyone who will study for himself the account given by Mr. Collinge will endorse Mr. Theobald's aphorism that "the economic value of birds must be considered from all points of view in a very broad spirit."

Following on the account of the feeding habits are chapters devoted to the subjects of birds as destroyers and distributors of weed seeds, birds in relation to forestry—in which latter connection our readers will recall Professor Hickson's valuable description in these pages of the use of birds in destroying the large Larch Saw Fly in the plantations of the Manchester Corporation's waterworks at Thirlmere.

Of the 29 species of birds examined by Mr. Collinge, 5 are regarded by him as being distinctly injurious—the house sparrow, bullfinch, sparrow-hawk, wood pigeon, and stock dove—6 are too plentiful, and consequently injurious—missel-thrush, blackbird, greenfinch, chaffinch, starling, and rook: the blackcap is injurious, but not plentiful, the jay is neutral, and the remaining 16—song thrush, white throat, great tit, blue tit, wren, goldfinch, linnet, yellow bunting, magpie, skylark, barn owl, brown owl, plover, etc.—are beneficial, and most of them merit protection, especially the owls, the wren, and the plover.

There is ample room for further investigation into this interesting subject, and it is to be hoped that people of leisure who have the opportunity will assist Mr. Collinge and contribute to the welfare of horticulturists and agriculturists by making observations on the food and feeding habits of birds.

* *The Food of Some British Wild Birds.* By Walter E. Collinge, M.Sc. (Dulau and Co., Ltd. London, 1913.)

The Crystal Palace.

Gardeners have a special interest in the effort now being made by the *Times* to preserve the "great conservatory"—the Crystal Palace—from destruction. Not only are the grounds which surround the Palace of considerable extent and of great beauty, but the Palace itself owes its existence to the hardy genius of a great gardener—Sir Joseph Paxton. When the critics heard of Paxton's proposals to erect a building of glass and iron for the 1851 exhibition they predicted woeful things, and it required firmness and diplomacy on the part of the Prince Consort to prevail over the prophets of evil. The building itself cannot be called beautiful; but it is a remarkable *tour de force*, a notable landmark and memorial. Mean buildings have crept past it, stretching away into the country, and it would be a great disaster if the grounds were to be sold for building purposes. This disaster will doubtless be averted by the public-spirited action of the *Times*. In doing what we can towards this end we as horticulturists are actuated by motives which, though mixed, are all of equal cogency. In common with the general public we desire the site to be reserved, and in helping to secure that end we pay a tribute to the memory of Sir Joseph Paxton, whose greatness as a gardener deserves commemoration. In the latter connection it may be mentioned that it was Paxton who, next to Lindley, played the most conspicuous part in founding this journal, and in making it the medium for both practical and scientific horticulture. Not only was Paxton one of our founders, but he established the custom which his successors have maintained of dealing evenly with the many sides of horticulture. He began and wrote regularly for many years the articles on the Week's Work of the garden, and by establishing this custom, which has been adopted by many of our contemporaries, Paxton made a notable and lasting contribution to the popularisation of horticulture. If all the men who as boys have seen from the Surrey hills the sunlight flashing on the Crystal Palace will but subscribe according to their means there is no doubt but that that sunny beacon and all which it symbolises will be preserved from its impending and ignoble fate.

Coloured Supplement.—Of the numerous fine greenhouse Rhododendrons of the R. javanico-jasmiflorum section, raised by Messrs. JAS. VEITCH AND SONS, Clorinda (see Supplementary Illustration) represents one of the latest and most charming varieties. The inflorescence and individual flowers are exceedingly attractive, and larger than most others in this class. R. jasmiflorum was introduced by THOMAS LOBB,

Messrs. Veitch and Sons' collector in the East. He also sent home R. javanicum, but this was introduced at the same time by Messrs. Rollisson, and it is difficult to say by whom it was first discovered. The first two hybrids, Princess Royal and Princess Alexandra, were raised at Exeter by Sir Harry Veitch's grandfather, who died in 1863, so that the family of Veitch has been working with these plants for more than fifty years. The colours in the hybrids range through many shades, including white, rose, yellow, orange and red. Moreover, the habit of most of the varieties is so dwarf that the plants make excellent subjects for the stage of a greenhouse, or the warm conservatory, whilst a collection is capable of affording flowers in every week of the year. They grow best in a temperature of about 60 deg., and a moist atmosphere. The variety Clorinda received an Award of Merit from the Royal Horticultural Society on July 30, 1912.

Testimonial to Messrs. Adnitt and Naunton.—Messrs. N. F. Barnes and W. G. Brazier, the hon. secretaries for the testimonial which is being raised to Messrs. Adnitt and Naunton in recognition of the services they have rendered as hon. secretaries of the Shropshire Horticultural Society for a period of 38 years, inform us that it is proposed to close the list of subscribers on the 5th inst. Up to the present upwards of 200 subscriptions have been received. Any of our readers who still desire to take a part should send their subscriptions to the secretary of the Shropshire Horticultural Society, The Square, Shrewsbury.

R.H.S. Daffodil Show, 1914.—The President and Council of the Royal Horticultural Society have arranged to hold next year's Daffodil Show on Tuesday and Wednesday, April 21 and 22. The secretary informs us that the schedule of the show will be ready for issue in a few weeks' time.

Kearsney Court.—In respect to the note on Kearsney Court, which appeared in Vol. LIII., p. 438, Messrs. Clark, Ltd., Dover, inform us that, whilst the designing of the grounds was the work of Messrs. Mawson Bros., the actual work was carried out by themselves. Messrs. James Gray, Ltd., Chelsea, state that they erected the glasshouses to which reference was made. It must be understood that in describing the features of a garden we do not necessarily set out to enumerate the firms who may have been employed there at one time, and who have therefore contributed towards the effects obtained, but at the request of our correspondents we have pleasure in publishing the particulars given above.

Flowers in Season.—Mr. G. B. Blackwell, Woodgreen Park Estate, Cheshunt, has kindly forwarded two large boxes of Dianthus barbatus (Sweet Williams), representing an excellent strain of these old-fashioned border flowers. We have received a box of beautiful Pæonies from Messrs. Kelway and Son, the varieties including Miss Ada Chamberlain, rose coloured, single; Conference, red; Lady Carrington, blush-pink; A. J. Hunter, pink; and Sophia Millar, the cream centre set off by large pink petals.

Nigerian Chiefs at a Nursery.—On Tuesday, the 24th ult., the Southern Nigerian chiefs who are at present visiting England went over Messrs. Sutton and Sons' nursery at Reading. They were hospitably received by members of the firm, and were shown over the premises and trial grounds, their tour of inspection occupying several hours. They were entertained to luncheon at the Abbey Hall, after which they drove to the trial grounds on the London road. Many of the chiefs wore their native costumes.

Violas at Wisley.—After the Floral Committee of the Royal Horticultural Society had inspected and reported on a large trial of Violas grown at Wisley in 1912 it was suggested in these columns that the plants might be allowed to remain undisturbed during the winter with a view to determining those varieties which would best stand such a test. In our present issue will be found a list of varieties commended by the Floral Committee for hardiness—i.e., varieties which have stood the test of living through two seasons and are still in good condition. In many instances not a single plant died. Apart from the question of hardiness, it is most interesting to observe the behaviour of the different varieties. All which were commended were in good condition, the plants being in excellent health, with abundance of bloom, but in regard to the height to which they had grown there was great variation. The indispensable Maggie Mott, pale blue, Virgin White, a most floriferous white, and Kitty Bell, small flowered, pale heliotrope in colour, had each reached a stature of 15 to 16 inches. Varieties which had risen to a height of 12 inches were numerous, and included Walter Welch, deep yellow; Archibald Grant, indigo purple; W. Robb, a light shade of violet; Primrose, sulphur-yellow; Arabella, plum-violet; and Kingcup, a fine rayless yellow variety. Among dwarfer varieties—those which had not grown more than about 9 inches in height to the top of their flowers—were Pencaitland, white, with a yellow eye; Grievei, pale yellow; Molly Pope, early yellow; Bullion, early rich yellow; and Palmer's White, a new white variety, which received an Award of Merit last year. It would be useful if the Royal Horticultural Society prepared a tabulated list of all the Violas on trial, classifying them according to their heights and colours, as was done at the Viola Conference at Regent's Park in 1896. Such a list published in the Society's *Journal* would be valuable to all interested in spring and early summer bedding. Great interest has been taken in the Viola trials by the majority of those visiting the Wisley gardens. It will be seen from the list of Awards on p. 18 that the veteran, Mr. Grieve of Messrs. James Grieve and Sons, Edinburgh, has raised a large number of the varieties that received awards. After fifty years' work amongst these beautiful flowers this success is a fitting reward for his labours.

Gardeners' Benevolent Institution.—During the past year the Berkshire, Reading and District Auxiliary of the Gardeners' Royal Benevolent Institution has contributed a sum of £119, the largest amount forwarded (with one exception, 1911) since the formation of the Auxiliary, making a total of £1,264 16s. 6d. contributed to the Institution.

The Fruit Crops on the Continent.—According to the Board of Agriculture and Fisheries the fruit prospects in Germany are most unfavourable. Cold weather, with frosts and snow, which set in about the middle of April, did great damage to almost every kind of fruit, and in all quarters much damage was done to what had promised to be an exceptionally plentiful crop. Baden, Wurtemburg, Hesse and Saxony appear to have suffered most. Red, white and black Currants promise small to medium crops, and Gooseberries and Strawberries a medium crop; most of the Raspberry blossom stems were frozen, but it is hoped that fresh shoots may yet make the crop a medium one. Large Cherries may be a good crop, but it is feared that the cold days at the beginning of May did further damage; in many districts sweet Cherries have been for the most part destroyed, whilst sour Cherries are expected to have suffered more than the larger kinds. Peaches and Apricots suffered most severely, and failure of these crops is reported. Apples and Pears were not much damaged and good crops are expected. Early Zwetschen Plums promise a scanty crop, but a slightly better crop of later kinds is hoped for. Mirabelles are expected to be a good crop on the whole; in the interior of Lorraine they are promising well, but in the left Moselle valley the crops have been frosted. With respect to France, the cold, windy weather in early spring was most prejudicial to fruit trees such as Plum, Peach and Apricot at Côtes-du-Nord, so that these crops are failures. There is promise of a plentiful crop of Gooseberries, and a very good crop of Strawberries. With favourable weather a full crop of Apples may be expected. In the Morbihan district the crop of Pears will be slightly under average and less abundant than last year. An abundant crop of cider Apples is expected. There will be a poor crop of Cherries, very small crops of Peaches and Strawberries, and the crop of Plums will be practically of no value. With the exception of Apples, the crops will be so small that it will be impossible for growers to export their products. In Loire-Inférieure good crops of Pears are expected. In Maine-et-Loire, Mayenne and Sarthe black Currants are more abundant than in 1912, but the crop is variable. A small crop of some varieties of Cherries may be obtained, but on the whole the crop is a failure. Very small crops of Plums will be obtained, whilst Pears will be below average, especially dessert varieties. There will be a very small crop of nuts. Abundant crops of Strawberries and good crops of Apples are looked for. The Apple crop at Ille-et-Vilaine is good, and there is a fair crop of Pears. Black and red Currants are full crops. Appearances are not very favourable for fruit in the Department of Calvados. Stone fruit suffered much from the frosts during the flowering period. Dessert Apples and Pears promise a medium to small yield, according to localities. In the Honfleur district there are good prospects for Williams Bon Chrétien Pears, but only a quarter of a crop is expected of the Duchesse variety, and two-thirds of a crop of winter varieties. Plums are a failure, and Cherries are unsatisfactory in general. Currants and Gooseberries seem likely to yield only half crops. With regard to Holland, the prospects for the Apple crops in Groningen, near Leeuwarden and Drachten are reported to be fairly good. Fair crops of Pears are expected in Groningen, Friesland, Overyssel and Guelderland north of the Rhine. In the Tielerwaard and round Utrecht the early Cherries are good, whilst late Cherries are fair in the Tielerwaard, Bommelerwaard and Betuwe, and fairly good round Utrecht. Prospects for Damsons are fair in the south-western part of the Province of Utrecht, in other parts of the country they are very bad. The condition of Plums is good in Upper Betuwe and Groningen; fair in Overyssel, Guelderland north of the Rhine, around Utrecht and Lower Betuwe; rather bad in the Tielerwaard, and bad in the Bommelerwaard. Peaches grown under glass in Overyssel and in Guelderland north of the Rhine are reported to be fair. Fair crops of red and white Currants are expected. Gooseberries are moderately good in the Beemster, Lower Betuwe and the Vecht district, and fair in Upper Betuwe, Tielerwaard and Utrecht. Raspberries are reported to be fairly good near Utrecht, in the Tielerwaard and near Leeuwarden, and fair in the Lower Betuwe and near Groningen. There are good prospects for Walnuts in the Lower Betuwe, and fair prospects in the Tielerwaard and near Utrecht. From Belgium there are reports of poor Plum crops. Pears are altogether unsuccessful, and Apples were considerably damaged by hail. In the Ghent district bad crops of all varieties of Plums are expected, fair crops of Gooseberries, Cherries, Currants and late varieties of Apples, and bad crops of early varieties of Apples and Pears. In the Liége district the snow falls in April had no bad effect upon the fruit, and crops are expected to be as good as in the previous season.

R.H.S. Assistant Superintendent.—The Council of the Royal Horticultural Society has appointed Mr. Blakey, a foreman in the Society's gardens at Wisley, to be Assistant Superintendent.

ROYAL HORTICULTURAL SOCIETY

Summer Exhibition at Holland House.

July 1, 2 and 3.—Many of the recent shows at Holland House, Kensington, the beautiful and historic residence of Mary Countess of Ilchester, have been marred by unfavourable weather, but on this occasion the climatic conditions in London on Tuesday and Wednesday were perfect. This had the effect of making the attendance on the first day the largest on record, and notwithstanding the increase in the number of Fellows, the receipts at the gate also constituted a record for these shows. In some respects the exhibition differed from those that have preceded it, the most notable change being in the open, where large rock and water gardens were arranged, also exhibits of arbours, glasshouses, summerhouses, tents, seats, and other garden buildings and furniture. Of the more prominent floral exhibits in the tents we may mention Roses, Orchids, Sweet Peas, Carnations, Irises, Phloxes and Delphiniums, and other hardy flowers. The exhibition was equal to the best held at Holland House, and the Society's officials are to be congratulated on the splendid results of their efforts. The premier Award, the Coronation Cup, was given to Messrs. Sander and Sons, for their fine group of Orchids. No fewer than fourteen Gold Medals were awarded by the Council.

The Committees sat on the morning of the first day; the Floral Committee recommended two First Class Certificates and twelve Awards of Merit to new plants, and the Orchid Committee three First Class Certificates and four Awards of Merit, but the Fruit and Vegetable Committee made no award to a novelty. As usual the members of the Committees and the judges met at luncheon, at which the new president, Field-Marshal the Rt. Hon. the Lord Grenfell, presided. In proposing the toast of the judges Lord Grenfell referred to the number of committees now working for the advancement of the Society's aims, pointing to the fact that several new committees had been appointed during the past year including one to deal with the question of a National Diploma in Horticulture, and a Parliamentary Committee which would watch the interests of horticulture in the matter of fresh legislation. The permanent committees and the judges who acted on such occasions as the Holland House shows gave their services ungrudgingly to the Society entirely from the love for horticulture which all of them possessed. In the name of the Society he thanked them. Mr. Charles E. Pearson responded.

Orchid Committee.

Present: Sir Harry J. Veitch (in the chair), and Messrs. Jas. O'Brien (hon. sec.), De B. Crawshay, W. Bolton, Gurney Wilson, A. Dye, Sidney W. Flory, R. G. Thwaites, W. H. White, W. P. Bound, Walter Cobb, A. McBean, Stuart Low, J. Wilson Potter, W. H. Hatcher, H. G. Alexander, J. E. Shill, H. J. Chapman, R. Brooman White, R. A. Rolfe, W. Waters Butler, G. F. Moore, F. Sander, J. Charlesworth, C. J. Lucas, J. S. Moss, A. A. Peeters, and Sir Jeremiah Colman, Bart.

The Orchids occupied the greater part of the central staging in the spacious No. 6 tent, the number of groups being less than in some of the former shows on account of the exhibition at Bristol at which Sir George L. Holford, K.C.V.O., Messrs. Armstrong and Brown, and other exhibitors were arranging groups of Orchids. The quality of the exhibits was good throughout, and all the groups excellently well arranged.

On one side Sir Jeremiah Colman, Bt., V.M.H., Gatton Park, Reigate (gr. Mr. Collier), commenced with a very effective and interesting group, in which the orange and red sprays of Epidendrum Boundii, raised at Gatton, appeared at the back, the central elevation being of white Phalænopsis Rimestadiana overhanging and mingling with sprays of Lælio-Cattleya Hippolyta Phœbe with yellow, ruby-lipped blooms. Some bright scarlet Odontiodas, with well-flowered Miltonia vexillaria; some pretty hybrid Odontoglossums, including the Gatton hybrid O. Lady Roxborough, with four spikes of its pretty white, purple-spotted flowers showing up well beside the scarlet Renanthera Imschootiana; a good display of Lælio-Cattleya Canhamiana, and other large-flowered hybrids; two forms of the beautiful Sobralia Colmaniæ, one with clear yellow flowers, and the other with pale pink blooms, and many other showy kinds, were noted, and among the curious and rare Catasetum Cliftonii, Epidendrum prismatocarpum with five spikes, Bulbophyllum tremulum and B. barbigerum, several pretty Pleurothallis brightly coloured Masdevallias and Eria pannea.

Messrs. Sander and Sons, St. Albans, continued with a magnificent group, the centre of which was of the large white Moth Orchid Phalænopsis Rimestadiana, about forty large sprays of which were gracefully drooping over the fronting of Miltonia vexillaria of varying shades of pink, and M. Bleuana. The end elevations were of fine specimens of Cattleya Warscewiczii Sanderiana, of the true type originally introduced by Messrs. Sander, and which is the most beautiful and floriferous form of this favourite plant. The plants bore a profusion of magenta rose flowers of varying shades with rich ruby-crimson lips. At each side of the central elevation a fine display of good varieties of Cattleya Mossiæ, including white forms, and the phenomenally large and beautifully coloured C. Mossiæ Dreadnought, with a very broad and richly-coloured lip, and a selection of hybrid Odontoglossums were arranged. Again, in this group, Messrs. Sander showed the decorative value of their Miltonia Warscewiczii crosses. The varying and prettily-marked flowers are very effective and seem to be available at all seasons. Most of the forms were shown, including Odontonia St. Alban and O. Lælia Sander, both of which had secured Awards of Merit. The novelty at the present show was Odontonia Magali Sander (M. Warscewiczii × O. ardentissimum), with blush-white lip effectively marked with reddish rose, the sepals and petals purplish red. The gem of the group was Miltonia Sanderæ (St. Andre × vexillaria Memoria G. D. Owen), whose flowers follow closely the famous Memoria G. D. Owen, but are white flushed with pink and the mask at the base of the lip almost black. Miltonioda Cooperi (M. Warscewiczii × C. Noezliana) is a remarkable cross with slender branched spikes of brick-red flowers with lighter tip to the labellum, and a number of other undeveloped crosses of interest were included. Among others noted were Cirrhopetalum graveolens with a fine spike, Ornithocephalus grandiflorus, Nanodes Medusæ, a very interesting selection of species of Masdevallia, and several probably new species of botanical interest received from their collector Micholitz.

Messrs. Charlesworth and Co., Haywards Heath, on the other side of the central stage, arranged a very fine group, the elevated portions being of handsome Lælio-Cattleyas, hybrid Odontoglossums, scarlet Odontiodas, and other popular Orchids, all excellently well grown. The group contained several very fine novelties, the most attractive of which were the new Odontioda Brewii (O. Charlesworthii × O. Harryanum), the large flower of a deep bronzy-red with yellow freckling on the broad lip; O. Wilsonii the President (C. Vulcanica × O. Pescatorei), a neat and pretty flower, white spotted with purple; Odontoglossum President Poincaré, and O. percultum Olympia, two massive flowers finely coloured; the already certificated Miltonia Charlesworthii with its rose-pink flowers with ruby-crimson mask; and the very beautiful Lælio-Cattleya Gottoiana the President, and Grammangis Ellisii from Madagascar were well shown, one specimen having two spikes from one bulb bearing sixty-four flowers. The scarlet Odontiodas Chanticleer, Lambeauanum, and the prettily marked Vuylstekeæ arranged with the numerous hybrid Odontoglossums, with the sides arranged with white Phalænopsis Rimestadiana drooped over scarlet and purple Masdevallias, and were fronted by a selection of Miltonias, M. vexillaria La Niege being a fine pure white. Good forms of Lælio-Cattleya Canhamiana, L.-C. Ulysses, L.-C. Aphrodite; fine Cattleya Mossiæ, including Reineckiana and The Bride, Cattleya Mendelii Queen of Spain and C. M. leucochila, two very good forms, Oncidioda Charlesworthii, Aëranthes grandiflorus with many slender sprays of cream-white flowers; Cymbidium tigrinum, Oncidium Claesii, and many other rare specimens were noted.

Messrs. Mansell and Hatcher, Rawdon, Leeds, staged one of the largest and most effectively arranged groups, in which the white Phalænopsis Rimestadiana drooped over scarlet Renanthera Imschootiana and Odontiodas, Miltonia vexillaria extending along the front and at points of vantage in the group. Lælio-Cattleya Canhamiana, L.-C. Aphrodite, and others were shown in good form, and among hybrid Cattleyas C. Serenata (see awards) was noteworthy. Cattleya Mossiæ, C. Mendelii, and C. Warscewiczii were well shown. Odontoglossum crispum and hybrids, and many interesting species were exhibited, including Bulbophyllum Binnendijkii, Brassia caudata, Disa grandiflora and Trichopilia Backhousiana.

Mr. Sidney Flory, Tracey's Nursery, Twickenham, staged an attractive group, a telling feature in which were some good pans of beautiful leaved Anœctochilus, which were in fine health, and included A. regalis, A. Turneri, A. setaceus, A. intermedius, and A. Petola. Cattleya Mossiæ, including white forms and a singular variegated or bizarre variety were shown; good C. Mendelii, one variety being specially distinct; C. Warneri alba, a very remarkable form of Lælia purpurata, with richly-coloured lip and petals; good Lælio-Cattleyas, the finest being L.-C. Bletchleyensis King George, a pretty Odontoglossum hybrid, and various good Odontoglossums, including O. ardentissimum xanthotes.

Mr. Harry Dixon, Spencer Park Nursery, Wandsworth Common, staged a group of Odontoglossums, Cattleyas, Cypripediums, and various hybrids, including pretty Odontoglossums and Odontiodas. At the back the old yellow Oncidium flexuiosum and other Oncidiums were arranged.

Messrs. Stuart Low and Co. completed the side with an extensive group, well set up, in which Dendrobium Dalhousianum and other Dendrobiums showed up well beside Phalænopsis Rimestadiana, and bright red Renanthera Imschootiana. Among the many good things staged, Cattleya Dupreana Gorgeous was a superb flower, of perfect shape, and with a broad and finely expanded lip of ruby-claret colour. Lælio-Cattleya Aphrodite Crowborough variety, large and of fine colour; Cattleya Mendelii Crowborough variety, a charming white-petalled form with pink-tinted margins and deep purple front to the lip; Cirrhopetalum graveolens, Bulbophyllum saltatorium, Stanhopea tigrina, and other showy species were also noted.

Messrs. Jas. Veitch and Sons, Royal Exotic Nursery, King's Road, Chelsea, staged a good group, in which fine forms of their hybrids Lælio-Cattleya Canhamiana, L.-C. Aphrodite, and some secondary hybrids of L.-C. Dominiana were remarked. Also a selection of their pretty Disa Luna, hybrid Odontoglossums, including Solon, Jasper, ardentissimum and illustrissimum, were well displayed.

Mr. E. V. Low, Vale Bridge, Haywards Heath, staged a selection of rare Orchids, including several albino Cattleyas, the novelty being C. Mendelii Lambeauana, a pure white flower with

bluish-pink front to the lip. Good examples of Cypripedium Rossettii Westonbirt variety, C. callosum Sanderæ, C. Lawrenceanum Hyeanum, Odontioda Vuylstekeæ, Bulbophyllum Lobbii Colossus, B. barbigerum, and other pretty Orchids were also included.

Thirty-five subjects were entered for certificate.

M. Jules Hye de Crom, Ghent (gr. Mr. Coen), sent three beautiful Miltonias — M. Hyeana gracilis, a charming white flower, with distinct rose flush on the lip and petals; M. Hyeana ardentissima, a large milk-white flower with dark mask on the lip; and M. vexillaria gigas, a gigantic bright-rose flower.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed Odontoglossum Boadicea (triumphans Lionel Crawshay × ardentissimum), a grand flower, with broad petals, resembling O. triumphans Lionel Crawshay; and O. Vesta (bellatulum × percultum).

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed two fine forms of the deep rose-red Odontioda Lambeauana, Fowler's variety, and the very beautiful cerise-rose Miltonioda Harwoodii, Fowler's variety. (See awards.).

W. Waters Butler, Esq., Southfield, Edgbaston, sent Cattleya Warscewiczii J. Charlesworth, a very large and finely coloured form: and C. lymene, Southfield variety, a pretty cross of C. Rex.

Mr. W. A. Manda, St. Albans, sent Cattleya Warscewiczii Mandaiana, of a peculiar salmon shade of colour, and two forms of C. Mendelii.

AWARDS.

First Class Certificate.

Miltonioda Harwoodii, Fowler's variety (*M. vexillaria* × *C. Noezliana*) from J. Gurney Fowler, Esq., a charming flower, far superior to the variety which had previously had an award of merit. Flower bright cerise-rose with yellow crest to the lip.

Miltonia Sanderae (*St. Andre* × *M. vexillaria Memoria G. D. Owen*), from Messrs. Sander and Sons, St. Albans. Certainly one of the most beautiful of modern hybrid Miltonias, and probably because the key of the cross depends on the unique form of M. Bleuana, Sander's variety, bought from M. Bleu in a very small plant of a superb variety, as it proved on flowering. The flowers of the new hybrid are clear white with a charming flush of rose-pink, the mask on the lip with its radiating lines in front being nearly black—the darkest of any known hybrid Miltonia.

Odontioda Brewii (*Charlesworthii* × *Odontoglossum Harryanum*), from Messrs. Charlesworth and Co., Haywards Heath. The famous O. Charlesworthii (O. Harryanum × C. Noezliana) with which Messrs. Charlesworth and Co. took the Orchid world with surprise, and which in its best forms still takes front rauk, in point of colour is excelled by this handsome secoudary hybrid which is larger in size and darker in colour. Flowers dark bronzy-red, larger than Charlesworthii, the lip having a seven-cleft yellow crest.

Award of Merit.

Cattleya Mossiae Olympia, from Messrs. Charlesworth and Co. Flowers of fine shape, blush-white veined with rose, lip large with claret-purple markings.

Odontioda Wilsonii The President (*C. vulcanica* × *O. Pescatorei*), from Messrs. Charlesworth and Co.—A charming flower in this form. Flowers white, shaped like O. Pescatorei, and densely blotched with violet.

Cattleya Mossiae Dreadnought, from Messrs. Sander and Sons.—Viewed from all points the best C. Mossiæ, the rose-pink sepals and petals —the latter being 4ins. across—being very massive, broad, claret-crimson veined lip.

Cattleya Serenata, from Messrs. Mansell and Hatcher, Rawdon, Leeds.—A brightly-coloured hybrid of C. Whitei, with rosy-mauve flowers shaped like C. labiata.

Cultural Commendation.

To Messrs. Charlesworth and Co., Haywards Heath, for fine plants of the Madagascar Grammangis Ellisii.

To Sir Jeremiah Colman, Bart. (gr. Mr. Collier), for Odontioda Bradshawiæ.

Stove Plants.

Caladiums arranged by Messrs. John Peed and Son, of West Norwood, were models of skilful cultivation. In the centre of the group was a plant of the variety Harry Lovatt, which bore upwards of 50 large, richly-coloured leaves. Somewhat smaller, but even more highly coloured, were the specimens of Madame Mitjana, Maj Lek, Princes Sansparcet, and Fastuosum, whilst in the front a comparatively small plant of Red Indian glowed with warm, tropical colouring. At the end of the Caladiums a rather formally arranged collection of Carnations contained many beautiful blooms.

Mr. L. R. Russell, Richmond, exhibited the finest group in this section. The collection was a very extensive one, and embraced Codiæums (Crotons), Caladiums, Dracænas, Cycads, Alocasias, Marantas, Anthuriums, Aralia Veitchii, Anæctochilus, Stenandrium, Lindenii, Reidia glaucescens and other handsome-leaved exotic plants. The centre of the display was formed of plants of Nertera depressa in fruit, with the green and silver-leaved Dracæna Sanderiana at the back and showy Caladiums on either side. Mr. Russell also exhibited a fine scarlet Salvia named Glory of Richmond, in which were interspersed plants of the large-leaved Nicotiana colossea variegata.

Ferns.

Messrs. H. B. May and Sons, Edmonton, arranged a large group of excellent Ferns. On this occasion the collection was composed chiefly of warm-greenhouse and tropical species. The splendid pale-green, billowy Nephrolepis Willmottæ occupied the central place of honour, and served as an admirable foil for the rosy-purple tints on the young growths of Adiantum Veitchii. A large group of Pellæa rotundifolia, a species which is reminiscent of the hardy, wall-loving Asplenium trichomanes, but characterised by rather larger pinnæ and brown hairs on the stems, was seen to advantage luxuriating on the stem of a dead Tree-fern, Polypodium Vidgenii, and P. Mayi cristatum, with large glaucous fronds, attracted attention. The very tall pillars of Lygodium japonicum lightly and tastefully relieved the level of the prostrate species, and the Gold and Silver Ferns (Gymnogrammes) added just the needed touch of brightness.

Roses.

The prominence given to the hybrid Tea and the Wichuraiana Roses in the magnificent exhibit of Messrs. Wm. Paul and Son illustrated the great popularity of these types of Roses. The tall standards of the latter kind were exexceedingly dainty and graceful. The baskets, each containing a dozen or more of perfect blooms, showed the great decorative value of the Tea-scented varieties. The charming and fragrant variety, Juliet, was shown in perfect form, and for bright effect was only equalled by the rich apricot-red of Beauté de Lyon. The chaste, flesh-pink centred Ophelia, which received an Award of Merit, attracted attention, and led the eye to the charms of Madame Segond-Weber, a variety which flourishes in town gardens, and very many other splendid blooms in this excellent collection.

A corner of the large tent was filled by Messrs. Paul and Sons, Cheshunt, with a wealth of Roses. A few tall-stemmed Wichuraiana standards placed at infrequent intervals served to relieve the mass of the group, which was arranged in the form of a low sloping bank, which owed its effect to a multitude of H. P. and H. T. Roses in glowing colours effectively massed. The best of the exhibition varieties were G. C. Waud, Lyon Rose, Lady Alice Stanley, Madame Segond-Weber, Hugh Dickson, Lady Ashtown, Mrs. W. J. Grant, and Caroline Testout.

Stands of bright red Roses, relieved by tall standards of Wichuraiana varieties were splendidly shown by Mr. Charles Turner Slough. The former included Ulrich Brunner, Hugh Dickson and Duke of Wellington, and contrasted well with such pink varieties as Lady Ashtown, Madame A. Chatenay, and the ubiquitous Lyon Rose. Of the Wichuraiana varieties, Coronation was especially desirable.

As is their custom, Messrs. Hobbies, Ltd., arranged the tall clean-stemmed standard Wichuraiana hybrids, chief amongst them being the popular varieties Hiawatha, Minnehaha and Dorothy Perkins; Coquina, a small single-flowered pink variety, bears pretty blooms, but is not equally effective. Several baskets of Rayon d'Or, which were suspended from Smilax-covered supports, were very pretty.

Just inside the large tent, Messrs. Wm. Cutbush and Son, Highgate, exhibited an exceedingly bright and artistically arranged group of Carnations and polyantha Roses; weeping pyramids and tall pillars of such Roses as Dorothy Perkins, Excelsa and White Dorothy rose high above a groundwork furnished with Lady Coventry, Maggie Hodgson, Monk and other varieties of Carnation, which were delightfully interspersed with garden Pinks and the dwarf floriferous Rose "Jessie."

Although Mr. George Prince, Oxford, relied principally on large bamboo stands of such Roses as Ulrich Brunner, Mrs. John Laing, Lady Ashtown and Gardenia for the chief effect the smaller exhibits of Lady Pirrie, Juliet, Rayon d'Or, Irene Watts, and similar varieties were equally worthy of admiration.

The central feature of the large stand of cut Roses exhibited by Messrs. W. and J. Brown, Peterborough, was an arch of the Lyons Rose. On either side there were tall stands in which Frau Karl Druschki, Marquise de Sinety, Harry Kirk, and Joseph Hill were effectively massed.

Stands of exhibition varieties were the predominant feature of the Rose exhibit from Messrs. G. Bolton and Co., Buntingford. The very best blooms were of Dean Hole, Mildred Grant, Jonkheer J. L. Mock, Mrs. Ed. Mawley, and His Majesty.

Mr. R. C. Notcutt, Woodbridge, included in his collection of cut Roses a vase of Rosa Sinica anemone, a large pink single-flowered variety, which luxuriates on a warm wall. The dark velvety sorts, Victor Hugo, Duke of Edinburgh, Senateur Vaisse, Commander Félix Faure and Château de Clos Vougeot were also noteworthy.

Messrs. Jackman and Son, Woking, showed Roses in large bunches, with exhibition blooms in boxes along the front. A box of White Maman Cochet and Maman Cochet was especially good, the blooms of each variety being arranged alternately.

Messrs. Frank Cant and Co., Colchester, filled a large table space with excellent Roses, the blooms remaining fresh even under the very hot conditions. We noticed the newer Juliet, Rayon d'Or, Mrs. Walter Easlea, cherry-red; Lady Hillingdon, Viscountess Enfield, blush; Mme. Chas. Lutaud, a hybrid tea variety, coloured apricot-yellow and gold; Miss Ada Francis, yellow; and Braiswick Charm, white with yellow at the base of each petal.

Messrs. B. R. Cant and Sons, Colchester, exhibited Roses finely; notable varieties were Rayon d'Or, Killarney, Sunbeam, St. Helena, a blush flower with creamy centre; Marquise de Sinety, Mrs. Peter Blair, Leslie Holland, Edward Mawley, and the new H.T. variety, Joan, the blush petals showing a trace of gold at their bases.

Messrs Stuart Low and Co., Enfield, showed a collection of Roses, which was much admired for the clever arrangement, the colours being massed in harmonious shades; great clusters of blooms were employed in stands, on pillars or in vases. We specially admired the two varieties Rayon d'Or and Molly Sharman Crawford.

Roses were also shown by Messrs. H. Cannell and Sons, Swanley, Kent; Messrs. Morse Bros., Woodbridge; Messrs. Jarman and Co., Chard; Mr. John Mattock, New Headington, Oxford; and Mr. W. Easlea, Eastwood, Essex.

Carnations.

The Right Hon. Lord Burnham, Hall Barn, Beaconsfield (gr. Mr. Geo. Johnson) exhibited a large group of magnificent Souvenir de la Malmaison Carnations. Of the 70 or more plants the majority were unusually large and well furnished with the healthy glaucous foliage which gives evidence of skilful culture.

Souvenir de la Malmaison varieties figured largely in the collection from Messrs. Stuart Low and Co., Enfield. The large stands of such varieties as Lady Coventry and Sir Charles Freemantle glowed with warm colouring. Not less beautiful was a bowl of the rich pink Princess of Wales.

Mr. JAMES DOUGLAS, Great Bookham, staged varieties of border Carnations. There were several novelties, two of which received awards. Others specially noticed were Innocence, blush pink and of exquisite form; Bookham White, Fijiyama, red; Robert Berkley, scarlet; Ellen Douglas, heliotrope-grey, and Renown.

Mr. H. BURNETT, Guernsey, showed Carnations, as usual, of splendid quality, but the arrangement was a little too dwarfed, owing to limitations of space, to produce the best effect.

Mr. BERTIE E. BELL, Castel, Guernsey, exhibited Carnations in variety, the group being very prettily arranged. At the top was a beautiful basket of Mrs. C. W. Waud, arranged on a fancy stand, a most delightful piece of flora work.

Mr. C. ENGELMANN, Saffron Walden, Essex, showed Carnations of the perpetual-flowering type. The beautiful blooms were arranged in tall epergnes at the back, the centrepiece containing magnificent flowers of Pioneer, a lovely rosy-cerise variety.

Sweet Peas.

Sir RANDOLF BAKER, Bart., Ranston, Blandford (gr. Mr. A. E. Usher), showed a collection of Sweet Peas remarkable for the uniformly high culture and excellence of the blooms in so large a display. Tall columns of Barbara, Dobbie's Cream, and Edrom Beauty reached to the roof of the tent. The rest were arranged in vases. They were not too densely packed, and showed to advantage. Among the best varieties were True Lavender, Anglian Orange, Princess Victoria, Dobbie's Cream, Clara Curtis, Marks Tey, May Campbell, Lady Millar and Dorothy. This excellent group was lightly relieved with a few Adiantum Ferns and Grasses.

Messrs. DOBBIE AND CO., Edinburgh, exhibited a magnificent collection from their Marks Tey Nursery. The flowers were arranged on wide staging in a series of four steps, the uniformity of the vases being broken by tall pillars, and the whole relieved by Smilax, Kochia and variegated Maize. Dobbie's Cream was outstanding, and its striking feature was the large number of tinted flowers.

Messrs. E. W. KING AND CO., Coggeshall, staged a representative group. It faced both gangways, and baskets of choice varieties were hung between arches of flowers which linked the two sides. The general level of the group was broken with bolder masses of a few varieties. The Anglian novelties were the feature of the group, those shown well including pink, crimson, lavender, orange, cream and white Anglian, and the novelty for distribution in 1914, Anglian Royalty, a dark bronze-crimson flower.

Mr. JAMES BOX, Lindfield Nurseries, Haywards Heath, showed a collection of standard sorts, using Asparagus and broad Antholyza foliage for relief. Some of his best varieties were Nubian, Scarlet Monarch, Rosabelle, Empress, Blue Belle, and James Box (orange).

Messrs. JOHN K. KING AND SONS, Coggeshall, staged a large group, facing both ways, on the central tabling. Several varieties were well shown in large bunches, especially the blues and mauves, including True Lavender, Nettie Jen-

FIG. 7.—HOLLAND HOUSE SHOW: COLLECTION OF SWEET PEAS EXHIBITED BY MESSRS. SUTTON AND SONS.

Splendid plants of Souvenir de la Malmaison Carnations were shown by W. M. GOTT, Esq., Trempthon, Cornwall, relieved with Smilax and Adiantum Ferns. The varieties Princess of Wales, Mrs. Trelawney, Maggie Hodson and Calypso were all uncommonly good.

Clematis.

Messrs. GEO. JACKMAN AND SON, Woking, exhibited a collection of exceedingly floriferous Clematis. The large-flowered Jackmanni hybrids were represented by Caroline Neville (mauve), Mrs. Spencer Castle (bright heliotrope), Star of India (reddish-plum) and Mrs. Geo. Jackman (satiny-white with cream bar). The best of the free-growing sorts, which are valuable for training over pergolas, were Kermesiana (bright red), Viticella alba (greyish-white) and Flammula purpurea (sweet scented, rose-purple). Following the Clematis Messrs. Jackman arranged such valuable border flowers as Gaillardia Mrs. Rollinson, Helenium cupreum, Sidalcea "Rosy Gem" and mixed Japanese Irises.

Messrs. SUTTON AND SONS, Reading, made a very rich and varied display (see fig. 7). Some of the choicest varieties were placed against black velvet shields, between each of which rose tall pillars of other varieties linked up by trails of Smilax. The groundwork was filled with vases and bowls of flowers. The varieties staged were very numerous. We noted the salmon-orange Barbara, Melba and Earl Spencer, the flesh-pink Lady Millar, the rose-coloured Decorator, the white Moneymaker and Etta Dyke, with Mrs. Hugh Dickson, Orion, Sunproof Crimson, the giant-flowered W. P. Wright, Asta Ohn, and many others. The collection was very effective, and with a number of new unnamed seedlings the following sorts were specially good: Melba, Frilled Pink, True Lavender, New Marquis, T. Stevenson, Brunette, Edrom Beauty and Inspector. The colour arrangement of this group was particularly pleasing.

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kins, Mrs. Heslington, and R. F. Felton. Other good sorts included Agricola, King Alfred, Gladys Burt, Edrom Beauty, and Edith Taylor.

Messrs. BIDE AND SONS, LTD., Farnham, showed a considerable collection in vases, interspersed with a few Roses, but arranged in a rather uniform bank. Edna Harland, Bertha Massey, Mrs. Cuthbertson, and Walter P. Wright were among the varieties best represented.

ROBERT SYDENHAM, LTD., Birmingham, showed a small collection. The varieties, Bertie Usher, Zarina Spencer, Edith Taylor, Lilian, Princess Mary and others were included with a few novelties.

Messrs. G. STARK AND SON, Great Ryburgh, had an interesting group with a number of novelties. At the back were tall pillars of Wenvoe Castle (deep mauve), Primrose Beauty, Bertrand Deal, A. A. Fabius (deep pink), and the double Maggie Stark.

Mr. D. WEBSTER showed a small collection, most notable for the good bamboo stands of Mrs. Henry Bell, R. F. Felton and Doris Usher.

Begonias.

Messrs. Blackmore and Langdon, Twerton, Bath, showed Begonias of superb quality, the plants being equal to any we have seen. They were truly described by visitors as "wonderful." On this occasion the firm grouped the varieties in batches of colours. Thus there were several plants of the charming Rose Queen in a group, a cluster of the White Empress Marie, Duchess of Cornwall, crimson; Millicent, salmon; Mrs. Robert Morton, yellow; and George Pike, bright red. The finest individual plant was a specimen of Lady Tweedmouth variety, with petals of salmon-pink colour.

Mr. A. Le Gwillim, Sidcup, Kent, showed abundantly flowered plants of the double-flowered bedding Begonia, Washington, and its yellow companion, Colonel Lauserat, in the centre of a group of very large double-flowered varieties.

Hardy Plants and Flowers.

Messrs. James Carter and Co., Raynes Park, carried out on a large scale a design for an Iris and water garden. A rectangular pool furnished with Lilies was fed by dolphin fountains at the four corners. On three sides this was surrounded by a mass of Japanese Irises, but on the fourth was a low wall in shallow bedded stone retaining an upper walk, reached from either end of the pond and paved with square marble paving. On the pond side of the path was an edging of Snapdragons, and on the other were masses of Cannas behind an edging of dwarf polyantha Roses, with large, trained pink ramblers placed between the large stone columns, of what might be one side of a pergola.

Messrs. J. Piper and Son, Bayswater, built a large formal wall and water garden. A low, rectangular foundation was used to level up the ground and to form a base for the semi-circular walled garden. The space thus left at the corners was turfed over and ornamented with miniature cannon, which emphasised the embattled character of the heavily-pierced bastion-like wall, topped by a low Yew hedge with taller trained figures on each pier. The enclosed area included a paved upper walk curving to connect the two heavily-pillared temples at either end, which were directly connected by an herbaceous border planted with Lilies, Campanulas, Delphiniums, and other border flowers. Sunk at a lower level in the centre were two pools, divided by a path and a large lead figure of Hermes.

Mr. Chas Rassell, Earl's Court Road, London, designed a small railed-in town garden, some 38 by 18 feet in dimensions. The irregular lawn was surrounded by a narrow paved walk, which led to the features of interest, the herbaceous border of Stocks, Violas, Marguerites, Marigolds and Delphiniums; the raised seat screened by trim Box and variegated Privet, which gave opportunity for varied planting at the base, and in one corner the inevitable rock garden, furnished with Heuchera, Candytuft, Sedum and Wistaria.

Messrs. Thompson and Charman, 11, Adam Street, Adelphi, staged an ornamental and prettily balanced group, with border flowers at the back and the smaller Alpines nearer the eye. Among the latter were noticed Teucrium pyrenaicum, Gentiana cruciata, Viola bosniaca and Dianthus Napoleon III.

Mr. H. Hemsley, Crawley, arranged a steeply-sloping rock bank to give effect to a number of interesting Alpine and herbaceous plants. The Antirrhinums derived from A. glutinosum and A. sempervirens pollinated with A. majus, already give some range of colour and habit.

Messrs. Rich and Co., 2, Walcot Street, Bath, showed bunches of Campanulas, Phloxes, English Irises, Ostrowskia and other herbaceous plants, with a collection of Violas.

Mr. Howard H. Crane, Woodview, Highgate, N., made a pretty arrangement of Violas and Violettas, placing the blooms in wet sand in shallow dishes and giving a touch of green with Thorn and Hornbeam foliage.

Mr. Reg. Prichard, Westmoors, Wimborne, staged the most varied collection of dwarf Alpines in a limited area, arranging the plants on the flat and without any rockwork in a manner that has become novel, although equally effective with many more ambitious designs in stone.

The Burton Hardy Plant Nurseries, Christchurch, Hampshire, displayed a small collection of Campanulas, Sedums, Stachys, Sempervivums and other rock plants.

The Guildford Hardy Plant Nursery, Millmead, Guildford, staged a number of interesting hardy plants, massing the blues of Delphiniums at one end, and the yellows of Helenium, Verbascum and Thalictrum at the other.

Mr. H. C. Pulham, Elsenham, Essex, made good use of dwarf Campanulas and Hypericums on a small rock-garden exhibit. There were numbers of pretty forms of Dianthus, place of honour being given to the very large D. annulatus Pulhamii, and space at the back was found for Escallonia langleyensis, Veronica, Spiræa and Philadelphus.

Messrs. Whitelegg and Page, Chislehurst, staged a good collection of herbaceous flowers and rock plants. The clumps of Nepeta Mussinii, Potentilla Miss Willmott, Saxifraga pyramidalis and Wahlenbergia vincæflora were fine, and good use was made of Galega, Astilbe Queen Alexandra, Artemisia stelleriana and the pleasing pink early Gladiolus Queen Mary.

Messrs. Barrie and Brown, King William Street, London, showed a small collection of Gladiolus, Spiræas and Gloxinias.

Messrs. Godfrey and Son, Exmouth, Devonshire, arranged a fine batch of their excellent strain of Canterbury Bells. Those of pink and pale blue shades were particularly admired. Scabiosa caucasica superba and a few Oriental Poppies were also well shown.

Messrs. Kelway and Son, Langport, Somersetshire, staged an up-to-date collection of their Delphiniums, with, at the foot of the group, a few vases of Pæonies, Coreopsis and the dark Dianthus Cæsar's Mantle. The Delphiniums were the feature of the group, and many magnificent varieties were included.

Messrs. H. Cannell and Sons, Eynsford, Kent, showed a small group of Delphiniums, Spiræas, Pentstemons and Canterbury Bells.

Messrs. Fells and Son, Hitchin, against a background of Crambe, Erigerons and Delphiniums, showed a number of choicer dwarf plants, Thymes, Campanulas and Veronicas, with a fine clump of the little-known Polemonium pauciflorum and masses of Gaillardias.

Mr. Stuart Maples, Lytton House, Stevenage, showed a small moraine clothed with Saxifraga Cæsia, Coronilla cappadocica, Campanula Miss Willmott and Veronica Bidwillii.

Mr. H. Newman, 16, Woodford Road, Watford, staged a large, massed group of the new border Pink, "Challenger."

Mr. T. R. Hayes, Keswick, Cumberland, showed an interesting little square group of Alpines and dwarf Shrubs. Sedum obtusatum, Campanula turbinata pallida, C. abietina, Thymes and Edraianthus were well represented.

Mr. G. W. Miller, Clarkson Nurseries, Wisbech, showed a number of choice herbaceous flowers. Viola cornuta "The Clarkson," is a pretty variety, with darker flowers than the well-known var. purpurea.

Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, staged a large collection of Phloxes, representing perhaps the best-grown group of these flowers in the show, although arranged in rather a solid bank. The centre was marked by the enormous Goliath, 5 feet high, G. A. Ströhlein, Gen. Van Heutsz and Dr. Königshofer, among scarlets, Iris, Le Mahdi and Antonin Mercie, blues, and the new Rose Queen show the up-to-date character of the varieties included. A large group of "calycanthema" varieties of Campanula medium (Canterbury Bells) were also shown.

Messrs. Fred Smith and Co., Woodbridge, Suffolk, staged a collection of well-grown herbaceous flowers, with well-contrasted masses of clean colour. At the back were large vases of Alstroemeria chilensis, Lathyrus latifolius albus, Delphiniums, Verbascums and other large-growing subjects.

Miss K. Hopkins, Mere Gardens, Shepperton-on-Thames, arranged two oblong beds of rockwork, connected at one end by a small water garden.

Mr. J. S. Arkwright, Kinsham Court, Presteign, showed a large batch of Lychnis Arkwrightii. This appeared to be a rather good strain of L. Haageana, showing considerable variation in the shades of scarlet, and some of the varieties showing the crimson leaf. All were well-grown pot plants, and some time ago the Scientific Committee recommended the Botanical Certificate for the strain, which the Council duly confirmed.

Messrs. B. Ladhams, Ltd., Shirley Nurseries, Southampton, staged good bunches of Gaillardias, Salvia turkestanica superba, Malva Olbia Potentilla Rollissoni, and Campanula persicifolia coronata. Especially good were the border Pinks Coronation, a large white with distinct crimson eye, and Favourite, a very pale pink flower with small dark eye.

Mr. James Box, Lindfield Nurseries, Haywards Heath, arranged one of the largest display of hardy plants, filling the end of one of the tents. Nymphæas, backed by Iris Kæmpferi and Thalictrum flavum and flanked by Funkias, Phloxes and Spiræas formed a centre piece. To right and left were large wings devoted mainly to florists' flowers, Gladiolus and Delphinium in variety at the back, and such plants as Erica, Prunella, Gypsophila repens monstrosa, Geum Mrs. Bradshaw, Betonica grandiflora and Adiantum pedatum in the foreground.

Messrs. W. and C. Bull, Eames' Floral Nurseries, Frome, Somersetshire, showed cut bunches of Poppies, Pyrethrums, Heucheras with Geum, Sidalcea, Erigeron and other flowers.

Messrs. W. Cutbush and Son, Highgate Nurseries, N., built up from the ground space a large decorative group of hardy flowers. Nymphæas and Japanese Irises at the ground level, with Spiræas were used effectively. Eremurus Bungei with Delphiniums and other tall-growing plants were displayed with spreading spikes in tall stands above them.

Mr. Clarence Elliott, Stevenage, Herts, arranged in the open a little group of alpines in a manner that has become characteristic of him; he appreciates so finely the value of mass of flower and shade of stone. Campanulas were the feature of the group C. pulla, C. pusilla Miss Willmott, C. pulloides, and C. linifolia being best represented.

Mr. G. Reuthe, Keston, Kent, staged an interesting group of hardy flowers. Lilium Hansonii and L. pomponium gave good patches of colour. Escallonia Philippiana was represented by large bushes. The trusses of Rhododendron cinnabarinum were a beautiful shade of colour, and the dwarfer plants of interest included Hypericums, Ericas, Statices and Campanulas. Mr. Reuthe also staged groups out-of-doors, including good plants of Allium pedemontanum and Patrinia palmata among the lesser-known plants.

Lady Mary Countess of Ilchester (gr., Mr. C. Dixon) exhibited a collection of Sedums and Silver Saxifrages grown in small pans, including 72 varieties of the former and 63 of the latter. Very few varieties were in flower, but they were mostly a picture of health and good condition, and represented a very interesting collection.

Messrs. Harkness and Sons, Leeming Bar, Bedale, staged a group of hardy flowers on tabling which, though not so rich in variety as many others, compared favourably with the best for the quality and freshness of its plants. The Oriental Poppies Mrs. Perry and Mrs. J. Harkness (a shade deeper) were particularly good. The bicolor English Iris Almona with violet standards and blue falls, and the white Mont Blanc were excellent. Lupines, Anchusas and Delphiniums were also well represented.

Messrs. R. H. Bath, Ltd., Wisbech, showed good collections of Delphiniums and border Carnations. Notable Delphiniums were the rich deep purple Clara Stubbs and Norman Garston. Lize was a beautiful pale blue, while we considered Ustane and Nellie Irvine the best of the intermediate mauve and blue varieties.

Messrs. Watkins and Simpson, Ltd., Tavistock-street, Covent Garden, staged a group of annuals and Snapdragons on the ground in the open. The strains of Nemesia compactum Blue Gem and N. strumosa hybrids were much admired, and the Antirrhinums included some very pretty shades. The whole was connected up and bounded by a dwarf edging of Alyssum minimum.

Messrs. G. Gibson and Co., Leeming Bar, Bedale, Yorks, arranged a small group on the

ground with a curving edge. Verbascum Caledonia, Lupinus polyphyllus roseus, varieties of Spanish Irises and Iceland Poppies were the notable features of the exhibit.

The Wargrave Plant Farm, Ltd., Liverpool-street, London, arranged a small rock-garden out-of-doors, and a collection of Gaillardias, Pinks, Delphiniums, Gladioli, and other border flowers under canvas. The best plants in the open included Stachys pyrenaica, Campanula Raddeana, Viola bosniaca, and Primulas angustidens and capitata.

Messrs. W. Wells and Co., Ltd., Merstham, Surrey, staged a group of Phloxes, including the varieties Rose Queen, André Laurie, Antonin Mercie, King Edward and Elizabeth Campbell. The first-mentioned is of a very rich colour, and has particularly large "pips."

Messrs. Bees, Ltd., Mill-street, Liverpool, staged an interesting group of hardy plants most notable for its inclusion of new Chinese introductions, amongst which we noticed Dracocephalum bullatum, Primula Bulleyana, Trollius yunnanensis, T. patulus, and Primula angustidens. The double white Dianthus petræus, Spiræa digitata nana (four inches high), Oxalis enneaphylla and Œnothera cæspitosa are also worthy of mention.

Messrs. Geo. Bunyard and Co., Ltd., Maidstone, exhibited finely grown and very fresh-looking hardy flowers, staged in bold masses, of which the monotony in arrangement was broken by clumps of Spiræas, Eremuri, and Lilium longiflorum.

Messrs. Paul and Son, Cheshunt, staged a bank of herbaceous flowers with showy bunches of Spiræa Aruncus, Verbascum Chaixi, Thalictrum flavum, Eryngiums, Heucheras and Potentillas.

Messrs. Blackmore and Langdon, Twerton Hill Nursery, Bath, showed some of the finest spikes of Delphiniums in the show. Most of the varieties had already won awards. The mauve and pale blue Statuaire Rude was particularly fine, both in flower and spike.

Messrs. Barr and Sons, King Street, Covent Garden, staged a collection of cut flowers, including Lupines, Canterbury Bells, Ixias.

Messrs. John Forbes, Hawick, Ltd., Hawick, N.B., arranged a showy bank of named varieties of Delphiniums, Pentstemons and Phloxes.

Mr. A. St. Gwillim, Cambria Nursery, Sidcup, showed a small collection of cut bunches of Campanulas, Erigerons, and other flowers, with a number of varieties of Mimulus.

Mr. Frank Lilley, Guernsey, staged a collection of early flowering Gladioli, with Ixias and English Irises.

Messrs. Gunn and Sons, Olton, Warwickshire, made an effective display of Phloxes, showing the best varieties in great masses of from a dozen to nearly fifty trusses, which admirably brought out the colour values. The best varieties included G. A. Ströhlein, Gen. van Heutz and Coquelicot (scarlet), Le Mahdi (violet), E. Danzanvilliers (lavender), F. von Lassberg (white), Elizabeth Campbell (pink) and the fine crimson-eyed Josephine Gerbeaux.

Mr. J. Macdonald, Harpenden, showed his novel method of growing Grass on fabric.

Messrs. R. Wallace and Co., Colchester, furnished a large space at one end of the large tent to great advanage. The predominant feature was a large Water-lily pool flanked by stepping stones which gave access to a paved terrace where the very many border plants might be easily viewed. Of these latter perhaps the huge-flowered Japanese Irises by the water-side were the most noteworthy, but we also admired the groups of Eremurus, E. Bungei pallidus, E. B. superbus, with bright yellow flowers, and the buff-coloured E. Warei rising above dwarfer plants which were freely grouped, making a magnificent spectacle. On the opposite side to the Water-lily garden the exhibit was enclosed by a "dry wall" where many less showy, but equally valuable, plants found a place.

Messrs. John Piper & Sons, Bishop's Road, Bayswater, built an unostentatious rock-garden of weathered boulders, amongst which they planted a variety of Alpines. The Stonecrops (Sempervivum arachnoideum) were so cunningly planted that it appeared as though they had occupied their positions for several years. Although the season of the Primula is over, Messrs. Piper were able to exhibit good breadths of P. japonica and of P. warleyensis. In sharp, but not unpleasing, contrast to the quiet tone of the rockery was an exhibit of border flowers in which bright colours were freely used. Gaillardias gigantea, Gladys and Lady Rolleston, bunches of rich orange-coloured Papaver nudicaule aurantiacum and Alstrœmeria aurantiaca served to enhance the rich blues of the Delphiniums.

The exhibit of Messrs. J. Cheal & Sons, Crawley, took the form of a semi-formal wall garden and a small rockery, with a dividing paved walk and backed by a narrow shrubbery. The principal Alpines were Sedum Maweanum, Dianthus graniticus, Artemisia lanata, and various Campanulas. Vases with cut sprays of Rose Aennchen Müller were placed along the path.

Messrs. Phillips and Taylor, Bracknell, Berks, planted two Water-lily pools in an exceedingly effective manner. The bordering groups of Ranunculus lingua grandiflora, Cyperus longus, Calla palustris and Alisma Plantago efficiently removed any effect of formality. The background was furnished with Typhas and a variety of herbaceous Spiræas. Not less attractive was the adjoining group of hardy border flowers, in which prominence was given to Pink "Progress" and Sedum obtusatum.

Messrs. "Bakers," Wolverhampton, specialised Delphiniums, of which they exhibited a splendid collection. Other plants of note were Thymus coccineus, which is so valuable for planting in the interstices of paved walks, Heuchera "Lady Greenall," and the Giant Thrift, Armeria cephalotes rubra.

Following their excellent exhibit of pot fruits Messrs. James Veitch and Sons arranged a collection of splendid Eremurus amongst a groundwork of Spiræas and Astilbes. Chief amongst the Eremurus was a large batch of E. Warei, which was in harmony with the bright yellow colour of E. Bungei.

To have properly appreciated the effect of the group arranged by Messrs. R. and G. Cuthbert, of Southgate, it should have been viewed from a greater distance. Exceptionally well-grown plants of Humea elegans gave a feathery lightness to the brilliant batches of Viscaria oculata "Brilliant," Streptosolen Jamesonii and the salmon-coloured variety of the Ivy-leaved Pelargonium Madame Crousse. In the foreground several little groups of Delphinium "Blue Butterfly," a valuable annual variety, were very effectively placed.

Delphiniums of many shades of colour, ranging from the almost pure white Moerheimii to the very dark blue-purple Mrs. Creighton, occupied the centre of the group arranged by Mr. Amos Perry, Enfield. Along the front many circular pans with a great variety of Water-lilies floating in water attracted attention. At one end of the Delphiniums a collection of herbaceous Phloxes, Senecio Grayi, and the orange-coloured Trollius abschasicus adjoined an extensive collection of hardy Ferns.

The design of the exhibit arranged by Mr. Maurice Prichard, Christchurch, was that of a long, narrow rockery supporting a well-filled flower border. In the rockery the principal plants were Sedum cæruleum, Asteriscus maritimus, Erythræa diffusus, and several species of Dianthus. The outstanding features of the flower-border were the splendid spikes of Delphinium and a bold group of the deep-red Spiræa palmata.

Messrs. T. S. Ware, Ltd, Feltham, divided a water garden and hardy flower exhibit into three sections. The central portion contained a good group of Romneya Coulteri arising from Geum Mrs. Bradshaw and hardy Ferns. On the banks of the pool Mimulus cardinalis, various Campanulas and Delphinium nudicaule relieved and brightened the still water. The dividing paths were bordered with Thymus serpyllum coccineum, Sedums, Linaria pallida, Erythræa diffusa, and other low-growing plants.

Messrs. G. and A. Clark, of Dover, also placed a pool in the centre of a gorgeous display of border flowers, but in this case the pool was larger and contained more Nymphæas; of these N. Laydeckeri fulgens and N. Marliacea carnea were especially bright. Boldly arranged vases of Alstrœmerias, border Phloxes, tall, stately Delphiniums, Heucheras and Verbascum Weidmannia also assisted in making a noteworthy display.

The exhibit staged by Messrs. Barr and Sons, Covent Garden, took the form of a Water-lily pool surrounded by a very pleasant rockery which was backed and flanked by choice border flowers. The weather-worn boulders of the rockery were planted with Sempervivums (S. arachnoideum, S. Laggeri and many others), which were set off by breadths of Campanula pusilla, Artemesias and other appropriate plants. The most attractive of the border flowers were Lilium myriophyllum, Lavatera Olbia, and a good strain of Orchis maculata.

Trees and Shrubs.

Messrs. James Veitch and Sons, Ltd., Chelsea, exhibited a large group of new trees and shrubs introduced by the firm from China. This exhibit included 130 distinct species and varieties, some of the plants being large specimens. Practically all were raised from the first consignment of seeds received from their collector, Mr. E. H. Wilson, in 1899.

Among the more notable were Magnolia Delavayi, with lemon-yellow flowers terminal on the branches; Cotoneaster Harroviana, in flower, but more attractive when furnished with its bright coral-red berries in the autumn; Viburnum Henryi, with loose panicles of white flowers, succeeded by coral-red berries; Aristolochia heterophylla, with diminutive flowers; Lilium myriophyllum, having the exterior of the trumpet flushed with rose colour and sweetly scented; Diospyros armatus, an evergreen species; Liriodendron chinensis, Populus lasiocarpus, the largest leaved Poplar; and Rubus Veitchii, with finely cut leaves and tiny pink flowers. Adjoining this exhibit Messrs. Veitch showed splendid specimens in tubs of Laurus nobilis (Bay Laurel), is pyramidal, columnal and standard form.

Mr. L. R. Russell, Richmond, Surrey, showed magnificent tree-Ivies in golden and silver varieties; a group of Dimorphanthus Manchuricus, and hardy Fuchsias. The Ivies represented about 30 of the finest gold and silver leaved forms, with a few uncommon green-leaved sorts. We noticed the beautiful silver Ivy known as Hedera dentata variegata flavescens; elegantissima, a silver-leaved variety grafted on the Common Ivy; and Sheen Silver, a dwarf silver Ivy suitable for edging beds and borders. The finest Fuchsias were F. Riccartonii Enfant Prodigue, F. R. Drame, a fine form of F. Thompsonii, and brightoniensis.

Messrs. W. Fromow and Sons, Chiswick, arranged an imposing group of Maples, relieved with a few other kinds of ornamental-leaved trees. The beautiful Acer palmatum laciniatum, A. japonicum aureum, A. palmatum roseum marginatum, A. p. linearifolium purpureum, A. p. sanguineum, A. dissectum variegatum, A. japonicum aureum, A. palmatum versicolor, and many more were shown well as standard pyramid or bush plants, with variegated Bamboos, Eurya latifolia variegata, Nandina domestica, and other pretty shrubs as foils.

Mr. Reuthe, Keston, Kent, showed rare shrubbery species, including dwarf Conifers, large plants of Desfontania spinosa finely in flower, Restio sub-verticillata, Pæonia lutea, Rhododendron camelliæflorum and Berberis Bealii.

Messrs. J. Piper and Sons, Bayswater, showed examples of topiary in Yew and Box, also splendid plants of Acer palmatum.

Messrs. W. Cutbush and Son, Highgate, showed examples of topiary.

Mr. Carlton White, New Bond Street, London, showed good specimens of topiary.

Messrs. Paul and Son, Cheshunt, showed ornamental-leaved trees and shrubs, also Philadelphus Avalanche, P. Souvenir de Billard, Spiræa Fræbellii, Abutilon vitifolium and Ligustrum multiflorum in bloom.

A number of model gardens were shown by the Yokohama Nursery Co., Kingsway, London. They were arranged in porcelain dishes that in nearly every case held a pool of water, which was spanned by a miniature bridge. The inclusion of pigmy trees and shrubs, with tiny summer-houses and figures of men and animals placed at appropriate spots, sometimes on a miniature hill, gave these pretty toy gardens a realistic appearance.

Messrs. Barr and Sons, King Street, Covent Garden, showed numerous pigmy trees in ornamental porcelain pans.

Miscellaneous Greenhouse Plants.

Messrs. James Carter and Co., Raynes Park, had a separate tent filled with banks of flowers. They grouped a large batch of Petunia Queen of the Roses with tall stands of Sweet Peas at the back, relieved with the greenery of Palms and Ferns. Next to the Petunias was a mass of finely-flowered Streptocarpuses, separated from a central exhibit of Sweet Peas by a band of Stocks, and edged by the pretty dwarf Rose Jessie. Next was a fine clump of tuberous-rooted Begonias, with more Sweet Peas, and finally a bay filled with Viscarias, Phlox Drummondii and Verbena Miss Willmott. The tent was a fairy-like bower of bright blossoms.

Messrs. James Veitch and Sons, Ltd., King's Road, Chelsea, showed large batches of greenhouse flowers, including Solanum Wendlandii, Cannas, Souvenir de la Malmaison Carnations, Exacum macranthum (extra fine); Lavatera assurgentiflora, Begonia Lucerna, Sollya Drummondii, and a new Calceolaria named Stewartii. All the plants were flowering profusely, and remarkably healthy.

A bank of the showy Crassula coccinea was exhibited by Lady Northcliffe, Sutton Place, Guildford (gr., Mr. J. Goatley).

Mr. H. Page, Hampton, Middlesex, showed his new Pelargoniums: Fiscal Reformer, salmon rose; His Majesty, scarlet; Her Majesty, salmon; and Winter Cheer, scarlet cerise, a very free-flowering variety.

Messrs. Godfrey and Sons, Exmouth, showed Pelargoniums, of the zonal-leaved, Regal, show, and scented-leaved sections. Of the last, Mrs. B. Smith, white splashed with crimson-lake; Godfrey's Pet, white with rosy-maroon upper petals; and Mrs. Galsworthy, white suffused with blush-pink, were shown for the first time.

Mr. W. A. Manda, St. Albans, showed hardy Cacti, Ferns, Asparagus elongatus, and Cattleyas.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, displayed the free-flowering fancy Pelargonium Juvenal amongst large bushes of Metrosideros floribunda. The bright red bottle-brush like flowers of the shrub considerably enhanced the glowing pink of the Pelargonium. Along the front of the group a row of Heeria elegans illustrated its trailing nature; the flowers are purplish-rose coloured.

A large number of well-bloomed Gloxinias were displayed by Messrs. J. Peed and Son, West Norwood.

Messrs. H. Cannell and Sons, Swanley, showed varieties of zonal-leaved Pelargoniums.

Pelargoniums were also shown by Mr. W. Treseder, Cardiff.

AWARDS.

First-class Certificates.

Adiantum trapeziforme var. "*Queen Mary.*"—This is a sport from the type showing the first approach to a plumose form. The pinnules are more densely placed on the branched fronds and hang gracefully instead of being held flat, so that the frond is as beautiful from below as above. The pinnules themselves are expanded from the typical trapezoid shape into that of an expanded fan, with the margin beautifully fringed and undulated. The young fronds assume a very delicate green, but the plant has the same vigour as the type, the black, wiry stems reaching about 2½ft., and the lowest pair of pinnæ branching. (Messrs. H. B. May and Sons.)

Magnolia Delavayi.—A new species from Southern China, which has proved hardy at Coombe Wood, Kingston, but which would appear to require the shelter of a south wall in most gardens. The flowers are 6 inches in diameter, and the petals of great substance and breadth. The colour is a rich cream, but the central column of anthers and stigmas, which rise 2 inches in the saucer-shaped flower, is tinged with red. The leaves are evergreen, of a leathery texture, with entire margin, but waved at the edge. The upper surface is slightly glossy. Their beauty lies largely in their size, as they are nearly 12 inches long, and broadly oval or ovate in shape. A tub plant about 4 feet high was shown, and the only two flowers were solitary at the ends of this season's growths. (Messrs. J. Veitch and Sons, Ltd.)

Awards of Merit.

Adiantum Siebertianum.—This beautiful fern, named in honour of a curator of a German botanic garden, is what may be called a "gracillimum" form of A. Wiegandii. The pinnules are lighter in colour and more slender and graceful in form than the type. The young fronds are pleasingly shaded with rose colour, which runs strongly through the central vein and shows finely against the black rachis. It resembles the species in having the quaint, wedge-shaped pinnules which overlap to form an oblong-like blade.

Polypodium Mayi var. cristatum.—P. Mayi is a fringed form of P. glaucum, and in this new variety the fringing of the lobes of the frond is carried further, and the tips become lightly crested. It is a distinct and handsome form, retaining the vigour and colour of the type.

[These two Ferns were shown by Messrs. H. B. May and Sons.]

Iris Kaempferi "*Morning Mists.*"—Of the single forms of Iris Kæmpferi this is the largest and most beautiful. The falls are pure white, touched at the claw with yellow, and suffused in the upper half very finely with a shade of pale blue, which is bright in the expanding bud, but gradually fades as the flowers age. The blade of the fall is circular and 4 inches in diameter, as shown, so that the expanded flower is nearly 1 foot across, but the falls arch gracefully with their own weight, as they are of unusual substance. The standards are pure white. The plant is of medium height, and has distinct broad, arching foliage. (Messrs. R. Wallace and Co.)

Erigeron hybridus "*Pink Pearl.*"—This is a very bright pink variety. The flowers are not large, being only 1½ inches in diameter at the best, but the habit is vigorous and free, and the colour is very bright and pleasing. The disc is greenish-yellow. (Mr. Amos Perry.)

Rose "*Ophelia.*"—A hybrid Tea Rose in colour very close to Prince de Bulgarie and Antoine Rivoire, but the form is better. The bud is longer and more pointed, and the outer petals expand flat, recurving at the margins. The flower gives shades of cream-flesh and pink, and a delightful touch is given by the glint of yellow in the shadows at the bases of the petals. (Messrs. Wm. Paul and Son.)

Rose "*Muriel Dickson.*"—The blooms are a brilliant cherry-rose colour, a very delightful and novel shade, but with little substance; large, loose, open, and with a weak centre. This variety was described as a hybrid Austrian Briar, but appeared to have been disbudded.

Rose "*Ulster Standard.*"—This is a glowing, velvety-crimson, single, Hybrid Tea variety. The petals show great breadth, and the expanded flower is some 5 inches in diameter, but it appears to lack the beautiful bud form of some of the Irish singles, and belongs to a different section. From the mass of buds on the plant the variety promises to be a most profuse bloomer.

Rose "*Mrs. Godfrey Brown.*"—A very large flower, flesh-coloured on the inner side of the petal and pink on the reverse. It is described as a glorified Mrs. W. J. Grant, with the colour rather of Lady Faire, but in size and form it suggests Mildred Grant, although it has much less substance than that variety.

These three Irish-raised Roses are essentially garden Roses, not exhibition varieties. Their appeal is through their freedom in blooming and in their advance in colour, rather than in form and substance. They are said to be of excellent habit and constitution for the garden. (Messrs. Hugh Dickson, Ltd.)

Carnation "*Virginia.*"—A buff-ground, fancy, border variety, suffused and broadly edged with rose-pink, with a suggestion of lilac. A large flower, with plenty of substance.

Carnation "*The Baron.*" — A pale, yellow-ground, fancy border variety, lightly splashed with lilac and rose. A large and handsome flower.

Both the above have good stems and calyxes. (Mr. J. Douglas.)

Nepenthes atropurpurea.—A finely coloured seedling, raised from N. sanguinea and N. Curtisii superba. The total length of the pitcher and lid is nearly 1 foot. It is cylindric in shape, with a slight constriction in the upper half, and the cap spreads horizontally. The general colouring is deep brownish-crimson, which also suffuses through both stalk and cap. The finely-fluted rim is also crimson coloured. Inside the pitcher the surface is seen to be green blotched with chocolate.

Nepenthes "*Lewis Bradbury.*"—This beautiful variety was raised from N. sanguinea and N. mixta; it has larger pitchers than the last, but is scarcely so finely coloured. The pitcher is a greenish-crimson, irregularly covered with narrow blotches, running longitudinally. The interior is heavily blotched, and shows well under the erect lid. Like the last variety, the shape is cylindric, with a scarcely perceptible constriction in the upper half. In this one the stalk is not well coloured.

Both these Nepenthes were shown by Messrs. Jas. Veitch and Sons, Ltd.

Messrs. Sutton and Sons, Reading, showed the new chestnut-banded or "red" sunflowers, which have resulted from crossing with Helianthus annuus, a red-marked variety of Helianthus lenticularis (the common wild Sunflower of North America), which Professor Cockerell, of Colorado, had discovered wild and found to breed true. The hybrids vary considerably in markings, some showing merely a defined maroon band and others being wholly suffused with brown. It is to the former that the greatest garden interest attaches, as they are much more showy than the others.

Fruit and Vegetables.

Visitors to flower shows in the metropolis have come to expect splendid exhibits of vegetables from the gardens of the Hon. Vicary Gibbs, at Aldenham House, but on this occasion his gardener, Mr. Edwin Beckett, may be said to have excelled himself. Mr. Beckett is not only a skilful cultivator of high-class vegetables, but he is also a past master in the art of displaying them to the best advantage. Even as a master's painting deserves an ornate frame, so a master collection of vegetables is worthy of an uncommon setting, and this exhibit was fittingly set out on a green enamelled frame. To enumerate the kinds of vegetables so well shown would be to make a list of the vegetables possible at this season, with the exception of Parsnips, and each item was as near to perfection as human skill could make it. The "bloom" on such kinds as Cucumbers, Tomatos and Peas was such as to make many a Grape-grower envious.

Lord Llangattock, The Hendre, Monmouth (gr. Mr. T. Coomber) exhibited 26 Queen Pine-apples. This monster collection of pale-golden, fragrant fruits was reminiscent of the days when every garden of any pretensions had its pine-stoves and grew the noble Pineapple. But Pine-apples were never grown to greater perfection than Mr. Coomber cultivates them to-day.

Messrs. Laxton Bros., Bedford, exhibited 25 varieties of ripe Strawberries. It was interesting to note how the more recent varieties show the characteristics of one parent. In the best of the late varieties the influences of British Queen and Waterloo are, for instance, readily apparent. The fruits of such varieties as Laxton's Utility, probably the best variety for a heavy soil, and Epicure all have, in a modified degree, the green tip of British Queen. This will undoubtedly be "bred out" in a few generations. The Waterloo parentage is obvious in the rich, dark flushes on the fruits of Laxton's Profit, The Laxton, Bedford Champion and Laxton's Reward. These sorts are, like the predominant parent, eminently suitable for culture on light soils. Messrs. Laxton were still able to exhibit baskets of their newest early Strawberry, King George, which is said to be decidedly earlier than Royal Sovereign and to possess superior qualities.

Messrs. Laxton Bros. also showed a dish of a new Peach, "Laxton's Advance," a large, pink-flushed fruit, much like Royal George in appearance, but larger and of superior flavour. The Committee expressed a wish to see it again, and accompanied by specimens of foliage.

Messrs. W. Seabrook and Sons, Chelmsford, exhibited fruiting branches of "Seabrook's"

Black Currant, a very prolific variety, which bears large, round fruits. The exhibitors were asked to send plants to Wisley for trial.

Messrs. JAMES VEITCH & SONS, Chelsea, exhibited a selection of their well-known fruit bushes in pots. At the back of this exhibit of splendid quality there were standard and fan-trained Peaches and Nectarines studded with ripe fruits. The body of the group was composed chiefly of dwarf pyramid Apples, Pears and Plums and short-stemmed, fan-shaped Peaches, all loaded with ripe fruits. The most attractive items were the red-streaked Lady Sudeley Apples and the Précoces de Croncels Nectarines, but the pale-golden Early Transparent Gages bore even more fruit.

S. HELLIBUT, Esq., The Lodge, Holyport, Maidenhead (gr. Mr. G. Camp) exhibited a group of such large and heavily-fruited pot Cherries and Plums as are rarely grown in private gardens. The largest bush, that of Cherry Bigarreau Noir de Guben, was fully 10 feet high and bore a large number of luscious fruits. The red Cherries were, however, the most attractive, especially those on the bushes of Bigarreau Napoleon. The Gages were Early Transparent and McLaughlin.

Messrs. STUART LOW & Co., Bush Hill Park, Enfield, exhibited many different sorts of fruiting Figs in pots. Trees of the well-known Brown Turkey variety bore ripe fruits of good size. In point of fruitfulness the variety White Ischia, which bears such luscious fruits, was a good second; for home consumption there is no more desirable variety, but the fruits are too soft to travel in good condition.

Messrs. WHITELEGG AND PAGE, Chislehurst, Kent, showed in long fruiting branches festooned on a pergola-like structure and in fruits laid out in dishes the fruiting capabilities of their Newberry, which was derived from the Loganberry and the Superlative Raspberry.

A small collection of seasonable Vegetables was exhibited by the Rev. CHALMERS HUNT, Letchworth, Herts. The leading feature was the dishes of Peas—Sutton's Early Giant, Prince of Wales and Centenary Marrowfat.

Messrs. J. PITHER, LTD., Uxbridge, presented a large quantity of Mushrooms, lifted, as grown, from the beds. These illustrated in a marked degree the fertility of the "Pither spawn" as well as the cultural skill of Mr. Bide, the manager.

Trials of Violas.

JUNE 5.—The deputation of the Floral Committee which visited Wisley on June 5 recommended Awards of Merit to the following varieties of Violas grown under trial. The awards were confirmed by the Council at the meeting held on June 17. The raisers' names are given in parenthesis:—Royal Scot (Grieve), Agnes Kay (Kay), Sulphurea (Grieve), Purity (Forbes), Redbraes Bronze (Grieve), Bethea (Gold), Alexandra (Grieve), Admiral of the Blues (J. P. Robertson), Redbraes White (Grieve), Blue Duchess (Dobbie), Redbraes Yellow (Grieve), and Virgin White (Todd). All these varieties were sent by Messrs. DOBBIE AND Co. Bridal Morn (C. Turner, Slough), and Fred Williams (Forbes), sent by FORBES, Hawick.

The following Violas were commended for having stood well through two seasons:—Kitty Bell, Pencaitland, Archie Grant, Walter Welsh, Maggie Mott, Snowflake, Grievei, Mrs. Chichester, William Robb, Primrose, Arabella, Max Kolb, Ivanhoe, Countess of Kintore, James Pilling, Kingcup, Molly Pope, Virgin White, Bullion, Rotherfield Belle, Kate Blyth, V. cornuta, Dawn and Palmer's White.

CITY OF LONDON ROSE.

JUNE 26.—The first exhibition of the above Society, which was formed to "foster and increase the love of the Rose and of Rose-growing amongst our city workers, who stand most in need of the freshening influence and beneficial relaxation that the exercise of such a hobby affords," exceeded the expectations of its most sanguine supporters. The large hall at the Cannon Street Hotel proved to be inadequate to contain the exhibits, which overflowed into an adjoining room.

The high quality of the flowers was surprising. The first-prize stands in Classes 9 and 10 were of "championship" quality. In nearly every class the competition was keen, and this was especially noticeable in the classes confined to the smaller growers. Such well-known cultivators as Messrs. J. BURRELL AND Co., B. R. CANT, FRANK CANT AND Co., ALEX. DICKSON AND SONS, PAUL AND SON, PRIOR, PRINCE, and STUART LOW AND Co. staged trade exhibits.

OPEN CLASSES.

The Nurserymen's Challenge Trophy for the best collection of 48 varieties was won by Messrs. ALEX. DICKSON AND SONS, Newtownards, Ireland. This winning stand was exceptionally strong in the deep-red varieties, of which there were velvety, fragrant blooms of such varieties as Earl Dufferin, Horace Vernet, and Edward Bohane. The brighter-coloured H. V. Machin and large blooms of François Michelon, Mildred Grant, Mrs. Edward Mawley, and the Lyon Rose were all noteworthy. 2nd, Messrs. B. R. CANT AND SONS, Colchester, whose collection was rich in the pink-coloured varieties, and contained in the bright-red A. Hartman the premier bloom shown in classes 1 to 16.

There were 12 exhibits in the class for 12 varieties, three blooms of each, and the first prize was awarded to Messrs. G. and W. H. BURCH for a splendid collection, in which Lady Ursula, the Lyon Rose, Mrs. T. Roosevelt, Dean Hole, and William Shean figured largely. 2nd, Mr. GEORGE PRINCE, Oxford, who showed the rich-red Edward Mawley and Bessie Brown in excellent condition.

The bunches of decorative Roses were excellent, and the arrangement was very tasteful. Mr. JOHN MATTOCK, Oxford, whose best vases were of Marie Van Houtte, Duchess of Wellington, and Lady Pirrie, won the first prize.

The exhibits of new Roses (varieties introduced to commerce during the past three years) were very interesting. The first prize was won by Messrs. ALEX. DICKSON AND SONS, whose best blooms were Mrs. H. Hawksworth, Lady Greenall, Mrs. Amy Hammond, Mrs. Foley Hobbs, and Duchess of Sutherland.

Class 7 in the open division was reserved for competition amongst amateurs, irrespective of the number of plants grown. The best collection of 24 blooms was shown by Mr. W. O. LINES, Bedford Road, Hitchin, who had fine examples of Bessie Brown, Lohengrin, Dean Hole, J. B. Clark, and Wm. Shean.

The next class was open to amateurs who grow fewer than 1,000 exhibition varieties. Here Mr. E. F. BROWN, Sussex Place, Slough, in whose stand Comtesse de Nadaillac, Dean Hole, and Mildred Grant were the finest blooms, was the most successful exhibitor.

MEMBERS' CLASSES.

The first four of the members' classes were for open competition. The City of London Championship Trophy induced excellent competition, and the winning collection of 12 blooms, shown by Mr. H. L. WETTERN, 16, Water Lane, London, was magnificent. The blooms of Wm. Shean, Mrs. J. Laing, Mildred Grant, Caroline Testout, Hugh Dickson, and Yvonne Vacherot were fit for exhibition anywhere. The bloom of the last-named variety was awarded the premier prize offered in Classes 9-17. The second prize was won by Mr. L. S. PAWLE, Stock Exchange, with a very creditable collection.

In the classes open to growers of fewer than 1,000 plants of exhibition varieties Mr. A. C. BROWN, Brookes Lodge, Reigate, showed the best exhibit of 12 blooms, and Mr. R. DE ESCHOFET, 55, Holborn Viaduct, the finest collection of 6 blooms.

METROPOLITAN CLASSES.

The first classes in this section were restricted to competition amongst members who grow their Roses within eight miles of the Royal Exchange. The Champion Trophy for the best 12 blooms was won by Mr. A. E. COXHEAD, 10, Ambleside Avenue, Streatham, with well-set-up, beautiful blooms of such varieties as Caroline Testout, William Shean, and Florence Pemberton.

The Champion Trophy offered to members within five miles of the Royal Exchange was won by Mr. R. DE ESCHOFET, whose exhibit included a splendid bloom of Frau Karl Druschki.

ROYAL AGRICULTURAL.

Floral Exhibits at the Bristol Show.

JULY 1-5.—The horticultural section of the Royal Agricultural Society's Exhibition at Bristol was by general consent among the best of the Society's successes, notwithstanding that the dates clashed with those of the Holland House Show. There may be no outstanding feature as was the case at Norwich, when Messrs. Wallace, of Colchester, enhanced their fame by a wonderful production in the way of a sunken wall garden; but the excellence of the trade and private exhibits throughout is such that justify this high praise. As at Gloucester a few years ago, Sir GEORGE HOLFORD, K.C.V.O., is represented by truly magnificent exhibits of Orchids and Amaryllis, the latter containing many distinct self-colours of great merit and the former a brilliant and extensive collection of Cattleyas; an old and seldom seen well-flowered Ærides odoratum; Odontoglossums, including a fine variety named Amabile; Brasso-Cattleya Euterpe, and many other choice plants. This magnificent exhibit of Orchids has been awarded the Gold Medal of the Royal Horticultural Society, and the Hippeastrums the R.H.S. Silver-Gilt Medal.

In the competitive class for a group of miscellaneous plants occupying a space of 350 square feet, Messrs. J. CYPHER AND SONS, Cheltenham, are awarded the first prize for a delightful arrangement of highly-coloured foliage and flowering plants, the self tone of colour in the flowers throughout the arrangement being very telling. Mr. HOLMES, of Chesterfield, is placed second for a fine collection of plants, most creditably arranged. 3rd, Mr. C. J. ELLIS, Weston-super-Mare. In the class for a collection of Orchids, arranged for effect in a space of 100 square feet, Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, are placed first; 2nd, Messrs. J. CYPHER AND SONS.

For a group of Carnations occupying 100 feet, with other foliage plants included for effect, Mr. CHARLES WALL, Melrose Nursery, Bath, the only competitor, is awarded the first prize. The first prize for a group of tuberous-rooted Begonias in pots, occupying a space of 100 square feet, is won by Messrs. BLACKMORE AND LANGDON, Bath, who well merited the first place, though they had no rivals.

Messrs. ARTINDALE AND SON, Sheffield, are the only exhibitors in the class for a group of hardy plants, Bamboos and Aquatics, and are awarded the first prize. In the next class, that for a group of hardy herbaceous plants and cut flowers, arranged on a ground space 25 feet by 10 feet, the last-named firm were given third prize, the second and first being awarded to Messrs. GIBSON AND Co., Bedale, and Messrs. HARKNESS AND SONS, Bedale, respectively, all three worthy exhibitors hailing from the broad-acred county. This form of staging has much to commend it, the effect created being much better than the usual table arrangement. Mr. CHARLES WALL, Melrose Nursery, Bath, is placed first for cut sprays of Carnations, occupying 12 feet by 5 feet space, with a light and bright arrangement, followed by the DUCHESS OF SOMERSET, with Mr. ENGELMANN, Saffron Walden, third.

One of the keenest competitions is seen in the class for 72 cut Roses, Messrs. DICKSON AND SONS, of Newtonards, being first, with very little dividing them from the KING'S ACRE NURSERY COMPANY, who are second. The best collection of cut Roses in a space 15 feet by 5 feet is staged by Mr. R. ADAMS, White Wells Nurseries, Bath, who has fine blooms; 2nd, Messrs. G. COOLING AND SONS, Bath.

For Sweet Peas there was a spirited competition. Messrs. KING AND Co., Coggeshall, are placed first; Miss HEMUS, Upton-on-Severn, second; Mr. J. STEVENSON, Wimborne, third.

The DUKE OF PORTLAND, Welbeck (gr. Mr. Jas. Gibson), without opposition wins the first prize for a decorative display of ripe fruit, thirty dishes in a space of 20 feet by 4 feet, with excellent Peaches and Nectarines, Figs, "King George" Melon, and Madresfield Court Grapes. This exhibitor also excels in the classes for (*a*) four bunches of Grapes, distinct; (*b*) two bunches of Black Hamburgh; (*c*) two bunches of Madresfield Court; (*d*) two dishes of Nectarines; and (*e*) two dishes of Peaches.

Non-Competitive Exhibits

Non-Competitive Exhibits, as already stated, are so numerous as to constitute the chief part of the show

Large Gold Medals are awarded the following :—Sir George Holford, K.C.V.O., Westonbirt (1) for a group of Amaryllis, and (2) for Orchids; Sutton and Sons, Reading, for a superb stand of vegetables and flowers; Geo. Mallett and Co., Cheddar, for a display of rockwork and plants.

Gold Medals to James Carter and Co., Raynes Park, for vegetables; E. W. King and Co., Coggeshall, for Sweet Peas; W. J. Unwin, for Sweet Peas; Young and Co., Cheltenham, for Carnations, arranged on 300 or more square feet of space, with massive pyramids in bold colours; Stuart Low and Co., Enfield, for Orchids, Roses, and Carnations; H. B. May and Sons, for a choice collection of Ferns; King's Acre Nurseries, Ltd., fruit trees in pots, Apples, Lady Sudeley, James Grieve, being finely coloured; Jefferies and Sons, Cirencester, for a collection of Conifers; Jarman and Co., Chard, for Sweet Peas, Roses, etc.; Isaac House and Son, Westbury-on-Trym, for a collection of Alpine and herbaceous plants and flowers; Alexander Dickson and Sons, Ltd., Newtownards, for a collection of Roses containing several novelties; Dobbie and Co., Edinburgh, Sweet Peas, etc.; Vernon T. Hill, Mendip Nurseries, Bristol, herbaceous and Alpine plants, etc.

Silver-Gilt Medals to Blackmore and Langdon, Bath, for a fine collection of Delphiniums; W. Artindale and Son, Sheffield, for Violas, Sweet Peas, and Roses; James MacDonald, Harpenden, for a collection of Grasses; H. N. Ellison, West Bromwich, for a collection of Ferns; James Garaway and Co., Clifton, for a good stand of Schizanthus, Petunias and a number of well-flowered Eucharis grandiflora; Geo. Cooling and Sons, Bath, for hardy shrubs; Godfrey and Sons, Exmouth, for Canterbury Bells, Pelargoniums, etc.; A. J. Keeling and Sons, Bradford, for Orchids; Parker and Sons, Bristol, for Roses, etc.; A. Walters and Son, Bath, for herbaceous flowers, Roses, etc.; Robert Veitch and Sons, Exeter, for a most interesting collection of choice shrubs, which include Rhododendron Falconeri, Leptospermum flavescens obcordatum, L. Nichollsii, Grevillea alpestris, G. longifolia, Ozothamnus rosmarinifolius, Celmisia Monroii, Mitraria coccinea, etc.; A. F. Dutton, Iver, Bucks, for Carnations; John Waterer and Sons, Ltd., Bagshot, for Kalmia latifolia, late-flowering Rhododendrons, Japanese Maples, etc., and Kelway and Son, Langport, for Delphiniums.

Silver Medals to Cutbush and Sons, Highgate, N., for Carnations, Roses, etc.; E. C. Bowell, Alpine Gardens, Cheltenham, for collection of Alpines; C. J. Ellis, Weston-super-Mare, for Alpines; Miss Hemus, Upton-on-Severn, for Sweet Peas, etc.; J. Milburn, Victoria Nurseries, Bath, for Alpines, etc; Rich and Co., Bath, for hardy cut flowers; W. Treseder, Ltd., Cardiff, for Roses, Pelargoniums, etc.; Geo. Massey and Sons, Spalding, for hardy cut flowers; Col. Cary Batten, Leigh Lodge, Bristol, for a collection of Orchids; Toogood and Sons, Southampton, for a collection of choice vegetables.

Awards of Merit to Young and Co., Cheltenham, for Carnation Hon. John Boscawen, a new pretty flesh-pink, and Lady Nunburnholme, a new delicate salmon shade of pink, with petals of good substance; Rose Mrs. A. Glynn Kidstone, a new H.T. variety of a pearly-pink colour, and R. Denis, a new flowering vermilion variety, said to be good in growth and free-flowering, shown by A. Dickson and Sons, Newtownards.

Awards Made by Royal Horticultural Society.

Gold Medal to Sir Geo. Holford, Westonbirt (gr. Mr. Alexander), for Orchids.

Silver-Gilt Medal to Sir Geo. Holford for Hippeastrums; Blackmore and Langdon, Bath, for Begonias; Duke of Portland, Welbeck (gr. Mr. Jas Gibson), for a collection of fruit; H. B. May and Sons, Edmonton, for Ferns, and Kelway and Son, Langport, for Delphiniums.

Large Silver Cups to Cypher and Sons, Cheltenham, for a group of plants; Kingsacre Nurseries Co., Ltd., for fruit trees in pots, and Sutton and Sons, Reading, for vegetables and flowers.

Silver Cups to W. Holmes, Chesterfield, for a group of plants; Harkness and Co., Bedale, for hardy herbaceous plants; Stuart Low and Co., Enfield, for plants and cut flowers; R. Veitch and Son, Exeter, for miscellaneous plants; H. J. Ellison, West Bromwich, for Ferns; A. F. Dutton, Iver, for Carnations; and Garaway and Co., Bristol, for Eucharis, etc.

Silver Banksian Medals to A. J. Keeling and Sons, Bradford, for Orchids; Slade, Taunton, for Pelargoniums; Parker and Sons, Bristol, for Roses; Miss Hemus, Worcester, for Sweet Peas; and Col. Cary Batten for Orchids.

Standard Cups to Mallet and Co., Cheddar, for rock plants; J. Carter and Co., Raynes Park, for vegetables; Gibson, Bedale, for hardy plants; Jefferies, Cirencester, for hardy shrubs; Alex. Dickson and Sons, Newtownards, for Roses; Godfrey and Son, Exmouth, for Pelargoniums, etc.; Wall, for Carnations; Armstrong and Brown, for Orchids, and Vernon Hill, for Sweet Peas.

Silver-Gilt Flora Medals to Dobbie and Co., Marks Tey, for Sweet Peas; Young and Co., Hatherley, for Carnations; and Adams, Bath, for Roses.

Silver-Gilt Banksian Medals to E. W. King and Co., Coggeshall, for Sweet Peas; Jarman and Co., Chard, for Roses and Sweet Peas; W. J. Unwin, Hinston, Cambridgeshire, for Sweet Peas; and G. Cooling and Co., Bath, for Roses.

Silver Knightian Medal to Toogood and Son, Southampton, for vegetables.

Silver Flora Medals to Artindale and Co., Sheffield, for water garden; Walters and Co., for Roses; and Kelway and Son, Langport, for Delphiniums.

RICHMOND HORTICULTURAL.

June 25.—For many years the summer shows of the Richmond Horticultural Society were famous for their exhibits of Roses, but then came the inevitable lean years, and for a time Roses ceased to occupy their former prominence. But it would seem that the old glory of the Richmond Roses has returned. Last year the Roses were truly magnificent, and at the show held on the above date in the Old Deer Park Roses shared with the dinner table decorations the honour of being the chief features of a successful show. The hardy border flowers were finely shown, and the stove and greenhouse plants were also very attractive. As compared with last year's show, the weak spot on this occasion was in the Sweet Pea classes; the 1912 exhibits were exceptionally fine, but this year it must be confessed that the display was below the average. Queen Amelia of Portugal visited the show during the afternoon and made a prolonged inspection of the exhibits.

Open Classes.

Sir Max Waechter, Richmond (gr. Mr. H. Barfoot), was the most successful exhibitor in the class for a large group of plants. His pleasing arrangement of well-grown plants attracted a deal of admiration from the visitors. The principal flowering plants were Carnations, Campanulas, and Orchids. 2nd, C. M. Bartlett, Esq., East Sheen (gr. Mr. H. Hicks). Sir Max Waechter was the only exhibitor of three varieties of Palms, and was awarded the first prize for a collection of healthy and graceful plants. The prizes for Orchids were won by Dr. M. Lacroze and the Rev. D. L. Chandler, Ashford, Middlesex, in the order named. Exotic Ferns were well shown, the first prize being awarded for a nice collection of large plants to Mrs. Vaughan Arbuckle, Richmond (gr. Mr. H. Lawrence); 2nd, Dr. M. Lacroze; 3rd, Mrs. King Farlow. The competition in the class for five stove and greenhouse foliage plants was also good; Mrs. Arbuckle won the first prize; 2nd, C. M. Bartlett, Esq.; 3rd, E. R. W. Bennett, Esq. (M. W. Chant), Sunbury-on-Thames.

The collection of Caladiums which won the first prize for Lionel Warde, Esq., Petersham (gr. Mr. A. Allum), was composed of exceptionally fine plants; 2nd, C. M. Bartlett, Esq.; 3rd, Mrs. Arbuckle.

Mr. Lionel Warde also deservedly won the first prize for Coleus. The best tuberous Begonias were shown by G. Atkins, Esq., East Sheen (gr. Mr. W. J. Hill), who also won the first prize in the class for Streptocarpus. Mrs. King Farlow was awarded the first prize for a very good collection of Gloxinias.

Roses.

As already indicated, Roses were splendidly shown, and the first prize collection of 48 varieties, three blooms of each, shown by Messrs. R. Harkness and Co., Hitchin, was "good enough for anything"; 2nd, Messrs. B. R. Cant and Sons, Colchester; 3, Messrs. D. Prior and Sons, Colchester.

In the class for 24 varieties the premier prize was awarded to Messrs. W. and J. Brown, Peterborough; 2nd, Messrs. C. and W. H. Burch, Peterborough; 3rd, Messrs. R. Harkness and Co. The best 12 blooms, distinct, were exhibited by Messrs. C. and W. H. Burch, who also won the first prize for 12 blooms of any one variety; whilst Messrs. W. and J. Brown showed the best 12 Tea Roses.

The class for 24 bunches of hardy herbaceous flowers was responsible for a splendid array; Lionel Warde, Esq., was placed first with an excellent collection; 2nd, Messrs. Massey and Son, Spalding; 3rd, Marquis of Ripon, Kingston Hill (gr. Mr. Thos. Smith).

Sir Walpole Greenwell, Bart., Caterham (gr. Mr. W. Lintott), was the most successful exhibitor of fruit. He won the first prizes offered for a collection of six dishes of fruit, for white and for black Grapes.

Amateurs' Classes.

In this division Roses also occupied great prominence, and in the two classes (for 24 and for 12 blooms, distinct), both of the first prizes were won by the Rev. Chalmers Hunt, Letchworth; whilst the Rev. J. H. Pemberton, Haveringatte-Bower, received the second prizes.

The "Carter's" prize for a collection of vegetables was won by Miss Langworthy.

The baskets of plants were again very attractive, the first prize being awarded to Lionel Warde, Esq., and Sir Walpole Greenwell showed the best six dinner table plants.

SOUTHAMPTON ROYAL HORTICULTURAL.

June 25.—By permission of Ellen Lady Swaythling, the annual Rose Show of the Southampton Horticultural Society was held in the grounds attached to South Stoneham House. The exhibits were not very numerous, but were of an interesting character. They were of first-class quality and included a very large number of newer varieties, many of the old favourites being almost unrepresented. There were scarcely any H. P. varieties to be seen, so much more popular have the H. T.'s become of late years. The arrangements for the show were excellent, having been made under the superintendence of the secretary, Mr. Fnidge, and the chairman of Committee, Mr. H. E. Molyneux. Twenty-seven classes for cut flowers were provided, ten being open competitions. The principal class was for forty-eight distinct varieties; there were four competitors, and an effective display was made by each. Mr. G. Prince, of Longworth, Faringdon, was first, with medium-sized specimens of a high quality. Messrs. D. Prior and Sons, of Colchester, were placed second; their specimens were larger, but not so well coloured, though one of their blooms, Lady Barham, was so fine that it was selected as the premier bloom in the open classes. Mrs. J. Mattock, of Headington, Oxford, was third. Mr. G. Prince was also first in a class for twelve triplets, in which four exhibitors competed. Mr. J. Mattock was a good second, but his specimens were rather smaller than Mr. Prince's. In the competition for twelve Tea or Noisette Roses Mr. Prince was again placed first, with a splendid exhibit of well-coloured healthy blooms. The second place was allotted to Alex. H. Gray, Esq., Beaulieu, Newbridge, Bath, for a very creditable exhibit. Mr. Gray won the first prize for six specimens of any yellow or white Roses with Mrs. Foley Hobbs; Messrs. Prior and Sons took the second prize with Bessie Brown. Six competitors entered in a class for a representative group, to occupy 50 square feet; but only two finally competed, Mr. J. Mattock being placed first, and Messrs. W. Rogers and Sons, Southampton, second. Baskets of cut Roses, in three distinct sorts, made a good display. Mr. J. Mattock won the first prize in this class with several sorts well blended; Messrs. D. Prior and Sons came second, and Mr. G. Prince third.

Five ladies competed in the class for a decorated dining table 6 feet by 4 feet. Mrs. A. M. BURNETT, Southampton, was placed first for an effective arrangement of Irish Elegance with its own foliage. Mrs. BEALING came second, but her centre-piece of Mme. Abel Chatenay was rather too heavy for perfect beauty. This lady gained the first prize for a vase of cut Roses, and Mrs. BURNETT was successful in the class for a basket of mixed kinds, very effectively arranged.

There were several classes for amateurs. For eighteen distinct varieties four competitors entered, and Mr. W. JARRATT THORPE, Gransmoor, Hucclecote, Glos., won the first prize. Mr. A. H. GRAY came second, with rather smaller specimens; and Dr. SEATON, Lymington, was third. In the class for six triplets there were five competitors. Mr. A. H. GRAY won the first prize with a fine set, and was also first in the class for twelve Tea or Noisette varieties. A class for twelve distinct blooms, open only to growers of fewer than five hundred plants, was well contested. Dr. J. T. GILLETT, of Andover, was placed first, with some very neat specimens. Mr. J. A. FORT, the College, Winchester, won the piece of plate which formed the first prize in the class for twelve specimens, open to growers of less than three hundred plants. Among the classes confined to the county of Hants was one for twelve distinct blooms, the prize for which is the "Allan Gunn" Cup. This was won by Mr. H. E. MOLYNEUX, of Southampton, five other competitors taking part. For twelve Tea or Noisette varieties Mr. ALAN SEARLE, of Bassett, was placed first. Mr. MOLYNEUX gained the first prize for six bunches of decorative varieties, and Mr. A. SEARLE was second. In the class for a display of garden or decorative varieties Mr. F. M. VOKES, Birch Lawn, Sholing, was placed first. There were classes for a few other flowers besides Roses; and good varieties of Sweet Peas were to be seen in the classes devoted to this flower. Messrs. TOOGOOD AND SONS offered prizes for six bunches of distinct varieties. There were three entries, and the first prize was awarded to Mr. USHER, gardener to Sir Randolph Baker, Branstone. In the amateur class for six bunches the first prize was won by Mr. S. T. WHITE, Eastleigh. Trade exhibits were numerous and effective.

Messrs. J. K. KING AND SONS, Coggeshall, showed a remarkably fine collection of well-grown Sweet Peas, and Messrs. B. LADHAMS AND SONS, Shirley, received a Silver-Gilt Medal for a fine display of hardy-cut flowers, charmingly arranged, and a large collection of Pinks, for which their firm is noted. Messrs. W. H. ROGERS AND SON showed Roses, hardy plants, and an effectively arranged rockery. Mr. E. J. WOOTTEN, Eastleigh, showed numerous varieties of well-grown Carnations.

CROYDON HORTICULTURAL.

JUNE 25.—For many years past unfavourable weather has attended this society's shows, but this year a shower of rain about noon was the only drawback to an otherwise perfect day. The Park Hill recreation ground, where the show was held, is admirably adapted to such a purpose. It is central in position, and the stately trees with which it is partly bordered, and the proximity of the beautiful grounds of Coombe Cliffe, greatly enhance the charm of the site. Coombe Cliffe Gardens were opened on this occasion by the kindness of Alderman Allen, and many of the visitors enjoyed a stroll through them. Rose exhibits have always been made a special feature in the shows of the society, and over a dozen cups, bowls, and pieces of plate are offered in this section alone. This ensures keen competition, and the display of Roses shown on Wednesday is considered to have been the best ever known in the forty-six years' history of the society. The Croydon Challenge Silver Cup, which was competed for in the open class for nurserymen, was awarded to Messrs. B. R. CANT AND SONS, Colchester. These people showed a collection of forty-eight distinct varieties, each perfect in its own way. Messrs. R. HARKNESS AND CO., Hitchin, and Messrs. F. CANT AND CO., Colchester, came 2nd and 3rd respectively.

In the class for twenty-four distinct trebles Messrs. B. R. CANT AND SONS were again successful, and were followed by Messrs. F. CANT AND CO., and Messrs. D. PRIOR AND SONS, Colchester. The remaining classes in the open sections were well competed.

In the section for amateurs competition was exceedingly keen. Mr. H. L. WETTERN, Waratah, Sanderstead, was the winner of the society's Cup in the principal class, for twenty-four distinct varieties; Dr. J. E. PALLETT, Earl's Colne, came 2nd; and Mr. G. C. EVERSFIELD, Denne Park, 3rd. Mr. WETTERN also gained the National Rose Society's Silver Medal for the best H. P. or H. T. Rose in the amateur's section. His choice was a H. T. "Avoca," a splendid specimen. Dr. LAMPLOUGH, Alverstoke, was also successful in gaining the Silver Medal of the National Rose Society for the best Tea Rose (amateurs)—this was a white "Maman Cochet." Besides this, he was the winner of two cups. The "Frank Cant" Challenge Cup and the "Bowman" Silver Cup were won by Dr. PALLETT, and Mr. E. B. LEHMAN, Crawley, Mr. P. T. DAVIS, Burgess Hill, and Mr. FRED SLAUGHTER, Steyning, were among other winners. The ladies' class for table decorations was very poorly represented, Mrs. H. L. WETTERN being the only competitor. In the open class for twelve bunches of Sweet Peas the number of exhibitors was not large. Mr. R. J. LEMON, of Godstone, was the winner, with some very fine blooms. Mr. T. N. COLLYER, gardener to Mr. A. H. ALLEN, Beddington, showed a very fine group of plants, and secured the 1st prize for a group of Gloxinias. Specimen plants were not very well shown; and vegetables, probably owing to the recent drought, were not up to the usual standard. This was most evident in the cottagers' classes, in which the produce is usually of a very high order of merit. Trade exhibits were numerous and good, many well-known nurserymen contributing excellent groups.

After the exhibition a sale of flowers was held in one of the tents, the proceeds of which (amounting to £6 2s.) were sent to the Royal Gardeners' Orphan Fund.

The attendance was very good, and the gratifying result of the exhibition is that a sum of nearly £40 has been raised, which will be devoted to the purpose of wiping off last year's deficit.

REIGATE ROSE AND SWEET PEA.

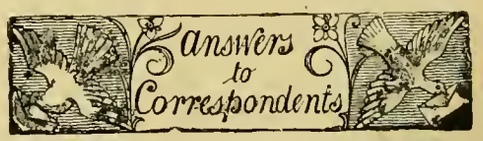
JUNE 29.—The eighth annual exhibition was held on the above date in the grounds of Broke's Lodge. Fine weather prevailed, and, as the classes were exceptionally well filled, there was a brilliant display of exhibits. The Challenge Cup offered for forty-eight distinct varieties of Roses (open to nurserymen) was won by Messrs. FRANK CANT AND CO., Colchester. This firm also won the Challenge Cup offered for twelve bunches of garden Roses, distinct. In the class for twenty-four distinct varieties the 1st prize was awarded to Mr. W. HAMMOND, Burgess Hill, who showed choice blooms of the varieties Edward Mawley, Lyon, Mrs. T. Roosevelt, Hugh Dickson, Mme. Jules Gravereaux, and Mrs. Roosevelt; 2nd, Mr. GEO. PRINCE, Longworth; and 3rd, Mr. ERNEST HICKS, Wallingford. Mr. GEO. PRINCE, Oxford, was successful in the class for eighteen distinct varieties, Teas or Noisettes, prominent blooms being Mrs. Myles Kennedy, Mme. Jules Gravereaux, White Cochet, Media, and W. R. Smith; 2nd, Messrs. BENJAMIN R. CANT AND SONS.

In the amateur classes the Challenge Cup offered for twenty-four distinct varieties was awarded to Mr. H. L. WETTERNE. His bloom of Mme. Jules Gravereaux was awarded the Silver Medal offered for the best bloom in the amateur classes.

For twelve distinct varieties open to growers of fewer than 1,000 plants, Dr. LAMPLOUGH was successful in winning the Challenge Cup.

The most successful exhibitor of Sweet Peas in the open section was Mr. NOEL E. THORNTON, who won the premier award in the classes for six bunches of distinct varieties, two bunches of scarlet or crimson varieties, two bunches of pink varieties, and the Challenge Cup for twelve distinct varieties.

Non-competitive exhibits included a magnificent display of Sweet Peas from Mr. JOHN K. KING, Coggeshall, and an exhibit of Roses from Mr. ELISHA J. HICKS, Twyford, Berkshire, both of whom were awarded Gold Medals. Messrs. W. WELLS AND CO., Merstham, J. CHEAL AND SONS, Crawley, and the GUILDFORD HARDY PLANT Co. showed attractive exhibits of flowers.



ASPLENIUM BIFORME UNHEALTHY: *J. and A. H.* The plants are infested with small thrips, which attack the crown. The pests are not readily destroyed by syringings or fumigations, and the best treatment for infested plants is to place them in a cold greenhouse, or better still, a cold frame. The pest is a tropical species and will not succeed under cool conditions. The plants may be expected to grow out of their present unhealthy condition and produce healthy fronds by the autumn.

FIR TIPS DAMAGED: *P. W.* The injury is caused by the Conifer Coccus. It is too late to spray now, but next winter drench the trees thoroughly with soft soap and paraffin emulsion.

MUSHROOM BEDS: *H. H* A fungus—Hypomyces perniciosus, is causing the injury, and is present in the soil or dung. The most certain remedy is to remove all the old soil and start afresh, otherwise outbreaks of the disease may occur from time to time.

NAMES OF PLANTS: *Mrs. Crum.* Acer Negundo (Box Elder).—*W. P.* 1, Holcus lanatus; 2, Festuca duriuscula; 3, Holcus lanatus; 4, Lolium perenne; 5, Arrhenatherum avenaceum; 6, Poa trivialis; 7, P. pratensis; 8, Deschampsia flexuosa; 9, Festuca ovina; 10, Alopecurus pratensis; 11, Bromus mollis; 12, Holcus lanatus variegatus.—*C. S. and Co.* Phlox lilacina.—*L. L.* 1, Saxifraga Aizoon var.; 2, Sempervium filiferum; 3, Sedum rupestre monstrosum; 4, Sempervivum sp., too scrappy to identify.—*C. W.* 1, Rêve d'Or; 2, Wm. Allen Richardson; 3, Albert Stopford; 4, Reine Olga de Wurtemburg; 5, Albéric Barbier.—*Mr. O. O. Wrigley.* Linum catharticum. *F. W. S.*: Petrea volubilis.—*Moseley*: Steptosolon Jamesonii.—*F. F.* 1, Cattleya luteola; 2, Oncidium pubes; 3, Stelis micrantha; 4, Oncidium divaricatum.—*J. D., Blackheath.* The leaves sent for determination are of a type common to many plants, and it is impossible to say to what they belong. The only climbing plants with which we are acquainted that would agree with your description are the Actinidias, of which several species are in cultivation.—*C. B. G.* Pernettya mucronata.

PEACH LEAVES DISEASED: *R. R. G.* Shot-hole fungus is present on the leaves. It is too late to treat the plants now. Next season spray them when the leaves are quite young with the self-boiled lime-sulphur mixture.

PHLOX GROWTHS: *A. E. T. R.* Eel-worm is present in the root. Treat the soil with gas-lime.

ROSES FAILING: *Delta.* Both the soil and the plants are evidently at fault; the flowers of named varieties would not open like wild roses, which have no doubt developed from suckers. As you say that the plants have shed their buds the roots would seem to be defective in action. This might be the result of poor or unsuitable soil, of insufficient working, or an excess of strong, artificial manure. The best plan is to trench the ground next autumn to a depth of 2 or 3 feet, adding if possible some new soil. Such Roses as are healthy can then be re-planted and the stock made up with fresh plants. Four suitable varieties for standards are:—Madame Hoste (yellow), Frau Karl Druschki (white), Hugh Dickson (crimson), and Caroline Testout (pink).

VINE LEAVES: *J. L.* The injury is known as sap-warts, and is caused by the presence of too much moisture in the air. Afford the Vines plenty of ventilation.

Communications Received.—W. Newman [thanks for 1s. 6d. for R.G.O.F. box.—EDS.]—E. H.—F. E. P.—F. E. G.—G. J. and Son—R. S.—W. W., Newcastle-upon-Tyne—A. B. H.—R. T.—T. W.—Castell—W. H., Euston—J. W.—J. W., Checkendon—G. M.—J. S.—Dublin—W. T. and Co.—W. S. C.—A. H. B.—C. E. P.—E. M.—F. A. W.—H. F. B.—G. S.—R. W. T.—A. W.—G. H. H. W.—T. H. R.—J. A. J. B.—F. G. B.

RHODODENDRON "CLORINDA"

A Hybrid raised by crossing R. javanico-carminatum and the variety "Minerva.

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Gardeners' Chronicle
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CONTENTS.

ILLUSTRATIONS.

DISEASES OF THE SWEET PEA.

THE object of this paper is two-fold. First, to describe certain diseases of the Sweet Pea; second, to add to some topics of discussion in the horticultural press. From these discussions and from correspondence which we have carried on, it is evident that English gardeners are very much alert to the difficulties which beset the growing of Sweet Peas. The American growers are beginning to realise that the failure in Sweet Pea culture cannot be attributed always to the ravages of the green aphis or to overfeeding, but that there are also definite disease factors to be taken into account. These are in the form of fungous and bacterial parasites which are capable of producing various diseases. We shall therefore enter at once into a discussion of some of these diseases.

The Mosaic Disease.

This disease is readily recognised by the yellow dotting or mottling of the leaves, hence the name mosaic (see figs. 8 and 9). In varieties with thick leaves this mottling is associated with curling; a cessation of growth results, but later the plant may overcome the disease. In varieties with delicate and thin leaves the yellow mottling soon reaches a state where much of the chlorophyll disappears and the affected leaves become yellowish, then whitish, and finally drop prematurely. In very advanced stages the disease is also noticed on the stems, causing dwarfing, yellowing and rolling, though this is not common. The mosaic disease affects the seedlings at an early stage, and for some time keeps pace with the growth of the plant. Infected seedlings or older plants often show a curling of the youngest leaves, suggesting the rolling due to green aphids (see fig. 8). Badly diseased plants often bear flowers, but the blooms occur either on very short peduncles, or, if borne on comparatively long ones, they have their petals curled and distorted, and the natural colour of the blossom is faded. All varieties, with the exception perhaps of the Cupid or dwarf varieties, are subject to the disease; but some sorts are much more severely affected than others. It is not uncommon to see infected plants so badly diseased as to be unable to make any further growth. In the majority of cases under our observation, however, infected plants outgrow the disease entirely, showing a distinct line of demarcation between the early affected parts and the healthy, new growth made at a later period. Other leguminous plants which suffer from a similar mosaic disease are the Red Clover (Trifolium pratense L.), and several forage species of Lathyrus.

Fig. 8.—The mosaic disease. Dwarfing of plant and rolling of leaves, characteristic symptoms.

The mosaic disease of the Sweet Pea may be induced artificially by thrusting a sterile needle from an infected into a healthy plant. The check punctures remain free. Under field conditions the green aphids appear to be active agents in the distribution of the disease. The malady may be reproduced on healthy plants in the laboratory by transferring stem mothers of green aphids from infected plants to healthy ones. In twelve to fifteen days the typical mosaic appears. The mosaic disease cannot, however, be reproduced when the stem mothers are free from—that is, not carrying—the disease, which shows that the mosaic is not a disease which is induced by the puncture of aphids but that the aphids are carriers of the disease. The mosaic, therefore, is a contagious disease, although all attempts to discover the organism have as yet failed. The mosaic affects greenhouse plants as well as those in the garden.

Root Rot Caused by Thielavia.

Chittenden* and Massee† have suspected the fungus Thielavia basicola to be the cause of "Streak." This latter disease we have shown to be of bacterial origin, and related to a bacterial disease of the clovers. Plants severely infected with Thielavia have practically little or no root system, since the latter is destroyed by the fungus as rapidly as the roots appear. Whatever root system be present is of a stubby nature, charred in appearance (see fig. 11 at ×). The fungus sometimes works up on the stem to a dis-

Fig. 9.—The mosaic disease. Showing the curious mottling of the leaves.

* Chittenden, F. J., "Diseases of the Sweet Pea," *Sweet Pea Annual*, 14-24, 1912, Eng.

† Massee, George, "A Disease of Sweet Peas, Asters and other Plants—Thielavia basicola Zopf.," *Roy. Bot. Garden, Kew, Bul.*, Misc. Inf., 44-52, 1912.

tance of 2 to 3 inches above ground, but never to the extent of invading the entire stem. It is probably due to this blackened appearance of the roots and of the stem nearest the ground that some workers have mistaken this disease for the well-known "Streak" disease. Chittenden, in his report to the National Sweet Pea Society of England, gives an accurate description of the "Streak," so that there can be no doubt but that he had the disease well in mind—that is, he described it as a stem disease. The Thielavia disease, as already mentioned, is not a stem but a root disease.

Chittenden seemed to have been unable to infect healthy Sweet Pea seedlings with the fungus Thielavia basicola under normal conditions of growth. It was only when his plants were subjected to overwatering that the fungus became an active parasite.

In our own inoculation experiments, healthy Sweet Pea seedlings have been readily infected by placing the Thielavia fungus on the roots of plants growing in sterile soil. In two to three weeks the roots were thoroughly diseased. Overwatering was not found necessary to bring about infection, although such treatment as well as injury to the roots favour the fungus in its activity.

The fungus Thielavia basicola is a very common source of seed-bed trouble in tobacco and trucking districts in the United States. Undoubtedly this fungus is common in the gardens of Great Britain, which explains its occurrence on the roots of plants attacked by "Streak."

Plants infected with Thielavia basicola do not quickly die; they may linger for a long time, or indeed sometimes throughout the entire growing season. However, such infected plants remain very dwarfed, and are practically useless for flower production.

Fig. 10.—Root rot caused by Thielavia. Contrasting healthy with diseased plant same age.

Root Rot Caused by Rhizoctonia.

This fungous disease is common to many seedlings, namely, Lettuce, Tomato, Tobacco, Pea and others. Like the culinary Pea, the Sweet Pea in its early stages is also subject to the disease. The fungus is known as Rhizoctonia and also Corticum vagum.

Severely infected plants have practically no root system (see fig. 12 *b*). In less infected plants only one or two rootlets may be destroyed. By the layman this disease may be confused with the stem rot, a description of which follows. It differs from the latter in its browning effects on the roots, and in severe cases in the total destruction of the root. The latter disease rots the stem at or near the surface of the ground.

Fig. 11.—Root rot caused by Thielavia. Comparing root systems of healthy plant with diseased plants same age.

Stem or Collar Rot.

This is usually a seedling disease, although it may attack plants of all ages. Like the Rhizoctonia rot it attacks many different kinds of seedlings. This trouble is most severe in houses poorly ventilated and in beds over-watered or lacking proper drainage, and in damp places out-of-doors. The disease spreads very quickly, and is soon fatal. Affected plants first show a wilting of the tip and flagging of the leaves, and then the

seedlings fall over and collapse (see fig. 13). The cause of this disease is a fungus (Sclerotinia libertiana), which also causes

Fig. 12.—Root rot caused by Rhizactonia. (*a*) healthy, (*b*) diseased.

a drop disease of Lettuce and of other plants. The fungus does not seem to attack the roots, but penetrates the collar of the stem and completely invades the vessels of the plants, thus clogging the upward flow of the water from the roots to the stem. Freshly collapsed plants usually have a water-soaked appearance, later to be overrun with a white weft, which is merely the mycelium of the fungus; this is followed by sclerotia (fruiting bodies), which are found scattered here and there on or within the affected stems. The fungus is a soil organism which occasionally causes root trouble on clover. It is sometimes introduced with animal manure.

Fusarium Wilts, or Root Rots.

Another form of root rot is that caused by two species of the fungus Fusarium. The fungi are distinct and yet produce the same symptoms in disease, namely, that of a wilt and root rot. Each Fusarium when once introduced is a persistent soil organism. Seeds germinate normally, and everything looks promising for a good stand. However, when the seedlings reach the height of about 8 to 10 inches they suddenly wilt, fall over, and collapse (see fig. 14). Seedlings thus affected may be readily pulled out, the central woody region easily slipping out from the bark or cambium which has been rotted by the fungus. If the collapsed seedlings are allowed to remain on the ground the stems will soon be found covered with the sickle-shaped spores of the fungus. The rotted seedling becomes a breeding place for small flies which infest decaying organic matter. These spread the spores of the fungus from infected to healthy plants. Rain and running water also distribute this disease. These species of Fusarium are as yet undetermined; however, more work is in progress on them.

Root Galls (Eel Worms).

The presence of eel worms is characterised by small swellings on the roots. These

Fig. 13.—Collar rot or wilt (Sclerotinia)— (*a*) healthy plants in sterile soil, (*b*) and (*c*) infected seedlings.

are either formed singly, thus giving the roots the appearance of a minute swelling, or they run in pairs or in strings, thus creating a beaded appearance (see fig. 17). These galls cannot be mistaken for the normal root nodules of leguminous plants (see fig. 18), as the latter are considerably larger and lobed, while the former

Fig. 14.—Fusarium wilt or root rot. (*a*) healthy plants in sterile soil, (*b*) wilted seedlings in soil infected with disease.

are small and elongated. Affected plants stop growing and show a dwarfed and sickly appearance. Such plants may produce a few blooms which are of little value since they are borne on small peduncles. The disease is not often met with in the field, but it is a common greenhouse trouble. Sometimes the disease is manifested in spots which gradually spread, at other times the entire bed is uniformly infested, and the prospect of a crop of blooms cannot be realised.

The cause of the root gall is one of the eel worms (Heterodera radicicola), a common root trouble in greenhouses on Roses, Violets, Carnations, Begonias, Lettuces, Cucumbers and Tomatos.

The eel worm is introduced in the greenhouse with infected soil or manure.

Bud Drop, or Failure to Set Blossoms.

A common trouble in the culture of Sweet Peas for market and show purposes is the failure of apparently healthy and rapidly-growing plants to complete the bud development. The bud appears, but quickly withers, finally dropping. Hence the term "bud drop" well describes this behaviour.

It results from the use of a too highly nitrogenous food ration. That is, the trouble is one of nutrition, in which the mineral elements are too low, especially phosphorus and potassium. We have successfully controlled this trouble within one week by the application of phosphoric acid and sulphate of potash along the row.

ANTHRACNOSE.

The symptoms of a disease known as Anthracnose are diverse. Sometimes it attacked and die. On the leaves the disease starts as whitish spots, which enlarge and involve the entire area (see fig. 16).

FIG. 15.—BITTER ROT OF APPLE CAUSED BY ANTHRACNOSE.

is manifested in a wilting or dying of the tips, which become whitish and brittle and

FIG. 17.—SWEET PEA ROOTS AFFECTED WITH EEL WORM.

readily break off. At other times the dying works downwards, and involves the entire branch. Frequently also the leaves are Such infected leaves become brittle, and soon drop. Examination of an infected leaf with a hand lens shows that it is peppered with minute salmon-coloured pustules. At the time of blossoming the fungus makes its attack on the peduncle at the point of union with the buds, in this case producing bud-drop, the bud hangs wiltingly from the peduncle, or the fungus attacks both the flower bud and the peduncle, in which case both dry up but do not fall off. The most easily distinguishable symptoms of this disease are on the seed pods. Infected pods lose their green colour, become shrivelled, and are soon covered with salmon-coloured patches which cannot fail to attract attention. The cause of the anthracnose is the fungus Glomerella rufo-maculans (B) Sp. and Vsch.

FIG. 16.—THE ANTHRACNOSE DISEASE ON SWEET PEA LEAF.

This fungus causes also the bitter rot of Apple and the ripe rot of Grapes. Cross inoculations by Sheldon‡ and by one of us§ have definitely proven that the fungus can go back and forth from the Apple to the Sweet Pea and vice versâ, in each case reproducing the typical symptoms of the diseases.

The anthracnose, like the "Streak," is of great economical importance. When once introduced into a field the disease spreads rapidly, often destroying the

FIG. 18.—SWEET PEA NODULES CAUSED BY NITROGEN-FIXING ORGANISM.

entire crop. Unlike the "Streak" the anthracnose may attack young seedlings; this sometimes being the case in greenhouse conditions. In field conditions the disease starts about July 1, when the plants are in their bloom and in the prime of beauty. This is also the time when the bitter rot disease of the Apple (see fig. 15) makes its appearance in the orchard. The fungus is carried over winter on cankered limbs and mummied fruits of diseased Apples, or on the diseased pods and seeds of the Sweet Pea and also in the soil.

POWDERY MILDEW.

The powdery mildew is a very prevalent disease on greenhouse Sweet Peas and on

‡ Sheldon, J. L., "Concerning the Identity of the Fungi Causing the Anthracnose of the Sweet Pea and the Bitter Rot of the Apple," *Science*, N.S., 25, 51-52, 1905.

§ Taubenhaus, J. J., "A Study of some Gloeosporiums and their Relation to a Sweet Pea Disease," *Phytopath.*, 1, 196, to. v., 1911. Taubenhaus, J. J., "A Further Study of some Gloeosporiums and their Relation to a Sweet Pea Disease," *Phytopath.*, 2, 153-160, 1912.

irrigated fields or on low land or where the plants are grown too thickly. Ordinarily, however, in small garden lots, and especially where the plants do not receive any water, the disease is practically unimportant since the attack is usually very mild during the active growing season, though it becomes somewhat more abundant when the plants have passed all usefulness. Massee attributes the Sweet Pea mildew in England to Erysiphe polygoni. Thus far, only the conidal or oidium stage has been found in the United States, so that the identity of the fungus here is as yet not definitely established. *J. J. Taubenhaus and Thos. F. Manns, Dept. of Plant Pathology, Delaware College Experiment Station, Newark, Delaware, U.S.A.*

Fig. 19.—the anthracnose disease on sweet pea stem and blossoms.

THE BULB GARDEN.

SOME NEW IRISES.

The hybridisation of species is at best an unsatisfactory pursuit. It may be argued that the success or failure of attempts at crossing plants which seem to be only very distantly related to one another may throw some light on the real relationship between them, but it is at least doubtful whether any inference can be drawn from the non-success of such a cross. For instance, it is known that Sir Michael Foster tried many times to obtain hybrids of Iris tectorum, and similar attempts were also made in the south of France, where there is usually more chance of obtaining sound seeds of Irises than in our variable climate. These attempts remained fruitless, and it seemed as though I. tectorum would not unite with any other species. More recently, however, its pollen has fertilised the Loppio variety of I. cengialti and also a form of I. chamæiris.

In both these cases the resultant plants are puny—at any rate in England, though I hear that I. Loptec is doing well in Hérault. Moreover, they have proved so far to be sterile both to their own pollen and also to the pollen of either parent. It is, however, a curious fact that such plants go to the trouble of forming capsules in which the seeds do not develop. Even a hybrid between such apparently close relations as I. Korolkowii and I. stolonifera produces huge capsules 5 inches long which contain not a single seed, though the meaning of this apparent waste of energy is hard to see.

It is possible that hybridisation only has a stunting and debilitating effect when species are used that are really widely separated. At any rate, several instances of hybrids which are far more vigorous than either of their parents have occurred here this year.

Early in May I was surprised to see that a number of plants which were producing masses of narrow leaves and which had the appearance of being some form of I. sibirica had no signs of flower stems, as all the other sibiricas had. Closer examination showed, however, that numbers of spikes were developing, and I looked with some curiosity to the reference for the number on the label. To my astonishment the plants came from a cross between I. tenax, a Californian species, and I. Wilsonii, the taller of the two yellow-flowered relatives of I. sibirica, introduced a few years ago from China. At the beginning of this month these plants were literally covered with flower-spikes and were the most vigorous and floriferous in my garden, each seedling plant producing twenty or more stems. The leaves are of a pale green, distinctly ribbed, about 3 feet long by ½ inch wide, linear in the lower part and then tapering gradually to a point. The stems are a little longer than the leaves—or, at any rate, rise above their drooping tips—and are slender and wiry. They are not, however, solid like those of I. tenax, but have a small hollow running down the centre, a feature which is characteristic of I. Wilsonii. In the vast majority of cases the stems bear a single terminal head of two flowers, though a lateral flower occasionally develops about 4 or 6 inches below. The spathes are long and narrow, as are those of both the parent plants, and are persistently green even when the flowers have withered

The flowers resemble in shape those of I. tenax, except that the standards are not erect but incline outwards, though not to the extent of those of I. Wilsonii. It is remarkable that the flowers have that curiously mottled appearance which is also found in another hybrid between the sibirica and the Californian groups—namely, I. Clarkei crossed with pollen of I. Douglasiana. On the falls the white ground is nearly obscured by suffused colour from the close-set, deep-purple veins. Near the end of the styles the ground colour becomes a deep yellow or orange, as in the case of I. Wilsonii. The standards have to a remarkable extent the curious mottled appearance, an effect which is apparently produced by red-purple veins and suffused colour on a slightly bluer ground.

The short perianth tube is purple as in the mother plant, and what is more surprising is that the plants are apparently fertile even to their own pollen. At any rate, the capsules are now swelling and have not the puffy appearance that usually betrays the absence of contents.

Another instance of a hybrid which surpasses in vigour both its parents comes also from I. tenax, the pollen-parent being in this case I. Purdyi. This has leaves of considerable substance and a polished upper surface, not unlike those of I. Douglasiana, about 2 feet long by ½ inch wide. The leaves do not stand erect, but droop gracefully round the stems, which are about 12 or 15 inches high, closely covered with large tract-like leaves which entirely conceal it. In some cases there is a lateral branch of some inches in length besides the terminal head of two flowers. The flowers are in shape not unlike those of a large I. tenax, being veined with a faint pinkish-mauve on a white ground. In strong sun the colour soon fades to a soft grey, and the old and the new flowers thus form a striking contrast. This plant produced apparently fertile pollen, and capsules are now developing with every appearance of being sound.

It is curious that some Irises seem to produce true albinos, which breed true, such as I. tectorum alba and I. orientalis alba, which is largely grown under the name of Snow Queen, while others produce white flowers from which indications of the purple shade are not entirely absent. Of these latter, obvious examples are the alba-purpurea variety of I. lævigata and the white form of the true European sibirica. The flowers of the latter have usually some slight tinge of mauve, and that the purple element is there has been strikingly proved by hybridising one of these white sibiricas with the yellow I. Wilsonii. The resultant plants are very similar to true sibiricas. The

tall, hollow stems raise their head of three or four flowers well above the foliage, and the colour of the flowers is, as far as I know, entirely new among sibiricas. The falls have rounded blades, which are held out stiffly and not allowed to droop. They are veined with pale sky-blue on a creamy white ground, which near the margin is entirely obscured by suffused colour from the veins. Near the end of the styles the white ground is more conspicuous and the veins become violet. Further back still the ground becomes yellow, and the yellow colour of the haft of the falls contrasts with the blue of the styles and standards. This plant seems also to be readily fertile, though it still remains to be seen whether the capsules now developing will contain sound seed. The hybrids are very vigorous, for each seedling plant has produced from ten to twenty flower stems.

A hybrid which is distinctly less desirable than either of its parents has resulted from the crossing of I. chrysographes with pollen of I. Forrestii. The plant is very similar to I. chrysographes, but the wonderful velvety richness of the latter has given place to a violet-blue colour. The flower retains, however, the bright yellow reticulations on the falls, from which I. chrysographes takes its name.

Another new hybrid, which it is unnecessary to describe beyond saying that it is an exceptionally vigorous sibirica, with as many as eight flowers on a stem, has resulted from crossing I. Wilsonii with pollen of typical I. sibirica. The shape of the flowers is somewhat different, especially in the standards, which are unusually large; but in other ways the influence of I. sibirica seems to have entirely dominated that of the Chinese mother. It will be interesting to see whether the plants prove to be fertile and what the second generation will give us. *W. R. Dykes, Charterhouse, Godalming.*

THE ROSARY.

ROSE CISSIE EASLEA.

This variety is one of the latest Pernetiana novelty. The great fault of many yellowish Roses is that the older flowers turn nearly white, but this is not so in the variety under notice, for even during the very hot weather recently experienced the petals retained their lovely Naples-yellow colour. The bud is delightful; it is even more shapely and richer in tint than that of the variety Arthur R. Goodwin. I am of the opinion that Cissie Easlea will replace Madame Ravary and Le Progrès as a yellow bedding Rose; indeed, I know of nothing to equal it for colour effect. The blooms are carried erectly, and the plants are vigorous growers. The foliage is of a bronzy-green colour and glistening as in Rayon d'Or.

M. PERNET-DUCHER'S ROSES.

Lyons is the Mecca of the rosarian. I had long promised myself a visit to my friend M. Claude Pernet, but it was only this season that I was able to go and to feast my eyes on the world-renowned Roses of his father, M. Pernet-Ducher.

On my way to Lyons I passed through the ancient, picturesque town of Dijon. My thoughts irresistibly travelled back to the early days when the Gloire de Dijon was the most popular variety grown. Indeed, it is not so very long ago that a vote was taken as to the most popular Rose, and the Gloire de Dijon headed the list. On arriving at Lyons I was met by M. Claude Pernet (who speaks English excellently), and we proceeded together to the village of Venissieux, where he lives. It was too late to see the Roses the same evening, but I was promised a view the next morning, before breakfast, if the weather was fine. After a night of sound sleep I awoke before six to find the sun shining brightly. I got up at once, and was pleased to find my friends astir already. They believe in early rising, and the Rose-budding is done while the day is still cool, the workmen being allowed two hours for luncheon —time for a really good rest. Notebook in hand, we made our way to the seedling quarters, where a perfect blaze of colour rewarded our inspection. Among other lovely varieties, a mass of Madame Edouard Herriot provided a feast of glorious tints; no wonder everyone is so anxious to grow this beautiful Rose. I noticed many first-rate varieties among the seedlings, bearing the now well-known characteristics of the Pernetiana tribe, the large spines and glistening foliage. As I looked at the original plant of Soleil d'Or, it seemed wonderful to think that all the novelties around me owed their origin directly or indirectly to this one marvellous cross. There were some seedlings with colours even deeper than that of Sunburst, and larger blooms than Souvenir de Gustave Prat. Others had the same golden ground and scarlet markings as Rayon d'Or, with more elongated buds. Few had been christened as yet, most of them being known only by number. There were novelties innumerable—some with blossoms of bright scarlet, others of the deep crimson of Louis van Houtte, others again imitating the glorious tints of Mme. Edouard Herriot. There is a large glasshouse filled entirely with seedlings raised this year, all in the best possible condition. As I saw the "Wizard of Lyons" moving quietly about among his flowers, gathering for pollen and crossing the blossoms, I was struck by his unassuming, modest manner. There was no ostentation in this man who had given so many and such fine novelties to the world.

There is much *bon camaraderie* among the Lyons growers. They are all on the most cordial terms with each other, and will freely help any one of their number who may be backward with his budding. We paid a visit to M. Guillot's famous gardens; the proprietor was himself away, but Mme. and Mlle. Guillot (whom I happened to have met in Ireland last year) gave us a very kind reception and showed us over the grounds. We saw some very interesting Roses, including some seedling Wichuraianas. We also visited M. Dubrieul, who is the raiser of several Polyantha Roses, and M. Chambard, an experienced grower, who showed us some very good seedlings, including a new Frau Karl Druschki—more double than the type, with a lemon-coloured shading—which he is going to call Mlle. Louise Cratté. On another day we went to see M. Bernaix's nurseries, and I was pleased to see some almost forgotten varieties in the extensive collection grown there. The soil is very stony, and I marvelled how Roses could grow there at all.

We visited the Parc de la Tête d'Or, where there is a splendid collection of old Roses. On seeing this collection I felt more convinced than ever that we ought to have in England a public Rose garden. In the Tête d'Or there were numerous narrow beds containing one plant of a variety, and every plant labelled accurately and legibly. At Kew Gardens there are great masses of a single variety—very effective as bedding, but such beds are not nearly so useful or informative as the arrangement at Tête d'Or. I found the old Madame Knorr, and many another friend of earlier days —beautiful in their way and far more fragrant than the newer sorts. *Experience.*

Horticultural Club: Excursion to Friar Park.— We are now able to print particulars of the excursion announced on p. 439, vol. liii. The party will leave Paddington in first-class saloon carriages on the 24th inst. at 9.57 a.m., and proceed to Marlow Station. Sir Frank Crisp's launch will be in waiting at Marlow to convey the party by river to Henley, where the president will entertain the visitors at lunch in the boat-house. After luncheon inspection will be made of Friar Park gardens. Before joining the launch again, *en route* for Caversham lock, Reading, the company will again partake of the president's hospitality at tea. From Reading the return journey to Paddington will be made by rail. Applications for tickets should be made to the Hon. Treasurer, Sir Harry Veitch.

THE MARKET FRUIT GARDEN.

From May 12 to July 1, a period of seven weeks, the rainfall at my station amounted to only 0.83 in., rain having been measured on no more than eleven days, and in minute quantities, except on one occasion, when the fall was just a quarter of an inch. Most parts of the country have been less unfortunate in this connection; but generally last month was one of the driest of Junes. Results were all the worse on account of the severe drought having followed a flood of rain for a prolonged period; for when that is the case the land is converted from a state of mud to a consistency approaching that of burnt bricks. For all classes of vegetation the trial was a very severe one, while for many it was almost fatal. Moreover, at the time of writing, the trial is not finished. A little rain fell on the evening of July 2; but it amounted at my station to only one-tenth of an inch.*

Drought and Fruit Crops.

To describe the effects of the drought on corn and vegetable crops would be beyond the scope of my notes. In relation to fruit those effects are very serious. The Strawberry crop gave a good first picking, but fell off immediately afterwards, giving a total yield below the average, and very much less than early prospects indicated. To myself this is not a matter of importance, as I do not grow Strawberries for market. I do grow Black Currants extensively, however, and my estimate is that the drought reduced my crop by at least four tons, as the berries were only about two-thirds of their proper size. This is not all the injury, however, for the hard-baked condition of the soil has prevented the shoots that should bear next year's crop from making normal extension. Young bushes particularly present a stunted and starved appearance, the liberal dressing of artificial manure applied to them never having had a good chance of getting down to their roots.

The Raspberry crop has been injured to a still greater extent, so that the yield of fruit will prove comparatively small, and the young canes for next season's crop will be stunted unless an abundant rainfall occurs speedily.

Both Apples and Plums have suffered more or less from lack of moisture. The swelling of the fruits has been checked severely, and their dropping will be increased. The drought penetrated the soil all the more deeply on account of its cloddy condition after cultivating and hoeing. In an ordinary season these operations would have formed a drought-resisting mulch of fine soil, which is lacking this season.

The Aphis Blight.

It is hardly necessary to say that the effects of the drought are particularly serious on trees which have been smothered with aphides. The pest has now left Plums, after sapping the vitality of a large proportion of the foliage, which has turned brown, giving the trees a very unhealthy appearance. The case is similar with Apples, particularly in relation to the foliage around the fruits. The latter are small where the aphis has been, and in some cases they have turned yellow, and will either drop off or prove nearly worthless. Beauty of Bath, a special favourite of the aphis, has suffered more than any other variety that I grow. Quite a large number of the fruits have become yellow or even striped where the trusses were smothered with aphides. They are ripening prematurely, and will not swell to any considerable extent, while most of them will drop. This variety is much given to dropping, even in a normal season, and this year it will be more so than usual.

* Since these notes were written a fall of 0·40 inch of rain has occurred. This is the greatest quantity registered at my station since April 29. It cannot fail to do a great amount of good to ungathered fruit crops.

But what grieves me most is the effect of aphis blight on young trees, and particularly on those of Beauty of Bath. Last year a field of Apples in the third season from the planting was very badly infested, in spite of spraying, and many trees had to be cut back severely in the winter pruning in order to get to wood buds below the dwarfed and twisted parts injured by the pest. This season the new wood of some varieties has suffered another severe attack, Beauty of Bath again being the most unfortunate victim. Some trees of this variety present an almost hopeless appearance, and it will probably be deemed advisable to replace them with fresh trees.

Top-Grafting Apple Trees.

Nothing impressed me more forcibly in my recent visits to Kent orchards than the extent to which top-grafting had been practised. The best growers appear to have recourse to the operation on slight provocation. If a variety does not give them fair satisfaction in growth, fruiting, or price of produce, they cut the trees back and top-graft them. Equally striking is the fact that in the great majority of instances the variety chosen to provide scions was Bramley's Seedling. In the course of a few years there will be immense supplies of Bramleys in the markets from the great number of top-grafted trees. If anything will "cut-out" the swamping supplies of American and Canadian Apples in our markets to any considerable extent, it will be a liberal supply of Bramley's Seedling fruit kept over Christmas.

The Apple Sawfly.

Many varieties of Apples are badly infested with the maggots of the Apple sawfly (Hoplocampa testudinea) this season. In thinning the fruits numbers of Apples containing the maggots have been picked off the trees, placed in bags, and burnt. This appears to be the only satisfactory method of dealing with the destructive pest, at least if it be true that arsenical spraying is of no avail against it. Why the poison does not kill the maggots, as it kills the larvæ of the Codlin moth, is not at all clear. Perhaps the reason is that the period during which the maggots enter the fruit is not as clearly defined as is that of the other pest. The varieties Cox's Orange Pippin and Worcester Pearmain are special sufferers from the attack in my orchards; but many other varieties have suffered more or less. Unfortunately, Apple thinning (which my workpeople curiously term "slightening") has been stopped for a time by the necessity of employing all available hands in the picking of Black Currants.

A Doubtful Point.

So far as my reading enables me to judge, no definite period has been given by any authority as the latest time at which a fresh shoot resulting from pruning may start without the risk of the new growth being cut off by the frosts of winter. In summer pruning it is usual to avoid the cutting back of any leaders left for extension growth, deferring that operation until the winter pruning; but if a shoot arising from the cutting of a branch at the present time will survive the winter, it would be an advantage to cut it in certain cases. For example, Apple shoots of this year's growth infested with aphides, and covered with curled leaves, might be cut back with advantage, if the new shoots proceeding from the bud or buds just below the cuts will not be liable to injury from winter frosts. In summer pruning it has been found advantageous to strip off the curled leaves infested with aphides; but cutting-back would be better, if it can be done without the risk named above. The experiment is being tried on some of the most badly infested trees at the present time. Much valuable information on the summer pruning of fruit trees was published in *Gard. Chron.*, June 22, 1907, when correspondents gave their experience not only upon the general results of the practice, but also in regard to the best dates to commence the work in their particular localities. *Southern Grower.*

NOTICES OF BOOKS.

Flora of the Lower and Middle Congo.*

The classical saying, "Always something new from Africa," still holds good in the vegetable kingdom, though few striking or singular new types have been discovered quite recently. For many years there have been four specially active centres of publication of new African Plants, namely, Berlin, the British Museum, Brussels, and Kew, and, in a lesser degree, Paris. Kew led the way in the early sixties of the last century with Gustav Mann's excellent collections from the tropical and temperate zones of the Cameroon region and some of Welwitsch's novelties from Portuguese West Africa, followed by Speke and Grant's *Nile Plants* and the beginning of Oliver's *Flora of Tropical Africa*, still being continued under the editorship of Sir William Thiselton-Dyer. The Belgian or Brussels contributions are almost confined to the Congo, and are mostly the work of De Wildeman and the late Th. Durand. Their works are illustrated by some 400 quarto plates, and the part before us is the third and concluding part of the third volume of De Wildeman's *Etudes*. It includes additions to the Fungus-Flora and to nearly the whole of the families of Flowering Plants represented in tropical Africa. In this connection De Wildeman states there are types in foreign herbaria of at least 500 species from within the limits of his labours, which are unrepresented by authenticated specimens in the Brussels herbarium. The African species of the genus Dioscorea have engaged the attention of botanists of all the nationalities named above, notably of Dr. A. Chevalier (who has travelled widely in tropical Africa), both for systematic and economic reasons. In the work under notice De Wildeman describes about a score of new species, illustrated by seventeen plates. Chevalier refers a larger number of the forms cultivated in tropical Africa to D. prehensilis of Bentham (D. cayenensis, Lam.), but, as De Wildeman observes, his classification is perhaps open to revision. D. prehensilis was founded on African specimens collected by Vogel, and Chevalier identifies this with the American D. cayenensis. Of this he distinguishes a score of varieties from Dahomey and fifteen from Baouli, on the Ivory Coast. These varieties are distinguished by the size, shape and colour of the tubers, by the presence or absence of spines on the stems, and by the shape and colour of the leaves. While admitting that much remains to be done before a satisfactory classification of the African Dioscoreas could be attempted, De Wildeman discusses and criticises Chevalier's choice of characters. He also illustrates and amplifies an earlier description of the root spines of his D. Liebrechtsiana, and raises some interesting questions as to their biological importance. Some particulars of these organs by Dr. D H. Scott will be found in the *Annals of Botany* for 1897. Several of the new species described by De Wildeman yield edible tubers, and this general contribution to our knowledge of the genus is a very valuable one, even to showing how much remains to be done. *W. B. H.*

The Young Gardener.†

The object of this little book is to interest children in garden operations, so that they may work the more proficiently and keenly in their school gardens. Each chapter, which deals with some special aspect of gardening, is supplemented by a series of questions and answers relating to the subject of the chapter.

Excellent judgment has been exercised in the selection of the subjects, and considerable art is shown in the simple style in which the chapters are written.

Occasionally, however, the writer falls into the error of giving wrong explanations of correct observations, as, for example (p. 13), in stating as a reason for draining soil that "plants get cold if they are kept too wet." Similarly, on pp. 17 and 18, with respect to seed saving, it is risky advice to recommend the children to collect their own seed unless the necessary precautions are indicated.

Nevertheless, and, although we cannot subscribe to all the writer's statements as, for example, that only Crab Apples arise from seed of a cultivated kind (p. 23), we can offer our sincere congratulations to the writer on the general excellence of the booklet. It lacks altogether the stuffiness which is not rare in more pretentious garden books, and it betrays evidence that it is written by a keen gardener and a born teacher. We feel sure that the children whom she is addressing will listen to the lessons.

The Garden Manual.‡

This is a new and revised edition of a very old, very practical, and very unpretentious book issued from the *Journal of Horticulture* office, written by contributors to that paper, and edited by its editor. Its pages run to over 450, its type small, but clear, closely spaced, and broken up with numerous illustrations. Its editor disclaims its being more than a "handbook or compendium; a concise, yet comprehensive guide to the subjects with which it deals." That is just what it is, and withal one of the most satisfactory horticultural handbooks that have appeared for some time. As is but natural the several parts of the manual are somewhat unequal, some of the matter being very good, some not quite so good, but it never sinks to a low level. Starting with a brief review of the History of Gardening, not so correct as one would wish, followed by a short chapter on French Gardening, which ought to prove a wet blanket to the most impulsive, the volume goes on to its more legitimate task of showing in four sections how to manage the Kitchen Garden, the Flower Garden, the Fruit Garden, and the Plant Houses, concluding with an appendix devotel to soils, manures and fertilisers. Besides the brief cultural details, which are admirable, the selections all through are to be commended, being neither too short nor too long, but generally all the varieties of vegetables, flowers and fruits named are those cultivated in our best gardens. The details of Grape-growing form a model of brevity and excellence, and very useful are the numerous pictured methods of doing various gardening operations, with their accompanying remarks, which are scattered profusely throughout the book. For those who are not gardeners nothing could be more informative, and to the gardener who can spare half-a-crown for its purchase it will prove a ready-at-hand book to refer to in the moments of forgetfulness which overtake most of us sooner or later. *B.*

Publications Received.—***An Introduction to the Chemistry of Plant Products,*** by Paul Haas and T. G. Hill. (London: Longmans, Green & Co.) Price 7s. 6d. net.—***Sheep Raising in Ontario: Does it Pay?*** (Toronto, Ontario: Ontario Department of Agriculture.)—***The Garden Manual.*** (London: *Journal of Horticulture.*) Price 2s. 6d. net.—***Vegetable Culture for Amateurs*** (third edition), by Trevor Monmouth. (London: Upcott Gill.) Price 1s.—***Principles and Practice of School Gardening,*** by Alexander Logan. (London: Macmillan & Co., Ltd.) Price 3s. 6d.—***Leberecht Migge die Gartenkultur des 20 Jahrhunderts.*** (Eugen Diederichs Verlag., Jena, Germany.) Price M. 5.—***Elementary Tropical Agriculture,*** by W. H. Johnson. (London: Crosby Lockwood and Son.) Price 3s. 6d. net.

* *Etudes de Systématique et de Geographie Botaniques* par Emile De Wildeman: Annales du Musée du Congo Belge. Botanique, série 5, tome iii., fascicule iii., pp. 317-533, tt. 50-68. Bruxelles.

† *The Young Gardener.* An Elementary Guide to the First Principles of Cottage Gardening. By the Countess of Selborne. (London: Edward Arnold.) 4d.

‡ *The Garden Manual.* "Journal of Horticulture," Price 2s. 6d. net.

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Platyclinis.—Plants of Platyclinis glumacea that have completed their growth should be suspended in a light, airy position in the intermediate house. For the present the plants will need but little water at the roots, but must not be allowed to suffer from excessive dryness. Sponge the leaves frequently to keep them from insect pests. P. uncata and P. Cobbiana require similar treatment. The pretty P. filiformis, with its long, thread-like spikes of small golden-yellow flowers, is in full growth, and the roots require an abundance of water, whilst the foliage will be benefited by overhead sprayings until such time as the flowers open. All the species of Platyclinis thrive well in the intermediate house during the whole year. Formerly these plants were grown in too much heat; being natives of the Philippine Islands, it was considered that they needed considerable warmth, but the plants, as a rule, deteriorated gradually, and were always infested more or less with insect pests. Now, in the cooler atmosphere of the intermediate house, they grow and bloom profusely. These Orchids may be repotted at any time between the fading of the flower and the commencement of growth. Shallow pans are preferable to pots, as they are more easily suspended from the roof, in which position the plants grow best. They root freely in a mixture composed of equal parts of Osmunda-fibre and Sphagnum-moss. Freshly potted plants should be shaded until they are established.

Epidendrum radicans. — This beautiful scarlet-flowered Epidendrum has been in bloom for several months past, and the long panicles of flowers have been extremely useful for furnishing cut blooms. Now that the plants have started to grow again the flower spikes should be removed, and if it is desirable to grow the plants as large specimens, the young shoots should be tied around a few neat stakes, keeping the tops of each growth well up to the light. A good plan is to remove the young offshoots which appear on the old growths and insert four or five of these around the centre of each 6-inch pot, using one part of Osmunda-fibre to three parts of Sphagnum-moss as the rooting medium. Encourage these plants to grow as quickly as possible, standing them in a light position in the Mexican house, where they may be afforded plenty of water at the roots, and overhead syringings whenever the weather is suitable. By the end of October they will have made considerable growth, and at that time my practice is to cut each stem off at the bottom, leaving the growth about 18 inches long, repotting them as before, and tying each shoot to a neat stick. Under this treatment nearly every growth will develop an inflorescence, and when the flowering time arrives the plants, being dwarf, will be serviceable for many purposes; whereas if the growths are allowed to extend at will they take up considerable room, and seldom bloom satisfactorily.

Odontoglossum. — Odontoglossum grande, O. Insleyi, and O. Schlieperianum are growing freely, and specimens that require larger pots should be attended to. A very porous compost should be employed, for although Odontoglossums require plenty of water when growing actively, moisture should pass away quickly, as the fleshy roots are liable to decay if the soil is waterlogged. As the young breaks push up and the leaves commence to expand, see that no water lodges in the centre of the growths, or they will probably damp off. All plants of this section grow well on a high, dry shelf in a cool house, as they require plenty of light, but not direct sunshine. Slugs are fond of the outside tissues of the young growths, also the succulent roots, and must be guarded against.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Carnations.—Thin the flower buds of the late-flowering varieties and support the stems to stakes. The work of layering will soon demand attention, and a quantity of soil should be got ready for the purpose. Loam and leaf-mould mixed with a good sprinkling of coarse sand or road grit furnishes a suitable compost. Raby Castle is still one of the best garden varieties, and where large quantities of cut flowers are in demand a special plantation of this variety should be included in the reserve garden. A bed of the Perpetual-flowering variety Mrs. Burnett, planted here at the end of May, has just commenced to flower. The plants are in perfect condition and give promise of a wealth of blossoms all through the summer. It is my opinion that this race of Carnations will in time supersede the border kinds for planting in beds and borders in the flower garden. At present the varieties suitable for out-of-doors are limited in numbers, but with a demand the supply is sure to increase. If large quantities of cuttings will be required for propagating purposes later on, old plants which are being removed from the flowering houses should be cut back and plunged in ashes outdoors. They should be encouraged to develop clean, healthy shoots by strict attention to such important details as watering and syringing. Propagating may commence next month, and the insertion of cuttings may be continued until the end of the autumn.

Gladiolus.—Neat stakes should be placed to Gladioli to prevent winds damaging the flower spikes. The plants require to be watered frequently during hot weather. The benefit of top dressings applied earlier in the season is now apparent, and it is not too late to place a little top-dressing material over the roots now. The soil about the plants should be stirred with the hoe occasionally.

The Mixed Border.—The staking of the plants that were set out in May is one of the most important details needing attention. Certain kinds of Annuals, such as Lavateras, Cosmos, Coreopsis, Carnations, the taller-growing Godetias, and Larkspurs all require support. The stakes should be as little in evidence as is possible, or the natural beauty of the subjects will be marred. The border should be examined at least once a week with a view of removing dead flowers and foliage. The first flower spikes of Delphiniums should be cut down as soon as possible after the blooms are over to encourage later spikes to develop. Water the border thoroughly every three or four days, and hoe between the plants frequently.

Dahlias.—These plants have needed regular waterings with the garden hose to get them to start freely into growth. When they are established and the ground between the plants covered with a dressing of some moisture-retaining material they will not need so much attention in the matter of watering. The new Collerette varieties are splendid for massing in beds if the colours are selected carefully. They come into flower directly after planting and continue to bloom all through the season. Some of the flowers of this type hang their heads and need supporting by a tie.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cabbage.—A sowing of Cabbage seed may be made now, and a second sowing a fortnight later, according to the locality. In northern gardens the sooner the seeds are set the better. Cabbage seeds are often sown on a border from which some early crop has been gathered, but it is better practice to choose an open space where the ground is not too rich, as plants grown in the open are much hardier than those raised in a sheltered position. Sow the seeds thinly in shallow drills, which should be made at 1 ft. apart in order to allow the Dutch hoe to be worked between the rows. If the ground is still dry the drills should be watered before the seeds are sown. The following varieties are suitable for present sowing: Flower of Spring, Offenham, Milecross Marrow, and Improved Excelsior.

Shallots. — The bulbs should be lifted and placed in an open shed as soon as the foliage has died down. Turn them frequently in the store, and when quite dry place them in a well-ventilated loft until they are required for use.

Cucumbers. — Sow seed to furnish plants for cropping in early winter. If the seeds are sown singly in small pots and germinated in a temperature of 70° the seedlings should be ready for planting by the middle of August. Previous to planting cleanse the house thoroughly, washing the woodwork with soft soap and water. When the work of cleansing is finished burn a little sulphur in the house to destroy any insects that may be present. Make a mild hotbed, and on this place small mounds of soil at 4 ft. apart, and set the plants when the soil is warmed through. Secure the main stem of each plant to a small stick as a precaution against injury when syringing. The soil should consist of a mixture of three parts turfy loam and one part decayed manure. As soon as the roots appear through the mounds of soil apply fresh soil as top dressings. Dust the beds frequently with soot, which promotes a dark green colour in both the fruit and foliage. Plants in bearing should be kept free from decaying foliage. Thin and regulate the growths, stopping the shoots at the first or second joint beyond the fruits.

Turnips.—A sowing of Turnip seed should be made now to furnish roots in the late autumn, and again a fortnight later to supply roots next winter. In mild winters the latest-sown Turnips may be allowed to remain in the open for a long time, and for this purpose the variety Green Top Stone may be sown as late as the end of July. During dry weather this crop will be benefited by waterings. On frequent occasions wood ashes and soot should be dusted along the plants and rows to keep the Turnip fly in check.

Winter Crops.—All kinds of Broccoli should be planted as soon as possible. Water the roots of all green vegetables thoroughly as soon as they are transplanted; this is especially necessary in the case of Broccoli.

Salads. — Make sowings of Endive and Lettuce at frequent intervals throughout July, and thin the plants as soon as they are large enough to handle. Radishes should be sown behind a north wall and the seeds watered liberally to ensure a quick growth. Mustard and Cress should be sown in the coolest situation available.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Callicarpa americana and C. purpurea.—Young plants of these species raised from seeds or cuttings in the spring should now be ready for their final transfer into 6-inch pots. The compost should consist of three parts good loam and one part peat and leaf-mould, with the addition of a little sand, wood ashes and decomposed cow-manure. The young shoots should be stopped to two or three joints until the beginning of August, and the plants should be grown in a temperature of 60° to 65°. As soon as they show signs of flowering plenty of ventilation must be provided, and if they are to be planted out they may be placed at the warm end of a conservatory or Palm-house and trained to a stake or planted against the wall. The old plants should be cut back in the spring, and directly the young shoots are made they may be taken off and rooted quite easily.

Statice profusa. — As the young plants of this Statice finish flowering they should be transferred to larger pots to produce good flowering specimens for next spring. A suitable compost for them is one consisting of three parts good loam and one part leaf-mould, wood ashes, and coarse sand. If the loam is rather heavy add a little peat. The plants should be placed after potting in a cool house or frame, and well soaked with water. They should be shaded during the hottest part of the day, and well ventilated as

soon as they become established. The old plants should be carefully layered or divided if the stock requires replenishment; the layering may be done by filling up the pots with prepared, sifted soil mixed with plenty of sand. The shoots should be cut in the same way as those of "Malmaison" Carnations or Primulas. The plants must be kept damp and shaded during the heat of the day. Statice profusa can also be propagated from cuttings placed under a bell glass, but layering is more satisfactory.

Pot Liliums for Autumn.—L. tigrinum, L. Fortunei, L. speciosum rubrum, and L. s. album should be frequently fed with good liquid manure, never letting the roots suffer for want of water. The growths should be staked and the plants kept in a shady place so that they will bloom in the autumn. Frequent syringings with quassia extract are useful to destroy aphis.

General Work.—Scented-leaved Pelargoniums should now be ready for putting into their final pots, viz., 6-inch or 7-inch pots. They require a compost of rich loam, with a little coarse sand, leaf-mould and wood-ashes. Add also a 7-inch pot of soot and some fine bones to a barrowful of soil; pot the plants firmly, and well soak the soil with water. It is a good plan to put a strong stake in each pot, to which these plants can be attached later in the season. They should be grown in a cool greenhouse, and shaded from hot sunshine. The shoots should be stopped, to make the plants bushy, and when the growth is established applications of artificial and liquid manure should be given. Green-fly must be guarded against by frequent fumigations.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Peaches and Nectarines.—The fruits having been gathered from Peach and Nectarine trees in the earliest house, the foliage should be syringed thoroughly or washed by means of the garden engine two or three times each week. This will cleanse the leaves from insect pests. If the border is dry it should receive a thorough watering; in the case of old trees liquid manure may be used. The trees should be kept cool by opening the ventilators top and bottom to their fullest extent. Houses with trees bearing ripe fruit should be kept moderately cool, with plenty of ventilation. Ripe fruits should be gathered and placed in a cool, airy fruit room, on some soft material, until they are required. Trees in succession houses with fruit that is still swelling should be syringed early in the mornings and again in the afternoons. The air should be allowed to circulate freely, but the house should be closed at four o'clock in the afternoons of bright days with a minimum temperature of 65°. If fire heat is necessary at night the paths and bare surfaces should be damped in order to moisten the atmosphere. The borders, and especially those inside, must be watered freely. If the trees are fully grown and bearing good crops, liquid manure may be used and a mulch of short manure applied; but this does not refer to young trees, for which clear water will be better. Any leaves which may tend to shade the fruit must be drawn on one side, in order that the sun may have full access. In the late Peach houses the superfluous shoots should be cut out, leaving only the lowest one at the base of each branch. Any growths which seem stronger than the rest should be cut back severely, or removed altogether, in order that the balance of the tree may not be disturbed. The final thinning of the fruit should be left until after the stoning period. Ventilation should be regulated by the time at which the fruit is required; but the watering and manuring of the borders can be done on the same lines as those indicated above for earlier crops.

Strawberries.—Strawberries required for forcing may be transferred into their fruiting pots. Young plants layered in 4-inch pots may be removed from the old plants when sufficiently rooted and placed in a shady position. They should be well watered before re-potting. The soil should be carefully prepared, and should consist of fresh, fibrous loam from an old pasture. If rather light, add to every three barrowfuls one barrowful of old mushroom-bed manure and two six-inch pots of bone meal, mixing the ingredients well together. If the soil is heavy and retentive (the best kind for Strawberries), in addition to the manure some finely-sifted mortar should be mixed with it. The best size of pot is the 6-inch, except for the late batches, which may be placed in seven-inch pots. The receptacles should be thoroughly cleansed, and a layer of crocks placed in the bottom, over which should be laid a few ¼-inch bones and a little soot. The heart of the plant should not be lower than the surface of the soil, and the mould should be in a condition to be firmly packed around the balls. After potting the plants should be shaded for some days from sunshine and thoroughly watered with a rose-can. Afterwards they should be removed to a warm, sheltered place on a raised trellis, where they can obtain the maximum of sun heat. If the weather is hot they should be watered morning and evening. On the evenings of bright days the foliage should be syringed with an insecticide to check red spider. The plants should be frequently watered with manure water, with soot and guano sometimes added. All runners should be removed, and if the plants produce several crowns all but the strongest should be taken away.

Figs.—Old Fig trees which were forced early and are now producing a second crop of fruit are apt to be rather too prolific and should be severely thinned. All fruits of a third crop should be removed or next year's fruit will suffer. With the increased heat of the outside air a higher temperature may be maintained in the house, which can be closed in the afternoon of fine days with a temperature of 80° to 85°. The foliage should be syringed twice daily when the weather is warm and fine, and the house kept damp. If the borders are very full of roots, and the roof of the house covered with fruit-bearing wood, liberal supplies of rich top-dressings and copious manure waterings should be given until the ripening period, after which the roots and atmosphere must be kept a little drier. In the cool houses, the Figs in which produce only one crop of fruit, the foliage should be syringed on all bright days, and the house closed in the afternoon with much sun heat. They should receive liberal supplies of manure, and the atmosphere of the house must be kept drier as the fruit approaches the ripening stage. Figs in pots should be thoroughly cleansed from red spider and other pests as soon as the fruit has been gathered. Any which require re-potting should be attended to at once, so that the roots may be introduced into the fresh soil while still active. The potting should be firm, the soil consisting of turfy loam mixed with fine lime rubble and a little artificial manure.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Fruit for Preserving.—This is the best time for gathering fruit for preserving purposes, and every fine day should be made use of in this way. If the fruit is allowed to become over-ripe, or is gathered when damp the flavour of the preserve is very adversely affected. For Brambles, Raspberries, etc., the vessels used should be of china, and the fruits picked quite clean and ready for immediate use. In all other cases shallow trays are the best, on which the fruit should be laid upon fresh green leaves or greased paper.

Strawberries.—Some varieties of Strawberries, such as Givons, Utility, and Laxton's Latest, are just coming into bearing. They should be well watered at the roots, or the later fruits will not swell. If the nets have been placed over the beds for a considerable time they should be taken off and the ground cleared of weeds. Useless or superfluous runners should also be cut away.

Thinning Apples.—Apple trees should now be finally thinned, and in no case should overcropping be permitted. Fruit should never be left in clusters; they do not attain perfection in such a position, but serve to harbour insects and other pests. Many trees are now suffering from drought and require watering. The crop this year is a small one in most places.

THE APIARY.

By Chloris.

Swarms.—Should the weather become wet after hiving bees which have swarmed, thin syrup should be given them until the weather is better, but it is necessary not to give it to them in such quantities that they will store it. They require sufficient only to meet their daily needs and to stimulate the queen to lay a maximum number of eggs per day.

Showing Extracted Honey.—In the issue of May 23 I pointed out how to exhibit section honey, but omitted to mention that sections should never be exhibited in glazed cases to hold four, six, or eight, but singly. The jars chosen should be perfectly clear, without air bubbles or rough ingrained markings. Bottles made of the best English flint glass will give entire satisfaction. Generally it will be found advisable to use square, not round bottles, as they may be packed better, and the corners reflect light and thus give the honey a much brighter appearance. To assist the judge use a metal screw cap, which will screw down tightly enough to prevent leakage, but not so tightly that it cannot be easily unscrewed with the hand, as a competent judge will taste and smell the exhibit. In place of the usual cork wad use white cardboard to reflect as much light as possible to give the honey a sparkling appearance. Before using the bottles thoroughly wash them and then polish with a dry cloth. The honey that is being gathered now will be best for show purposes, because it will not granulate readily, and care should be taken to use that from combs which are perfectly sealed in order to secure thoroughly ripened honey. Some beekeepers, in order to run no risk of using any other than ripe honey, strain the honey into a perfectly clean ripener, then place it in water heated to 120° or 130° and leave it there for about 20 minutes. Great care is needed, for if the temperature rises much above 130° the honey will lose much of its delicate aroma and may become seriously discoloured. Afterwards strain the warm honey into a warmed covered tin furnished with a tap. In about four or five hours the air bubbles will have risen, when the honey should be run off into well-warmed clean bottles, holding them at an angle of 60° so that the honey will strike the side just below the neck. Screw down whilst the nectar is warm and place the bottles on a shelf in a warm room to help air bubbles that may be present to rise. These will be formed on the top as a scum and should be skimmed off with a piece of pasteboard; afterwards the honey should be stored in a dark, cool place until the show. Those who have granulated honey for showing should, before despatching it, remove the caps, and if these are dull or soiled replace with new, bright covers and a clean wad. Before replacing the screw cap polish up the neck of the bottle, removing at the same time anything in the shape of a deposit that makes the exhibit unsightly.

Poisoned Bait for Insect Pests.—Experiments carried out by Mr. J. F. Illingworth (Cornell University Agricultural Experiment Station) on the destruction of Cherry fruit flies suggest that the method of "poisoned bait" used with success in the case of these pests may prove useful in the case of other fly pests. The method adopted with success by Mr. Illingworth consists in scattering, by means of a syringe, drops of the bait on the foliage of trees infested with the Cherry fly (Rhagoletis cingulata). The bait used consisted of arsenate of lead, 3 ounces (or 5 pounds); cheap molasses, 1 pint (or 3 gallons); water, 4 gallons (or 100 gallons). As Mr. Illingworth points out in Bulletin 324, the feeding habits of flies of this class suggests the adoption of some such method as that just described, for the flies continually moisten and sip the gum of the fruit trees, the fruit of which they attack. Hence they may be destroyed if the fruit or foliage be covered with an insecticide. Moreover, the use of poisoned bait has proved effective in the case of other fruit flies, in Italy and South Africa.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JULY 14—
United Hort. Ben. and Prov. Soc. meet.

TUESDAY, JULY 15—
Roy. Hort. Soc. Comms. meet. (Masters Memorial Lecture at 3 p.m. by Prof. R. F. Biffen, M.A., on "Some Factors in the Prevention of Disease in Plants.") Nat. Rose Soc. Sh. at Gloucester, in conjunction with Gloucestershire Rose and Sweet Pea Soc. Sb. Southampton Fl. Sh. (2 days).

WEDNESDAY, JULY 16—
Reigate Fl. Sh. Nottinghamshire Hort. and Botanical Soc. Fl. Sh. (2 days). Bishop's Waltham Fl. Sb. Watford Hort. Soc. Sh. at Little Cassiobury.

THURSDAY, JULY 17—
Nat. Sweet Pea Soc. Sh. at R.H.S. Hall. Dulwich Hort. Exhibition, Isle of Wight Fl. Sb. Lincolnshire Agric. Sb. at Lincoln.

FRIDAY, JULY 18—
Nat. Carnation and Picotee Soc. Sh. at R.H.S. Hall, Birmingham Hort. Soc. Sh. (2 days).

SATURDAY, JULY 19—
Blackburn Hort. Exhibition.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—63.2.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, July* 9 (6 p.m.); Max. 64°, Min. 51°.

Gardeners' Chronicle Office, 41, Wellington Street. Covent Garden, London, *Thursday*, July 10, (10 a.m.); Bar. 29.7; Temp. 62.

PROVINCES.—*Wednesday, July* 9, Max. 57° Shields, Min. 56° Valencia.
Weather—Overcast.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, AND WEDNESDAY NEXT—
Clearance sale of the whole of the stock at Messrs. Cannell and Sons' Nurseries, Swanley Junction, Kent, by Protheroe and Morris, at 12.15.

On Watering.

The experienced gardener knows as it were by instinct when to give and when to withhold water; but to the intelligent beginner watering presents many puzzling problems. Some of these problems may be solved by common sense aided by a knowledge of plants and their habits; others are more intricate, and may be resolved only by long and close study of the peculiarities of plants.

Apart, however, from special cases, it is possible to lay down certain general rules for the guidance of beginners, and although a knowledge of these rules will by no means prevent the amateur from making mistakes, it may help him to discover his mistakes, and thus to avoid repeating them.

In order to be in a position to lay down rules—to sketch in outline a philosophy of watering—we must know something about the water requirements of the plant, and we must have a clear idea as to the nature of the reservoir—the soil—in which is stored the water absorbed by plants. For the sake of conciseness we will state the main facts with respect to the water requirements of plants in categorical fashion:—

First, it is to be observed that plants consist mainly of water. In a dry seed such as a pea there is about 10 per cent., and in a lettuce leaf something like 85-90 per cent. of water. There are other yet more watery vegetables—certain gelatinous algæ, for example, consist of no less than 99 per cent. of water.

Second, a plant utilises for one purpose or another and during its growing period an amount of water many times greater than its own bulk. How great is this amount may be gauged by the fact that mangels, which are thirsty plants, give off from their leaves a quantity of water equal to about half the amount of rain which falls during a year on the field on which they are growing. This stream of water, which passes through the plant, comes from the soil and escapes as vapour from the leaves. In that stream the mineral substances—essential to the building up of the living material—are carried to the leaves, and by the evaporation of the water from the leaf and other surfaces the temperature of the plant is regulated.

Third, the roots of a plant require not only water, but air, and therefore a constantly saturated soil is fatal to the health of nearly all plants. Wherefore it follows that if water fills completely the interstices of the soil the plant cannot flourish. From this we may infer that the plant growing in properly cultivated soil obtains its water not from minute liquid masses lying in the spaces between the soil-particles, but from the water-films which surround and adhere to those particles. These films are attached or stuck to the particles by surface tension, and the thinner the water film the tighter it sticks to the grain of soil. Hence before a soil is itself dry there comes a time when it refuses to yield up any more water to the plant, and the latter may begin to wilt whilst there is yet a considerable amount of water in the soil. The power of holding water by surface tension varies according to the nature of the soil; sands with their big particles have the power less than clays with their excessively minute soil particles.

Fourth, and speaking generally, there is a relation between amount of water and state of the plant. The nature of this relation may be judged from the fact that it is possible to prevent plants from flowering, whilst maintaining them in healthy vegetative growth by supplying them continuously with plenty of water. Indeed, it might be said that every plant requires a longer or shorter period of rest between its growing vegetative period and its flowering period, and that during this rest period it requires to be kept drier than at other times. Sometimes, as in epiphytic and certain other orchids, the resting period is well marked, and during that period, as is well known, water must be given sparingly, if at all. Sometimes the transition between vegetative and flowering stage is so slight as to be unnoticed or even unnoticeable. It follows therefore that when water is given to ordinary actively growing garden subjects plenty must be given, for in the first place the plant requires much water, and in the second place much that is given is bound to drain away; yet after the watering each of the countless soil particles which make up the soil should be surrounded by as thick a water film as it can hold. An actual example will serve to illustrate not only the slight effect of light watering and the big effect of thorough watering, but also the fact that a too copious and frequent watering is useless, and indeed often harmful. The example consists of an experiment carried out by M. A. Petit, Professor of the French National School of Horticulture. A crop of lettuces was divided into plots of 1-40th acre each, which were watered at intervals 13 times, and each time with a known amount of water. The results were as follows:—

Plot.	Amount of water (galls.) Per watering.	Total.	Yield in lbs.
1	0	0	316
2	51	663	326
3	102	1,326	369
4	153	1,989	390
5	204	2,552	360

As the numbers show, the light watering received by Plot 2 made practically no difference to the yield, double the quantity (Plot 3) increased the crop by about 15 per cent., three times the amount of water (Plot 4) caused a yet greater yield, whereas further increase actually reduced the size of the crop. This general rule admits of exceptions, of course, but it is not our present task to deal with the difficult plants; but rather with the common sense of watering.

It might at first sight seem a matter of indifference at what time of the day watering is done, and yet there is a well-established prejudice against watering in the middle of a bright sunny day. As so often happens, science, at first nonplussed by and sceptical of practical experience, contrives subsequently to discover the reason for the practice. In the present instance the explanation is extremely curious, and shows incidentally what a remarkably complicated thing is the soil. From the investigations of German men of science it appears that when water is added to dry earth a considerable quantity of heat is disengaged. This is specially marked in the case of soils rich in clay, and particularly in clays containing a large proportion of organic matter; in short, the heat produced by the addition of water to soil will be greatest in the best garden soils. If therefore water be added to a soil dried and baked by the sun, the temperature of the soil, already high, is raised yet more, and may well bring about serious damage to the roots. M. Petit finds that the rise of temperature brought about by watering a dry rich garden soil may amount to so much as 20° F. With plants under glass the gardener has, of course, another way of controlling the water content of the plant, and that is by regulating the amount of water in the atmosphere and by syringing the foliage. The effect of increasing the humidity of the air is, of course, to reduce the amount of water given off by the leaves; the physiological effect of syringing is more complicated, and must be considered on another occasion.

[*Photographs by R. A. Malby.*

FIG. 20.—EDRAIANTHUS DALMATICUS (ABOVE); E. PUMILIO (BELOW).

(See p. 34.)

Coloured Supplement.—The subject of the coloured plate to be published with the next issue is Nymphæa "Conqueror."

ROYAL HORTICULTURAL SOCIETY. — The next meeting of the Committees will be held on the 15th inst. in the Vincent Square Hall, Westminster. At 3 o'clock in the lecture room Prof. R. H. BIFFIN, M.A., will deliver the ninth Masters Memorial Lecture, entitled "Some Factors in the Prevention of Disease in Plants."

R.H.S. DAFFODIL SHOW, 1914. — The Secretary informs us that the Royal Horticultural Society's Daffodil Show for 1914 will be held on Wednesday and Thursday, April 15 and 16, and not on April 21 and 22 as previously notified.

NATIONAL CARNATION AND PICOTEE SOCIETY (SOUTHERN SECTION).—The annual exhibition of the Southern Section of the National Carnation and Picotee Society will be held on Friday, the 18th inst., in the R.H.S. Hall, Vincent Square, Westminster.

NORTH OF ENGLAND HORTICULTURAL SOCIETY'S CONFERENCES.—The conferences arranged by the North of England Horticultural Society will take place at Kendal on September 24 and 25, and in addition to the usual Fruit Show and Congress there will be an important addition this year in the form of a Potato Show and Conference, which is to be held on Thursday, the 25th. Mr. G. P. BERRY, the newly-appointed Chief Inspector of Department of Horticulture under the Board of Agriculture, will give a lecture on "Potato Culture." Mr. T. ANDERSON, M.A., B.Sc., will lecture on "The Diseases of Potatos." Alderman ABBATT and Mr. CLARENCE T. WEBB are the local secretaries at Kendal.

FLOWERS IN SEASON.— Messrs. GEORGE JACKMAN AND SON have forwarded specimens of their new Clematis, C. recta grandiflora, which received the R.H.S. Award of Merit on June 17 last. The variety is a large-flowered form of this sweetly-scented white Clematis. Mr. F. C. PUDDLE, Scampston Hall Gardens, Rillington, York, has forwarded two interesting plants, accompanied by the following note :—"I am sending you a hybrid between Primula Bullyana and P. Beesiana, which originated in the rock garden here. The plants are self-sown seedlings, springing from a bed where last year the parents flowered together. I also send flowers of Vicia onobrychioides. This is a very beautiful and striking plant in the rock garden. It is described in Nicholson's *Dictionary of Gardening* as an annual, but in these gardens it has proved to be perennial. The plants were collected by my employer, Mr. W. H. ST. QUINTIN."

SPRING FROSTS AND THE FRUIT CROPS.—The *Pharmaceutical Journal* states that since the damage done to the tender shoots of the vine (and also of other delicate plants) by the extreme fluctuations of temperature, such as occur in spring, is due to too rapid abstraction of water from the tissues, it is suggested that this may be checked, and the crystallisation of water on the buds and in its tissues prevented, by dusting them with an inert powder. For this purpose talc in the finest powder, freely applied to the shoots and buds, is recommended. This checks too rapid transpiration of water; its white particles reflect a portion of the sun's rays, which too greatly stimulate the early growth, and also mechanically prevent the formation of ice crystals. This device is described as more efficacious and practicable than the method of forming smoke screens from bonfires to protect the vineyards.

HONOUR FOR A FRENCH NURSERYMAN.—We are pleased to learn that M. ALBERT TRUFFAUT, sen., the well-known nurseryman of Versailles, has just been raised to the rank of Officier de l'Ordre de Mérite Agricole. M. TRUFFAUT is one of the pioneers of French horticulture, and his two sons, GEORGES and ALBERT TRUFFAUT, have inherited their father's tastes and capabilities. M. TRAFFAUT, sen., was the first vice-president of the Société Nationale d'Horticulture de France.

CANARY ISLANDS EXPORTS.—A Consular report shows that in the year 1912 1,526,640 crates of Bananas, 996,891 bundles of Tomatos, and 211,862 cases of Potatos were exported from Teneriffe and Las Palmas to the United Kingdom. So far as Bananas are concerned the figures show an increase of 60,000 crates as compared with 1911. The report mentions incidentally that one of the principal houses in the trade has lately invented a new means of packing Bananas for travelling, using papier mâché covering for the fruit instead of wooden crates. The experiment, it is said, has given most satisfactory results, both as regards the condition of the bunches on arrival at destination and in the cost of packing, a great saving having been realised by the new method.

"THE BOTANICAL MAGAZINE."—The issue for June contains illustrations and descriptions of the following plants :—

RHODODENDRON AUGUSTINII. TAB. 8,497.—This Chinese species was illustrated and described in *Gardeners' Chronicle*, July 6, 1912, page 4, fig. 3. The colour of the petals, as shown by the *Botanical Magazine* plate, is a rather unattractive shade of mauve. The species is allied to R. lutescens, from which it is distinguished by a line of persistent hairs on the midrib of the leaf beneath.

HYPERICUM AUREUM. TAB. 8,498.—This species of St. John's Wort, a native of the South-Eastern United States of America, is an old garden plant. The petals are of canary-yellow colour and the bunch of anthers is slightly tinted with reddish-brown. Unlike most of the other species, H. aureum forms a distinct stem, which gives the plant the appearance of a small tree. As this Hypericum flowers in August it is valuable for making a display when flowers of other woody subjects are scarce.

AMELANCHIER OLIGOCARPA. TAB. 8,499.—The plant is hardier and not so tall-growing as the Snowy Mespilus, and, owing to its being very rare, some form of A. canadensis is sometimes substituted for it by nurserymen. Because of this many have confused it with A. canadensis, regarding it as a variety of that species. But the inflorescences contain fewer blossoms, there being very rarely as many as four. Owing to its hardiness the plant should prove useful for gardens in very cold districts.

OSBECKIA STELLATA. TAB. 8,500.—This very brightly flowered Melastomad has been in cultivation in this country since about 1820, having originally been introduced from Nepal, India. The plant is easily grown, and in an ordinary greenhouse forms a shrub about 2 feet high that flowers in the autumn. Its cultivation has been largely discontinued, but recently seeds have been again introduced to Europe. The material for the *Botanical Magazine* figure was obtained from a plant raised from seed obtained at Sikkim and forwarded by the Royal Botanic Garden, Calcutta. The colour of the corolla is lilac-red.

AGAVE WARELLIANA. TAB. 8,501. This noble Agave was first described by Mr. J. G. BAKER in *Gardeners' Chronicle*, September 1, 1877, p. 264, in his monograph of the Genus Agave. The species is illustrated in the same issue from a sketch by Mr. WORTHINGTON SMITH. Our figure does not show the inflorescence of bright yellow flowers, which rises to a height of more than 15 feet.

"JOURNAL OF ECOLOGY."—So rapid has been the progress made in ecology—that is, the study of plants and animals in relation to their environment—that the need for a journal devoted to this subject has been felt by many biologists. Since some of the most striking contributions to plant ecology have been made by British workers it is but fitting that the first periodical of this kind should be issued in this country and in connection with the recently-founded British Ecological Society. Among those associated with this enterprise are some names well known to our readers, the Council of the new society including Professor F. W. OLIVER, Mr. A. G. TANSLEY, and Dr. C. E. MOSS. The secretary of the Society and editor of the journal is Dr. F. CAVERS, Goldsmith's College, London, S.E. Two numbers of the quarterly *Journal of Ecology* (Cambridge University Press) have now been issued (March and June, 1913). In No. 1 Mr. TANSLEY explains the aims of the new journal; the editor presents an attractive programme of forthcoming articles; Professor OLIVER writes an interesting account of the vegetation of Blakeney Point, with some notes on the animal world in its relations to the vegetation; Dr. W. G. SMITH gives a summary of the work of Raunkiär on "life-forms" among plants; and Mr. TANSLEY contributes a long and critical review of the recent attempt by the Swiss botanists, BROCKMANN-JEROSCH and RUBEL, to found a universal system of classification of plant communities. These articles are followed by shorter contributions dealing with the relation of the present plant population of the British Isles to the Glacial Period, by Mr. CLEMENT REID, and on the Nature Reserve movement in Britain by Mr. W. M. WEBB; and the remainder of the number is occupied by notices on recent publications. The second number contains articles on "The Woodland Vegetation of the Cotswolds and the Forest of Dean," by Messrs. TANSLEY and ADAMSON; on the quadrat method of vegetation survey, by Professor J. H. PRIESTLEY; on "Beech Forest in Its Relations to Edaphic Factors," by Mr. M. SKENE; on "The Determination of the Water-Content of Soils and the Wilting-Point of Plants," by Mr. W. B. CRUMP; and on "Vestigial Floras : Relics of Former Heaths and Bogs in the Midst of Cultivated Areas," by Mr. A. R. HORWOOD.

HARVEST WEATHER FORECASTS.—The Board of Agriculture and Fisheries desire to draw the attention of farmers to the Harvest Weather Forecasts issued by the Meteorological Office between June 1 and September 30. These forecasts are sent out at 2.30 p.m. and cover a period of 15 hours, viz., from 6 a.m. to 9 p.m. on the following day, and when conditions are sufficiently definite a "further outlook," extending the period covered by the forecast to two or more days, is added; thus farmers who receive them have the best possible information about the weather when planning their work. A correspondent who recently applied to the Meteorological Office for special forecasts, wrote : "You may be interested to know that I acted on the forecast last year and, consequently, saved £200." The Meteorological Office supplies this valuable service free, under certain conditions, to those who prepay the cost of telegrams. Full information may be obtained on application to the Director, Meteorological Office, London, S.W.

MR. JAMES GIBSON. — Mr. JAMES GIBSON, gardener to the Duke of PORTLAND at Welbeck Abbey, seems to excel in everything he undertakes. His successes at flower shows, where he stages magnificent collections of vegetables, or tastefully arranges a decorated dinner-table, as at Shrewsbury, are matters well known to our readers, but it may not be common knowledge that he is also one of the best bowlers in the Midlands. On June 28 last, at the Nottinghamshire County meeting, Mr. GIBSON won the championship gold medal and 40-guinea challenge cup with an excellent score.

THE CRYSTAL PALACE.—As these pages go to press (Thursday) we learn that the *Times* Fund amounts to £78,500. Success seems assured, but it should be recognised that there is still another £8,000 to be subscribed, and it is imperative that this sum be raised before the 31st instant.

EDRAIANTHUS DALMATICUS AND E. PUMILIO.

(See page 31.).

THE genus Edraianthus was established by Alphonse de Candolle, and includes a small group of plants formerly classed with the Campanulas. Some botanists have sunk Edraianthus under Wahlenbergia, and as such it appears in the *Index Kewensis*, but for garden purposes it is useful to keep up de Candolle's name. The plants are distinct, all the species being stemless, with linear, grass-like radical leaves, and prostrate or sub-erect flowering shoots bearing heads of sessile flowers. E. dalmaticus (see Fig. 20) is synonymous with Wahlenbergia tenuifolia, and is a native of the mountains of Southern Austria. The clusters of pale violet-blue flowers have some resemblance to the Campanulas, of which family the Edraianthuses belong.

E. pumilio is described by Mr. Reginald Farrer* as one of the most cherished of Alpines, and a thrifty doer in any good place in fine soil rubbly with lime. The flowers of this species are also violet-blue coloured, and the illustration on page 31 shows well how freely they are produced. The Edraianthuses are splendid subjects for planting on the moraine, and they also grow well on the rockery.

* *The Rock Garden*: Present Day Gardening Series, price 1s. 6d.

[*Photograph by R. J. Campbell.*

FIG. 21.—HYBRID TEA ROSE QUEEN MARY: COLOUR OF FLOWER, PINK AND GOLD.
(Awarded Gold Medal by the National Rose Society, July 4, 1913. See p. 37.)

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

FRUIT BUDS NOT FLOWERING.—I fail to follow the remarks made by "A Southern Grower" (vol. LIII. p. 407) on fruit buds. I take it that on Apple and Pear trees three classes of buds are found, i.e., blossom, or fruit, buds; leaf-buds, or immature fruit buds; and wood buds. I fail to see how a bud which produces only leaves can properly be termed a fruit bud. If "A Southern Grower" means that fruit buds are *not* flower buds it would be obvious that in such case birds could not destroy the bloom; but how can this be so? *G. H. H. W.*

[I should divide "buds" into two classes—wood buds and fruit buds—both of which bear leaves. Of course, a fruit bud bears blossoms if it remains healthy, but not always in the fruit season following its development, nor in a season following one in which a very heavy crop was borne. Surely, G. H. H. W. would not maintain that the large number of mature trees which failed to blossom this season were devoid of fruit buds.—*Southern Grower.*]

EARLY CABBAGE (see vol. LIII. pp. 365, 388, and 407).—I quite agree with Mr. Cook's remarks about the cultural treatment of Cabbages, and concur in his opinion that the plants ought to be in their places by October. If your correspondent will turn to my letter again he will find that we work, at Hindhead, under considerable difficulties. Farmyard manure is certainly the best to use, but extremely difficult for us to obtain. I admit that nitrate of soda and superphosphate are stimulants, but my crop required a stimulant. I should like Mr. Cook to come to Hindhead and see what he could do in the way of growing cabbages in the open which should be fit to cut by the beginning of March. I fancy he would find his task an impossible one. He says that "he was cutting when I was planting." This statement is true only in so far as it applies to this particular batch which I selected for description as best showing what can be done on a soil extremely deficient in mineral matter, and in most respects unsuited to the growing of Brassicas. *C. Harris, Corona, Grayshott, Surrey.*

REMINISCENCES OF YORK GALA (see p. 7).—Having attended forty-one consecutive galas, I read with much interest the remarks of your correspondent on p. 7. I have a good recollection of the Exhibition in 1883, especially of the Fruit classes, as in my desk, used as a letter-weight, is a bronze Veitch Memorial Medal, which won for the three best bunches of Grapes in the show. I forget who was Mr. Gilbert's colleague as a judge, but I remember Mr. Gilbert saying afterwards they could not agree, and called the late Mr. McIndoe to decide. His decision was given from the point of flavour, and he selected Black Hamburgh. Somewhat singular to say an old friend who has been present at fifty-one consecutive galas and myself were discussing the pros and cons of past shows on the first day this year. We took the line of "On the Walls" as to merits or defects of individual versus collective culture of plants at Exhibitions. Reading betwixt the lines of his remarks we were both of a similar opinion, and my friend was in 1883 (also before and after) a winning exhibitor in the class for "Cart-wheel" Pelargoniums and specimen Fuchsias. There is no reason why the galas at York should not go on and prosper. The committee is composed of the best business men of the city Good men fall out from time to time, but their places are filled by others, who take a keen interest in the shows. In one respect the York Committee is unique, for there is not one of its members who could be termed a horticulturist pure and simple. The same remark applies to the three secretaries I have known. *Horticulturist.*

ANTIRRHINUMS.—Now, when the Antirrhinums are coming into full flower, it is clear that early sowing, though not essential, is an important item in their cultivation. They succeed sown as late as March, but it necessitates a long period in heat, whereas by sowing towards the end of January, or even at the beginning of February, they can be forwarded in comparatively cool conditions. Early sowing has the further advantage that it is possible to make a second sowing of any variety that may have failed to produce a sufficient number of plants, for different varieties vary to a large extent in their power of germinating just as they do in general habit, some being weakly as compared with others, and in early or late flowering. Varieties also vary considerably in stature, not only in the intermediate, but also in the tall sorts. Yellow tall, under favourable conditions, mount up to 7 feet in height, while Orange King may not attain to 4 feet. Some again are bushy, while others incline to shoot sartight up, and these characters have to be taken into consideration in arranging the plants for effect. There is no difficulty in the production of stock. I find they succeed equally well when pricked from the seedling receptacles into cutting-boxes in which the compost need not be more than 2 inches deep, or direct into beds of soil in cold frames. In the latter system less labour is required in watering and general attention, but the boxed plants are more easy to transport to the flower beds, so there is not much gained or lost by adopting either system. The plants being hardy should be planted as early as possible, so that they may get a good grip of the soil before the hot summer weather sets in. There are always rogues amongst the seedlings even when the greatest care is taken in selecting them; almost every variety has a different colour or shade of green on the under side of the leaf, and this is a character by which rogues may be determined for weeding out. A break I got a few years ago was grown from cuttings, and from one plant seeds were saved which gave two colours in the seed leaves. These were separated and the dark leaves gave a fine violet purple flower, and the others came true to the type with a large admixture of a self cream. Last year I had an intermediate crimson variety produce a very tall offspring of a variety of shades from scarlet to crimson, and I have found a self-yellow variety among the crimson seedlings. Though Antirrhinums grow plentifully on walls, it is noteworthy that for garden decoration they require very liberal treatment. Neither 1911 nor 1912 were seasons to the liking of these showy plants. In the former year the flower-spikes went to seed

through the abnormal heat and drought without the flowers opening, with the consequence that for weeks beds occupied by them were green at a time when they should have been gaily coloured; yet by cutting such spikes at short intervals as they became worthless, and watering the beds with manure water three times weekly, I was enabled to keep the beds, with the exception of a very short time, in their usual condition. Last year in some gardens the flowers did not appear until September, the result of the cold and wet June. When I observed them hanging growth, the soil surfaces were dressed with pigeon dung, manure from a spent mushroom bed and a chemical compound, with the result that the plants turned out extraordinarily fine. Firm soil is another essential in the successful cultivation of these plants. Yet with perfect cultural provisions Antirrhinums may easily be a failure decoratively, either through a want of knowledge of the varieties, or through want of care in the choice and arrangement of colours. Last year our varieties were mainly of faintest pink shades, deepening to carmine, with a smaller number of pink and cream-coloured varieties. This year the tall Orange King, mixed with Calceolaria amplexicaulis—though Celsia cretica under certain conditions would be better—occupies a prominent place with several smaller beds of Intermediate Fire King, which, though similar to Orange King, is much more effective for grouping. The same varietal colours are to be had from many seedsmen, but they are sold under different denominations, and it is annoying to have one variety from different sources under different names. *R. P. Brotherston, Tyninghame Gardens, Prestonkirk.*

Anæctochilus at Tracy's Nursery, Twickenham.—The sturdy plants of these prettily-leaved Orchids in the group staged at Holland House by Mr. S. Flory, Tracy's Orchid Nursery, Twickenham, were much admired, and many who had failed to grow them successfully were curious to know in what conditions they were grown. Subsequent inspection of the plants at Twickenham seems to point to the fact that failures in many gardens have been brought about by employing too much heat and too much nursing. Mr. Flory's plants are grown in a case placed over the tank at the end of a small house in which Phalænopsis, Vandas, Saccolabiums, etc., are growing, also in rather cool conditions. The bottom of the case is of perforated zinc, on which a layer of small coke is placed, then some Orchid pans, on which a wooden stage is placed, which leaves openings at the back, front, and sides for moist air to come up. There is a glazed light, but it is not used much. In summer it is removed, and at other seasons tilted as required for ventilation. The plants are potted in a mixture of leaf-mould, peat and Sphagnum-moss, the material being always kept moist, but no water overhead is given. An intermediate heat and a low night temperature are maintained. The plants have been grown from very small specimens, and increased by propagation. Generally these Orchids are kept in a very warm, moist house and under bell-glasses, and their life is short. Here they were placed in a very inexpensive case for a trial, and the result has been satisfactory in every way. *Visitor.*

Second Blossoming of Plum Trees.—Several trees of Victoria Plum in these gardens are flowering for a second time this year, some at the extremities of the young growths. I have never seen this occur with Plums before. We have most extraordinary crops of Gooseberries, Currants, and Raspberries; otherwise our fruit prospects are similar to those described by "Southern Grower." *A. J. Elgar, Killarney House Gardens, Ireland.* [We hear of this second blossoming of Victoria Plums from several quarters. In our own garden, a tree of Williams' Bon Chrêtien Pear has developed a second crop of blossoms at the ends of the branches. The blossoms should be picked off.—Eds.]

Chicory Cultivation in Belgium.—In my note on this subject printed on p. 6 a small error has crept in. The paragraph in col. 3 should read: "The fire is kept burning for twelve or fourteen hours, according to the weather, and the bed is then left for four or five days without fire." *E. C., Brabant.*

SOCIETIES.

ROYAL HORTICULTURAL.

Summer Exhibition at Holland House.

(Concluded from page 18.)

Horticultural Sundries.

All the exhibits of horticultural sundries of a perishable nature, the paintings of garden scenes and garden literature were accommodated in a special tent. The principal exhibitors of the first-named were Messrs. Barr and Sons, Covent Garden, whose chief "lines" were garden tools and special manures; Messrs. Joseph Bentley, Ltd., Barrow-on-Humber, who specialised chemical manures and insecticides; Messrs. Cooper and Nephews, Berkhamsted, with weed killers and sprayers; Jeyes' Sanitary Compound Co., 64, Cannon Street, London, who displayed various washes and disinfectants; Messrs. H. Pattisson and Co., Streatham, on whose stand were displayed horse boots for use on lawns and golf greens; Messrs. Wakeley Bros and Co., Ltd., Bankside, London, with samples of their well-known Hop manure and plants illustrating its fertilising properties; Messrs. E. A. White, Ltd., Paddock Wood, Kent; and the Four Oaks Spraying Machine Co., Sutton Coldfield. Messrs. Robinson Bros., Ltd., West Bromwich, erected an attractive, castellated building in the grounds, where they displayed "Guaranteed Gardenalities," including the Carmona fertiliser and Clift's fluid insecticide.

In a separate tent the "Lamp Pump," made by the Lamp Pump Engineering Co., Ltd., Westminster, which is worked by a small paraffin-heated dome boiler and lifts 400 gallons of water per hour at an estimated cost of less than one penny, was steadily working.

Messrs. T. Crowther and Sons, Fulham, London, had a very large collection of beautiful marble garden seats, old lead vases, and hammered gates of exquisite workmanship, with elegantly designed pediments.

Messrs. Lloyd, Laurence and Co., 29, Worship Street, London, effectively watered the parched grass with the newly designed "Pluvi-ette" sprinkler, which, by an ingenious adaptation of the turbine principle, evenly projects the water over a considerable area—an area of from 300 to 500 square yards, according to the water-pressure available. The appliance is automatic, and is easily adjusted.

AWARDS MADE BY THE COUNCIL.

Coronation Challenge Cup.

Sander and Sons, St. Albans, for Orchids.

Gold Medals.

The Rt. Hon. Lord Langattock, for Pineapples; Sir Randolf Baker, Bart., for Sweet Peas; the Hon. Vicary Gibbs (gr., Mr. E. Beckett), for Vegetables; Blackmore and Langdon, for Begonias; H. B. May and Sons, for exotic Ferns; Paul and Son, for Roses; Wm. Paul and Son, Waltham Cross, for Roses; Sander and Sons, for Orchids; Sutton and Sons, for Sweet Peas; James Veitch and Sons, Ltd., for Fruit Trees in pots; James Veitch and Sons, Ltd., for Chinese Plants; R. Wallace and Co., for ornamental water garden; Charlesworth and Co., for Orchids; and Dobbie and Co., for Sweet Peas.

Silver-gilt Cups.

James Box, for water garden, Sweet Peas, etc.; and L. R. Russell, for stove plants, shrubs, and Irises.

Large Silver Cups.

Sir Jeremiah Colman, Bart., for Orchids; Wm. Cutbush and Son, for Carnations, Roses, herbaceous flowers, cut trees, and flowering plants; G. Bunyard and Co., Ltd., for Roses and hardy flowers; and Charles Turner, for Roses.

Silver Cups.

Mansell and Hatcher, Ltd., for Orchids; Stuart Low and Co., for Orchids, Roses, Carnations, New Holland plants, and fruit; J. Piper and Son, for formal garden, rock and water plants, Fuchsias, Japanese trees, etc.; J. Carter and Co., for water garden, and flowering plants; J. Veitch and Sons, Ltd., for flowering plants, Bay trees, Orchids, etc.; Barr and Sons, for flowering plants, foliage plants, and herbaceous and water garden; W. and J. Brown, for Roses and hardy flowers; M. Prichard, for herbaceous and Alpine flowers; Mr. Prichard, for bog plants; and A. Gwillim, for Begonias and herbaceous plants.

Standard Cups.

Stuart Low and Co., for Orchids; J. Peed and Son, for Caladiums and flowering plants; Amos Perry, for herbaceous plants, alpines, Ferns, etc.; G. Jackman and Son, for roses, herbaceous plants and Clematis; J. S. Arkwright, Esq., for Lychnis Arkwrightii; and W. Fromow and Sons, for Japanese Maples.

Silver-gilt Hogg Medal.

S. Heilbut, Esq. (gr. Mr. Camp), for fruit trees in pots.

Silver-gilt Knightian Medal.

Laxton Bros., for Strawberries.

Silver-gilt Flora Medals.

S. W. Flory, for Orchids; J. King and Sons, for Sweet Peas; G. and A. Clark, Ltd., for herbaceous plants and aquatics; Bakers, for herbaceous plants and alpines; B. E. Bell, for Carnations; H. Burnett, for Carnations; C. Engelmann, for Carnations; F. Cant and Co., for Roses; B. Cant and Co., for Roses; Hobbies, Ltd., for Roses; Wilfred W. Gott, for Carnations; and J. Cheal and Son, for ornamental garden.

Silver-gilt Banksian Medals.

G. Reuthe, for border flowers, Alpines, and shrubs; S. Bide and Sons., Ltd., for Sweet Peas; E. W. King and Co., for Sweet Peas; Gunn and Sons, for Phloxes; Harkness and Sons, for border flowers and Spanish Irises; Geo. Prince, for Roses; Fred Smith and Co., for hardy herbaceous plants and flowers; G. Stark and Son, for Sweet Peas and Kniphofias; Bees, Ltd., for alpines and hardy plants; Rt. Hon. Lord Burnham (gr., G. Johnson), for Carnations; John Forbes (Hawick), Ltd., for summer-flowering plants; H. J. Jones, for Phlox and Canterbury Bells; Thos. S. Ware, Ltd., for Begonias; and Mary Countess of Ilchester, for Sempervivums and Saxifrages.

Silver Flora Medals.

H. Dixon, for Orchids; J. Veitch and Sons, Ltd., for Orchids; Rev. Chalmers Hunt, for Roses, Sweet Peas, and vegetables; Phillips and Taylor, for water garden and border flowers; Whitelegg and Page, for Sweet Peas; Robert Sydenham, Ltd., for Sweet Peas; R. and G. Cuthbert, for Humea elegans and Spiræa; Jas. Douglas, for border Carnations; the Guildford Hardy Plant Nursery, for herbaceous plants; T. R. Hayes, for Heaths and Alpines; H. Hemsley, for Antirrhinums and rock garden; J. Mattock, for Roses; R. C. Notcutt, for Roses; Reginald Pritchard, for herbaceous plants; Frank Lilley, for Spæraxis and Gladioli; Thompson and Charman, for herbaceous plants, Alpines, etc., and W. Fells and Son, Hitchin, for hardly herbaceous plants.

Silver Banksian Medals.

Lady Northcliffe (gr., Mr. J. Goatley), for Crassula coccinea; E. V. Low, for Orchids; Jas. MacDonald, for exhibit of grasses; Carlton-White, for clipped trees; R. H. Bath, Ltd., for Roses and herbaceous plants; Webster, for Sweet Peas; Kelway and Son, for Delphiniums, Sweet Peas, etc.; Carter Page and Co., for flowering plants; G. Bolton and Son, for Roses; Howard Crane, for Violas and Violettas; Walter Eastlea, for Roses; Clarence Elliott, for Alpines; G. Gibson and Co., for herbaceous plants; G. W. Miller, for herbaceous and small plants; Morse Bros., for Roses; W. H. Page, for flowering plants; Watkins and Simpson, for Antirrhinums; W. and C. Bull, for herbaceous flowers; Wargrave Plant Farm, Ltd., for herbaceous flowers; Godfrey and Son, for flowering plants.

Certificate of Appreciation.

Mr. Hemsley for work in raising new Antirrhinums.

AWARDS TO HORTICULTURAL SUNDRIES.

Silver-gilt Banksian Medals.

T. Crowther and Son, for ornamental stone and iron work; and Gamage and Co., garden tents, etc.

Silver Banksian Medals.

Abbott Bros., for table trays, etc.; Benton and Stone, Ltd., for spraying machines, etc.; Castles, for garden furniture; and Liberty and Co., for Japanese garden ornaments, etc.

Bronze Banksian Medals.

Barr and Sons, for tools and implements; Jos. Bentley, Ltd., for horticultural chemicals; John Bradley, for Bunty tea-house; Miss Edith Fisher, for water-colour drawings; Four Oaks Spraying Machine Co., for spraying machines; Heathman and Co., for ladders, hose, etc.; Robert Hughes, for water-colour drawings; Miss Mitchell, for garden baskets; John Pinches, for labels, exhibition boxes, etc.; W. Voss and Co., Ltd., for insecticides; and E. A. White, Ltd., for insecticides, sprayers, etc.

NATIONAL ROSE.

July 4.—The great Rose event of the year, the National Society's Metropolitan Exhibition, took place on this date in the Botanic Gardens, Regent's Park. It was the thirty-seventh of these annual shows, which have been held at different periods in various places of the Metropolis, but never in a more suitable place than the Botanic Gardens. The fortunes of the Society have always been rosy, but never more so than at the present time, when it can claim to be the most important Association connected with a special flower, for the Rose Society is second only to the Royal Horticultural Society in membership. These exhibitions have grown in importance, and they are now greatly superior to those of only a decade ago. They have a great attraction for the public, and when a flower show "takes," the competition is sure to be good. The schedule is so extensive—there are 111 classes—that almost every section of the flower and class of grower is provided for. The present summer, so far, has suited Roses, and especially those flowers which exhibit the lighter

tints. The red Roses are never so good, by comparisons, as the paler sorts, in very hot seasons. To single out varieties that were shown unusually well last week, we may instance Mildred Grant, Bessie Brown, Maman Cochet, White Maman Cochet, and Mrs. Edward Mawley.

The number of new Roses was, as usual, very large, and these were staged in a tent by themselves. Everyone appeared anxious to see the novelties, and although the tent was much larger than usual, many gave up the attempt to inspect them, owing to the crush. The Floral decorations were also arranged in a separate tent apart from the rest of the show. It would have been a great advantage and added to the importance of the exhibition had all the exhibits been arranged in one large tent, such as at the recent York gala.

NURSERYMEN'S CLASSES.

The Champion Class in this section is for 72 blooms of distinct varieties, a large number for any grower to stage in exhibition form at one time. Some of the best known firms competed, and a splendid contest resulted, in which Messrs. BEN CANT AND SONS, Colchester, excelled, beating four other exhibitors. Not only in the winning stand was the quality splendid, but generally, also, in the other collections. The following varieties were staged by Messrs. B. CANT AND SONS :—O. Terks, Hugh Dickson, Marquise de Ganay, Gustave Piganeau, Earl of Warwick, Mrs. J. Laing (a magnificent specimen), Mildred Grant (of very fine form), Lieutenant Chaure, Frau Karl Druschki, Mrs. Stewart Clark, St. Helena, J. B. Clark (a big red Rose), Bessie Brown (a finely formed flower of this creamy-white variety), Caroline Testout (extra good), Alice Cory Wright, Gloire de Chédane Guinoisseau (a splendid bloom of this fine red, sweet-smelling variety), Her Majesty, Helen Keller, Mrs. Theodore Roosevelt (a big blush Rose), Mrs. W. J. Grant, Mrs. Cornwallis West (of fine shape and nearly white), Mrs. Wallace Rowe, Mrs. Sam Ross (coloured cream, rose and gold), Ed. Mawley (a fine red Rose), Lady Barham, Freda (exquisite in form), Nadia, Mrs. Arthur Coxhead, Mme. Jules Gravereaux, Geo. Dickson (a fine example of this beautiful red Rose), Mrs. Ed. Mawley (a large, blush variety), Dr. O'Donel Browne (cerise colour), Maman Cochet, Frances C. Seton (bright rose), Dean Hole (extra good), Elizabeth, Lady Helen Vincent, Lohengrin, Duchess of Normandy, Mrs. J. Bateman (a very choice specimen of this carmine-rose coloured variety), Mabel Drew (pale yellow), Duchess of Westminster, Mme. Constant Soupert, August Hartmann H.T. seedling (cherry red—a fine shade), Lady Mary Fitzwilliam, W. Shean, Alice Lindsell, Florence Spaull (a seedling of pale rose colour), Mrs. A. Hammond, M. H. Walsh, British Queen, Mrs. Geo. Shawyer, White Maman Cochet, Mrs. Maynard Sinton, Lady Ashtown (a big specimen), Comtesse de Nadaillac, Lyon Rose, White Killarney, Chas. J. Graham, Mme. Melaine Soupert, Leslie Holland, Beatrice, Freiherr von Marschall, Margaret, Claudius (extra good), Yvonne Vacherot, Ulrich Brunner, W. R. Smith, Aimée Cochet, Lady de Bath and Alfred K. Williams. 2nd, Messrs. ALEX. DICKSON AND SONS, LTD., Newtownards, whose choicest blooms included those of the varieties :—Lady Barham (palest pink, almost blush colour), Lohengrin (pink), Mrs. Geo. Preston, S. M. Rodocanachi (cerise), Marchioness of Downshire, Mrs. John Laing, Florence Pemberton (cream, with rose flush), W. Shean, Pharisaer (cream and rose), Mrs. G. W. Kershaw, Mamie (rose coloured), Bessie Brown (a fine bloom of this pale rose), Ulrich Brunner, Mildred Grant, and Brilliant, a fine new red rose, which was awarded a Gold Medal; 3rd, Messrs. FRANK CANT AND CO., Colchester, whose collection included a magnificent specimen of George Dickson, that was awarded the Silver Medal offered for the best H.T. variety in this section. 4th, Messrs. R. HARKNESS AND CO., Hitchin.

The next class was for 40 varieties, three blooms of each variety. Here again the contest was keen, and Messrs. ALEX. DICKSON AND SONS succeeded in winning the 1st prize, followed closely by Messrs. B. R. CANT AND SONS with Messrs. FRANK CANT AND CO., 3rd. The blooms, as shown in triplets, were perhaps even more striking than in the Champion class. Those that appealed to us most in Messrs. DICKSON'S fine collection were H. V. Machin, Mme. Jules Gravereaux, Ulster (a pale pink Rose of fine form), Mabel Drew (pale yellow, shaded a deeper yellow in the centre), Mrs. John Laing, Conway Jones (cherry red), Lohengrin, Mrs. Arthur E. E. Coxhead, Denis (new), Lyon Rose, Mrs. Geo. Shawyer, Alice de Rothschild (of gold colour, a pleasing change from the red and pink varieties), Xavier Olibo (a dark coloured Rose), Bessie Brown, and Mildred Grant, with big curving petals of exquisite form, just flushed with rose. 2nd, Messrs. B. R. CANT AND SONS, who had Gloire de Chédane Guinoisseau, Mrs. John Laing, Theodore Roosevelt, Ulrich Brunner, White Maman Cochet, J. B. Clark, Walter Speed, Lieutenant Chaure, Dean Hole, Mildred Grant, Lohengrin, and Augustus Hartmann. 3rd, Messrs. FRANK CANT AND CO.

The contest for the China Trophy, which was offered for the best exhibit of 48 blooms, distinct, was a very spirited one amongst 11 competitors. Mr. GEORGE PRINCE, Oxford, was placed 1st. His choicer blooms were : Bessie Brown, Mrs. Amy Hammond, Geo. Dickson (a fine Rose of rich red colour), George C. Waud, Mrs. Joseph Welch (pink), Mrs. Arthur E. E. Coxhead, Florence Pemberton, Mrs. Maynard Linton (very pale in colour, almost white), and Avoca (a fine rose-red bloom). 2nd, Messrs. PERKINS AND SONS, Coventry, who showed amongst others Mildred Grant (the large spreading white petals just tinged with pink), Gloire de Chédane Guinoisseau (a beautiful red Rose, with strong scent), Her Majesty, and Mrs. Cornwallis West (white). 3rd, Messrs. G. AND W. H. BURCH, Peterborough.

Eleven entered in the class for 24 blooms, distinct, in which Messrs. W. R. CHAPLIN BROS., LTD., Waltham Cross, won the premier honours, followed by Mr. W. R. HAMMOND, Burgess Hill, the 3rd prize being won by Mr. J. MATTOCK.

In the smaller class for 16 varieties, distinct, shown in triplets, the KING'S ACRE NURSERIES, Hereford, excelled. 2nd, Messrs. G. AND W. H. BURCH; 3rd, Mr. W. H. FRETTINGHAM, Nottingham.

TEA AND NOISETTE VARIETIES.

The D'Ombrain Cup formed the most important prize in this section. It was offered in the class for 24 blooms, distinct, and attracted five competitors. Mr. G. PRINCE secured the trophy for an excellent collection, which included the varieties Souvenir de Pierre Notting (apricot-yellow), Bridesmaid, Mme. Constant Soupert, Mrs. Edward Mawley (awarded the Silver Medal for the best bloom in this section), Muriel Graham, Innocente Pirola, and Golden Gate. 2nd, Mr. H. DREW, in whose collection we noticed Mme. Jules Gravereaux, Mme. Constantin, Maman Cochet, Freiherr Von Marschall, Media (a perfect bloom of this pale yellow variety), Souvenir d'Elise Vardon (a blush Rose of exquisite shape), Alexandra Alice Hill, and White Maman Cochet. 3rd, Messrs. B. R. CANT AND SONS.

For twelve blooms, distinct, no fewer than 14 entered. The first prize was awarded to Mr. JOHN MATTOCK, and the 2nd Prize to Messrs. J. BURRELL AND CO.; whilst for 16 varieties, shown as triplets, Mr. H. DREW excelled.

BLOOMS SHOWN IN VASES.

There were two classes for blooms shown in vases, the one for 12 varieties and the other for 9. In the larger class Messrs. D. PRIOR AND SONS, Colchester, won the 1st prize with splendid blooms shown on tall stands. The varieties were Bessie Brown, Pharisaer, Lady Ashtown, Mrs. T. Roosevelt, Leslie Holland, Mme. Jules Gravereaux, White Maman Cochet, Mons. J. Hill, Mr. J. Bateman, Lyon Rose, Kaiserin A. Victoria, and Mrs. A. E. E. Coxhead. 2nd, Messrs. ALEX. DICKSON AND SONS, LTD., for G. C. Waud, Mildred Grant, Countess of Annesley, Countess of Derby, Bessie Brown, Mabel Drew, Mrs. W. J. Grant, and others.

In the smaller class Mr. HENRY DREW had the best of five exhibits. He showed Mme. Jules Gravereaux, W. R. Smith, Mme. Constantine Soupert, Mrs. Hubert Taylor, Medea (yellow), and Alex. Hill Grey (a darker yellow than the preceding). 2nd, Messrs. D. PRIOR AND SONS.

PERPETUAL FLOWERING DECORATIVE ROSES.

In this section the best 9 baskets of cut Roses were shown by Messrs. G. PAUL AND SON, Cheshunt; their blooms of Lady Ashtown, Joseph Hill, Mollie Sharman Crawford, Marquise de Sinety, and Lyon Rose were all excellent. 2nd, Mr. JOHN MATTOCK. For five baskets Messrs. CHAPLIN BROS. excelled with such beautiful varieties as Lyon Rose, Duchess of Wellington, Pharisaer, Mme. Abel Chatenay, and George C. Waud. Other 1st prize winners in this section were (a) Mr. JOHN MATTOCK, for 18 varieties, shown in vases; (b) Mr. W. BENTLEY, for 9 varieties, shown in vases; (c) Mr. E. J. HICKS, for 16 varieties, shown in two exhibition boxes.

DECORATIVE ROSES.

The classes for decorative Roses enabled growers to make large displays of their specialities. In three classes the number of varieties were stipulated, and a given space allotted. For 36 distinct varieties, arranged in a space measuring 14 feet by 3 feet, Mr. JOHN MATTOCK won the A. G. Turner Challenge Cup; the best exhibit of 18 distinct varieties, in a space not exceeding 14 feet by 3 feet, was displayed by Mr. E. J. HICKS; whilst Messrs. W. SPOONER AND SON had the winning stand of 18 varieties of summer-flowering Roses.

Mr. JOHN MATTOCK exhibited the best 9 varieties of new decorative Roses, Messrs. F. CANT AND CO. the best 12 varieties of dwarf Polyantha Roses, and Mr. E. J. HICKS the best 12 varieties of Wichuraiana Roses.

The imposing exhibits of groups of Roses arranged in Class 22 were arranged on the ground. Messrs. HOBBIES, LTD., Dereham, excelled with a pretty collection, in which Ramblers gave grace and lightness over a ground of the larger H.P., T. and H.T. varieties. 2nd, Messrs. G. PAUL AND SON.

The group of cut Roses arranged by Messrs. W. AND J. BROWN, Peterborough, on a table space measuring 33 feet by 3 feet, was amongst the finest exhibits in the show, and included a very comprehensive collection of varieties.

For a smaller exhibit of cut Roses arranged on staging Messrs. G. JACKSON AND SON were awarded the 1st prize.

AMATEURS' CLASSES.

The Champion Trophy, which is open to all amateurs, and is offered for the best collection of 36 blooms of distinct varieties, induced a splendid competition. The 1st prize was won by FRANKLIN DENNISON, Esq., who showed a collection of blooms but little inferior to the winning exhibit in the premier open class. Mr. DENNISON'S examples of such varieties as Oberhofgartner Terks, Mrs. Welch, William Shean, Mrs. Myles Kennedy, and Lady Myra Beauclerc were all that could be desired. Mr. DENNISON also won the 1st prize for 24 distinct varieties. In this class he included excellent blooms of Florence Pemberton, Her Majesty, Mabel Drew, Bessie Brown, and Suzanne Marie Rodocanachi.

The nine blooms of Avoca which won the 1st prize for Dr. T. E. PALLETT in the class for any one variety were almost perfect. The 2nd prize was awarded Mr. A. HILL GRAY, who showed a splendid set of Florence Pemberton.

In the premier class for growers of fewer than 3,000 plants of exhibition varieties the quality of the blooms were not so high. The 1st prize was awarded to Mr. W. ONSLOW TINES; but the nine blooms of Dean Hole, which won the 1st prize in Class 42 for Mr. E. E. EVERSFIELD, were excellent. This variety was shown largely throughout the amateurs' classes, and in excellent condition.

The Ben Cant Memorial Prize, which is restricted to growers of fewer than 2,000 plants of exhibition varieties, was won by Mr. W. J. THORPE, whose 24 blooms included fine examples of Hugh Dickson, Mildred Grant, and Mrs. Foley Hobbs.

The President's Prize for the best collection of 12 blooms exhibited by growers of fewer than 1,000 plants of exhibition varieties was responsible for a large number of very meritorious blooms. Dr. C. LAMPLOUGH, who won the Silver Cup, showed an excellent dozen blooms, those of Mrs. J. Grant, Florence

Pemberton, Mrs. T. Roosevelt, Mrs. Foley Hobbs, and Madame Jules Gravereaux being equal to any others in the show. In this division Dean Hole, shown by Mr. L. S. Pawle, was placed first in the class for six blooms of any Rose except T. or N.; whilst in the division restricted to growers of fewer than 750 plants Frau Karl Druschki was similarly placed.

The vases of Roses in the amateurs' classes were for the most part tastefully arranged, and contained exceedingly good blooms.

The collection of seven distinct varieties of exhibition Roses which was placed first in Class 87 included very fine blooms of Lyons Rose and Mrs. John Laing.

Amongst the five varieties which won the first prize in the next class for Mr. J. Hart there was a splendid vase of Souvenir de Pierre Notting.

The bamboo stands of rambler Roses were generally effective, and several which were filled with such varieties as American Pillar were very charming.

Decorated Dinner Tables.

The entries in both the open and the amateur classes were unusually numerous, and the long rows of tables, each measuring 6 feet by 4 feet, were very attractive. Pink Roses were chiefly used, and although this choice was, from a prize-winning point of view, wise—the white canvas walls and roof of the tent made red Roses look garish and the lighter shades insipid—the display only just escaped being monotonous. In our report of last year's shows, when we noted the overwhelming use of the single-flowered variety Irish Elegance, we suggested that the society would probably consider the advisability of making two classes for the amateurs' dinner-table decorations. This suggestion was adopted, and has proved to be very popular with the exhibitors. Perhaps influenced by last year's preponderance of Irish Elegance, several exhibitors made good use of other varieties in the class restricted to Single-flowered Roses, but the variety named again won the chief prizes, although other tables, notably that decorated with Blush Rambler, ran them very close. It was interesting to note the variability of Irish Elegance; in the 1st Prize table, arranged by Mrs. E. M. Burnett, the buds as well as the outer-petals of the mature flowers were of an unusually reddish tint; while the flowers in Mrs. F. P. Woods' 2nd prize exhibit were considerably paler.

Miss M. West arranged the most successful table in the class in which the single-flowered Roses are debarred and cleverly toned the Richmond Roses with the free use of foliage; in the 2nd Prize table, arranged by Mrs. G. C. Sawday, pink Roses were used; a few sprays of the pale green foliage of a rambler variety struck a jarring note in an otherwise admirable exhibit. Mrs. A. Bide won the 1st Prize in the Open Class with an exceedingly artistic arrangement; 2nd, Mrs. F. M. Bradley.

The general effect of the Decorative Classes suffered somewhat from the almost universal use of one variety of Rose; occasionally an exhibitor placed a small-flowered Wichuraiana hybrid with a Hybrid Tea variety, but the contrast in size and form was not pleasing. Nevertheless, some at least of the many exhibitors should be quite capable of filling bowls and vases with three or four, or even more, distinct varieties in an attractive manner. Too often the flowers were arranged in a very formal fashion, and in several 1st prize exhibits it was only the accompanying sprays of buds and tinted foliage which saved them from mediocrity.

New Roses.

Although the tent set aside for the new seedling Roses was twice as large as that of last year the fascination of the novelties was so great that throughout the afternoon Rose enthusiasts were formed up in a long queue waiting, more or less patiently, their turns to enter. The most severe critic could not accuse the judges of lightly bestowing their awards, for of the many exceedingly meritorious seedlings presented only three received the coveted Gold Medal. There were nine Silver-gilt Medals, and a like number of Cards of Commendation also awarded.

Gold Medals.

Queen Mary (*H.T.*) (see fig. 21).—A very distinct bloom somewhat suggestive of the fragrant Juliet, but more globular in shape. The combination of bright pink with the pale golden reverse is enhanced by the golden centre of the flower in this most delightful variety. Shown by Messrs. Alex. Dickson and Sons, Ltd.

Brilliant (*H.T.*).—A very striking dark red variety: the centres of the bread, stout petals have a streak of purplish magenta, which is uncommonly effective. The young foliage is prettily tinted, and the blooms are borne on long, stout stems. Shown by Messrs. Hugh Dickson, Ltd.

Mrs. James Lynas (*H.T.*).—The flowers of this fascinating Rose are large and pointed, the centres are of medium pink colour, which fades to nearly white on the bread expanded petals. Shown by Messrs. Hugh Dickson, Ltd.

Silver-gilt Medals

Rose Mrs. Ambrose Ricardo (*H.T.*).—The round lemon-coloured blooms are flushed with pink at the base; briefly, this variety may be described as being a slightly-improved Madame Jules Gravereaux. Shown by Messrs. S. McGredy and Son.

William Cooper (*H.T.*).—A very sweetly-scented Rose, which has broad petals of a charming deep, cherry-red colour. It has a robust habit, and is said to be a splendid garden Rose.

Mrs. J. W. Parker (*H.T.*).—The blooms of this variety are large and full; the base of the petals is tinted with green, and the centre of the flowers flushed with pink.

Ulster Gem (*H.T.*).—An unusually large-petalled single variety with a very small eye; colour yellow.

Muriel Dickson (*H.A.*).—Next to Queen Mary this very attractive hybrid Austrian Briar Rose was the general favourite amongst the visitors. Unfortunately it has but little scent. The large petals are of a bright cerise colour.

Mrs. Hugh Dickson (*H.T.*).—A deliciously-scented, full flower with a lemon-yellow centre. This and the four previous varieties were shown by Messrs. Hugh Dickson, Ltd.

Red Letter Day (*H.T.*).—A nearly single variety with charming velvety petals, much like Ulster Standard, but with more petals.

Conway Jones (*H.T.*).—A highly-scented, almost scarlet Rose: the flower is very full, and has recurved petals. Both were shown by Messrs. Alex. Dickson and Sons.

Mrs. George Norwood (*H.T.*).—The medium pink shade of this deliciously-scented variety is very like that of the popular Mrs. John Laing, except that it is a trifle brighter. Shown by Mr. Elisha J. Hicks.

Cards of Commendation.

Rose Duchess of Abercorn (*H.T.*), *Mrs. Godfrey Brown* (*H.T.*), *Mrs. Wm. Sargent* (*H.T.*), all shown by Messrs. Hugh Dickson, Ltd.; *Naarden* (*H.T.*), shown by Mr. G. A. van Rossen; *J. F. Barry* (*H.A.*), shown by Mr. G. W. Piper; *Moyna* (*H.T.*), shown by Messrs. Alex. Dickson, Ltd.; *Mary Greer* (*H.T.*), shown by Messrs. Alex. Dickson, Ltd.; *Freda Welter* (*P.*), shown by Mr. H. Welter; *Pink Pearl* (*Climbing H.T.*), shown by Messrs. Hobbies, Ltd.

Premier Blooms.

nurserymen's classes.

Tea or Noisette.—Mrs. Edward Mawley. Shown by Mr. George Prince.

Hybrid Tea.—George Dickson. Shown by Messrs. Frank Cant and Co.

Any Other Variety.—Mrs. John Laing. Shown by Messrs. R. Harkness and Co.

amateurs' classes.

Tea or Noisette.—Mrs. Foley Hobbs. Shown by C. C. Eversfield, Esq.

Hybrid Tea.—Aveca. Shown by Dr. Pallett.

Any Other Variety.—Horace Vernet. Shown by A. Foley Hobbs, Esq.

WOLVERHAMPTON FLORAL FÊTE.

July 8, 9, 10.—The Wolverhampton Flower Shows have reached an importance equal to that of any provincial exhibition with the exception of Shrewsbury. On Tuesday last, on the occasion of the judges' luncheon, Alderman Craddock, who has been a committeeman during the twenty-five years since the Society was established, referred to the assistance which he received in the early days from Mr. Naunton, and he (Alderman Craddock) then determined not to rest content until his Show was equal to that of Shrewsbury. Working with this fine spirit, it is not surprising to find the committee getting nearer to their ambition, year by year, and it is certain this year's show was much the best of the series. The entries numbered 900, a great advance on last year, and everything on the first day pointed to the attendance being a record. Like Shrewsbury, Wolverhampton is indebted to its flower shows in more ways than one. Upwards of £8,000 has been contributed from the profits for the improvement of the parks and open spaces of the town, and it is to the efforts of the committee that the borough is indebted for the conservatory in the West Park, the greenhouse at the East Park, the shelter and seats there, and for assistance in the provision of the children's playground at Blakenhall and the open space round St. Peter's Church. The West Park is an ideal site for the holding of a flower show, and just now it is looking its very best. Roses and other flowers were no less charming features out-of-doors than in the competitive area enclosed by the tents.

Groups of Plants.

The sum of £100 was offered as prizes in a class for a display of miscellaneous flowering and foliage plants arranged in a space of 30 feet by 14 feet. Three exhibits were forthcoming, and each was worthy of the excellent exhibition. The 1st prize was won by Messrs. James Cypher and Sons, Cheltenham, for one of the finest groups we have seen at this or any other show. It was characterised by lightness and bright colouring, and was arranged by a master hand in grouping. Foils of tall Codiæums and stands of Orchids served to break the formality, whilst the ground was studded with splendid specimens of fine-leaved and beautifully flowered exotics. The back was crowned with a magnificent Kentia, in front of which was a rustic archway furnished with bright flowers and foliage. The 2nd prize was awarded to Sir G. H. Kenrick, Edgbaston (gr. Mr. J. V. Macdonald), for a more solid arrangement but splendid nevertheless, and composed of excellent specimens of a variety of subjects. Orchids were employed freely, and these gave just the necessary touch of bright colour, to make a harmonious blending with the fine foliage plants. Miltonias, Epidendrum vitellinum, Cattleyas, Masdevallia Harryanum, Odontoglossums, Thunia Marshalliana, and Phalænopsis grandiflora were all shown excellently. The 3rd prize was won by Mr. W. A. Holmes, Chesterfield, for a remarkably good exhibit, in which Caladiums, Codiæums, Dracænas, Ixoras, Lantanas, Polyantha Roses, Francoa ramosa and Liliums were prominent subjects.

The class for a group of ornamental foliage plants arranged in a space measuring 250 square feet attracted four competitors. The groups were arranged along the side of the principal tent, opposite those in the preceding class, and presented a magnificent spectacle. Messrs. Cypher again excelled, but they had worthy rivals in the other competitors, for all showed finely. Messrs. Cypher's plants were of excellent quality, and the group was especially rich in brightly-coloured Codiæums. The ground was a splendid conception of bright colours mingled with banks of moss-like Ferns, the more sombre greys and metallic greens of Anthuriums and Dracænas, lightened here and there with tall specimens of Veitchii, Eulalia lucida variegata, and other graceful plants. The 2nd prize was awarded to Sir G. H. Kenrick, whose magnificent display included a central archway; not obtrusive, furnished with a Phœnix Palm in the centre, and grouped with Caladium argyrites, Begonia Rex, Selaginella and fine plants of Anthurium Veitchii and A. Warscewiczii. In the body of the groups were showy plants of Nandina domestica, Caladiums, Codiæums, Ferns and Saxifraga sarmentosa. 3rd, Mr. W. A Holmes.

For a group of flowering plants of one kind only 5 competed, the subjects employed being Clerodendron fallax, Tuberous-rooted Begonias, Gloxinias and Pelargoniums. The 1st prize was awarded for the Clerodendrons, which were

shown by Sir C. T. Mander, Bart., Tettenhall Wood (gr. Mr. J. F. Simpson). There were 50 plants, and each bore a good inflorescence of the showy red blossoms. But we preferred Messrs. Blackmore and Langdon's Begonias, which were placed 2nd. These beautiful flowers never appear so effective massed on the ground as on a table, but this group merited attention, as much for the splendid quality of the flowers as for their delicate tints. 3rd, Mr. J. E. Knight, Wolverhampton, for standard-trained Pelargoniums.

The class for a collection of decorative plants and bunches of cut flowers was well contested. Messrs. Cypher and Sons won the 1st prize, their fine Orchids contributing largely to their success, whilst the flowers were set off by stately Codiæums. 2nd, Mr. W. R. Manning, Dudley, who also employed Orchids extensively.

Messrs. James Cypher and Sons were also successful in the class for 20 plants in pots not exceeding 10 in. in diameter, beating two other exhibitors. The best of these large specimens were Stephanotis floribunda, Statice intermedia, Ixora Williamsii, Anthurium Scherzerianum, Clerodendron Balfouri and Erica ventricosa Bothwelliana. The 2nd prize was awarded to Sir C. T. Mander, Bart., whose plants included Gloriosa superba, Allamanda Williamsii, Hydrangea Mme. Moullieré, Acalypha hispida, various Codiæums, Palms, and Dracænas. 3rd, Mrs. H. Mander, Wolverhampton (gr. Mr. C. Weaver).

So excellent were the Gloxinias staged by Mr. G C. Manda, Wightwalk (gr. Mr. J. Dickson), in a class for 12 plants, that the judges awarded a Cultural Commendation, in addition to the 1st Prize.

Mr. F. Taylor showed best in the class for 12 flowering Begonias. Mr. E. Shaw-Hellier, Wombourn (gr. Mr. Parnwell), won the 1st Prizes in the classes for 12 trusses of single, and 12 trusses of double zonal Pelargoniums respectively.

Mr. John E. Knight, Wolverhampton, was the only exhibitor in the new class for a display of growing bedding-out plants. The arrangement was in the style of an old English garden, with archways of climbing Roses, leading by a flagstone pathway to a pool containing Nymphæas, with beds of Begonias, Verbena Miss Willmott, and early-flowering Chrysanthemums around. The 1st prize was awarded.

Two excellent groups of plants were shown in the Amateurs' Classes, the better by Mr. J. A. Kenrick, Edgbaston (gr. Mr. A. Cryer), who was awarded the 1st Prize. The centrepiece was a stand built up with Humeas, Liliums, Codiæums, Orchids, and crowned with a Palm; whilst this was grouped with Orchids, Dracænas. Begonias, Streptocarpuses, Caladiums, Ixoras and other stove plants; 2nd, Mr. H. C. Prince, Harborne (gr. Mr. J. Corbett).

Roses.

The 1st prize in the class for 72 blooms, distinct, was won by Messrs. Ben. R. Cant and Sons, Colchester, who thus repeated their success at the National Rose Society's Show in the previous week. The blooms were equal in merit to those they showed at Regent's Park. We may single out the varieties St. Helena, Mrs. Amy Hammond, Hugh Dickson, Maman Cochet, Bessie Brown, Mrs. J. H. Welch, Victor Hugo, Lieutenant Chaure, Dean Hole, Comte de Raimbaud, and Mildred Grant as the pick of this splendid collection 2nd, Messrs. R. Harkness and Co., Hitchin, who had Avoca, Mildred Grant, Lieutenant Chaure, Horace Vernet, Mrs. W. J. Grant, and Mrs. Edward Mawley in fine condition. 3rd, Messrs. Perkins and Sons, Coventry.

In the smaller class for 36 varieties, distinct, Mr. W. H. Frettingham, Nottingham, had the best of eight exhibits. This exhibitor had magnificent blooms; there was not a weak flower in the whole three dozen. The specimen of Mrs. Myles Kennedy was conspicuous for its size and general good quality. Other varieties that deserved mention are Mme. Jules Gravereaux, Claudius, Queen of Spain, Alice Lindsell, Mrs. Foley Hobbs, La France (1898), and Mildred Grant. 2nd, Messrs. B. R. Cant and Sons, Colchester. 3rd, Messrs. R. Harkness and Co., Hitchin.

There were five classes for baskets of Roses. The most important one was for nine baskets, each containing a distinct variety. The 1st prize was won by Messrs. Hugh Dickson, Ltd., Belfast, for the varieties William Cooper, Mrs. James MacKellar, Golden Gem, Countess Clanwilliam, Archie Gray, Blush Queen, Mrs. Mona Hunting, Mrs. James Lynas, and Mrs. James Williamson. Equal 2nd prizes were awarded to Mr. J. Mattock, Headington, and the King's Acre Nurseries, Ltd., Hereford.

The best exhibit of five baskets was shown by Messrs. Hugh Dickson, Ltd., who also showed the best single basket of a dark variety in their new Brilliant and the best single basket of a light coloured variety in the blush-pink Mrs. James Lynas.

In the class for 12 new Roses, distinct, Mr. J. Mattock, Headington, excelled with the varieties Mrs. W. H. Rowe, Edward Mawley, Mrs. H. Taylor, His Majesty, St. Helena, Earl of Gosford, Nita Weldon, Claudius, Mrs. Foley Hobbs, Elizabeth, Mrs. Maynard Sinton, and Mrs. J. H. Welch, none of these being in commerce previous to 1909. 2nd, Messrs. B. R. Cant and Sons.

Mr. John Mattock excelled in the class for 18 Tea varieties, followed by Messrs. Frank Cant and Co., with the King's Acre Nurseries, Ltd., 3rd.

Mr. Frettingham showed best in the class for 18 blooms of perpetual-flowering varieties; whilst Mr. H. Dickson was easily first for nine distinct varieties of any perpetual-flowering Roses, his vase of Countess of Granard being splendid.

Messrs. Gunn and Sons, Olton, led for a collection of Roses arranged in a space measuring 12 feet by 4 feet. The only other exhibitor, Mr. John Mattock, was awarded the 2nd prize. Both these collections were excellent.

In the local class for 12 Roses, distinct, the 1st prize was won by Miss Leek, Shifnal.

In the Amateurs' Classes, the principal prize-winners were Mr. F. Dennison, Leamington, Mr. G. Speight, Market Harborough, and Mr. F. Foley Hobbs. Mr. Dennison won in the classes for 36 blooms distinct, and 12 blooms distinct; and was placed 2nd for 6 distinct varieties, in which class Mr. Speight excelled. Mr Hobbs had the premier collection of 24 blooms, distinct.

Sweet Peas.

The Society offered prizes for exhibits of 18 varieties of Sweet Peas arranged on spaces measuring 8 feet by 4 feet. The competitors included Sir R. C. Baker, Bart., Blandford (gr. Mr. A. E. Usher). It was not surprising to find this well-known exhibitor occupying the first place in most of the Sweet Pea classes. In the class for 18 bunches Mr. Usher won, but he met keen rivals, especially in Captain G. Lubbock, Warminster (gr. Mr. J. B. Lowe), who was placed 2nd, and Mr. F. J. Bealing, Southampton, 3rd. Sir R. Baker's fine stands of Lavender George Herbert, Maud Holmes, Audry Crier, Barbara, Marks Tey, and Etta Dyke, were greatly admired.

Sir Randolf Baker also won the first prize in Mr. Robert Sydenham's class for nine distinct varieties, in which Mr. L. Webb, Welshpool, was placed 2nd.

In Messrs. Webb's class for six bunches Mr. W. H. Holloway, Shrewsbury, won easily with splendid bunches of Elsie Herbert, W. P. Wright, Sunproof Crimson, King Manoel, Dazzler, and Hercules; 2nd, Sir Randolf Baker, Bart., whose orange and pink varieties—Barbara, Edrom Beauty and Anglian Pink—were magnificent.

Sir Randolf Baker won the first prize for Sweet Peas in a class open to amateurs and gentlemen's gardeners.

Carnations.

The best display of Carnations arranged on a space measuring 12 feet by 4 feet was exhibited by Mr. Chas Wall, Bath. The blooms were massed, but not too densely, and they were borne on long stems, with a setting of Asparagus Sprengeri beneath them. The beautiful salmon-pink Mrs. C. W. Waud was conspicuous amongst other choice varieties; 2nd, Messrs. Blackmore and Langdon, whose group was broken by the inclusion of bamboo epergnes.

The finest Souvenir de la Malmaison varieties were shown by Lady Grey, Stourbridge (gr. Mr. F. Green).

Hardy Flowers.

Messrs. Harkness and Sons, Bedale, had an easy win in the class for an arrangement of hardy border flowers, in which there were three exhibitors. Oriental Poppies contributed largely to make the exhibit so striking, together with Gaillardias, Delphiniums, Lupins, Gladioli Colvilei, English Irises, Verbascums and Iceland Poppies. 2nd, Messrs. G. Gibson and Co., Leeming Bar, Yorkshire. 3rd, Messrs. F. Smith and Co., Woodbridge.

Messrs. Blackmore and Langdon, Bath, showed the best exhibit of Delphiniums in a class for a collection of these stately border flowers, whilst Sir C. T. Mander, Bart., excelled in the class for seedling Delphiniums with a new white variety.

The finest exhibit of Pansies and Violas was staged by Mr. A. R. Dempster, Kidderminster.

Fruit.

There were two exhibits in the class for a collection of 12 dishes of dessert fruit in not fewer than 9 distinct kinds, and a magnificent exhibit by Lord Savile, Ollerton (gr. Mr. J. Doe), was awarded the 1st prize. This splendid collection included large, finely-coloured bunches of Madresfield Court Grapes—two splendidly matched bunches; very large bunches of Black Hamburgh, uncommonly good Buckland Sweet Water, and rather green-berried Muscat of Alexandria; also Pineapple, Nectarines, Early Grosse Mignonne and Stirling Castle Peaches, Brown Turkey Figs, Lady Sudeley Apples, Early Transparent Gage Plums, Queen of the West Melon and superb berries of Royal Sovereign Strawberries.

The Duke of Westminster, Eaton, Chester (gr. Mr. N. F. Barnes), was the only exhibitor in the new class for a collection of 30 dishes of fruit in not fewer than 10 distinct kinds, arranged on a table decorated with flowers. This imposing exhibit of high quality fruit was awarded the 1st prize. There were of Grapes Black Hamburgh, Madresfield Court, Muscat of Alexandria, Muscat Seedling and Buckland Sweetwater; Lord Napier and Elruge Nectarines, Royal George and Violette Hâtive Peaches, Jefferson Plums, Brown Turkey Figs, Royal Sovereign Strawberries, magnificent Marguerite Marillat Pears, Triomphe de Vienne Pears, James Grieve and Rival Apples and Melons. The decorations were mauve-coloured and white Carnations, Thalictrum and Oncidiums, with sprays of Asparagus.

For a collection of 6 varieties of fruits the Duke of Westminster again excelled, with produce of sterling quality, daintily decorated with pink Carnations and sprays of the mauve-coloured Thalictrum. Lord Savile, the only other exhibitor, was awarded the 2nd prize for a good collection.

The best four bunches of black and white Grapes were shown by Lord Savile; the best two bunches of white Grapes (Muscat of Alexandria) by the Duke of Westminster, and the best black Grapes by Lord Savile, who had excellent bunches of Black Hamburgh.

Vegetables.

The exhibits of vegetables were good, but not so numerous as might be expected for so important a show. For a collection of ten kinds of vegetables, distinct, the 1st prize was awarded to the Marquis of Northampton, Castle Ashby (gr. Mr. A. R. Searle), for fine Marrowfat Peas, Emperor Tomatos, Reliance Globe Beets, Defiance Intermediate Carrots, New Supreme French Beans, Early Mammoth Cauliflowers, Green-striped Marrow, Colonist Potatos, and Commander Cucumbers. 2nd, H. Andrews, Esq., Winchcombe (gr. Mr. J. R. Gorley).

Messrs. Sutton and Sons offered prizes for a collection of six kinds, and five competed. The 1st prize was won by the Marquis of Northampton, who showed Perfection Tomatos, May Queen Potatos, Favourite Carrots, Centenary Peas, Purity Cauliflowers, and White Leviathan Onions. 2nd, Mr. E. Winchester, Birmingham.

Messrs. Edward Webb and Sons offered prizes in two classes, for eight and six kinds respectively. In the larger class the Marquis of Northampton again excelled; his Stourbridge Marrowfat Peas and Conqueror Tomatos were both excellent. 2nd, Mr. E. Deaken, Hay Mills.

H. W. Smith, Esq., Stourbridge (gr. Mr. H. Davis), was placed 1st in the smaller class with a moderate display.

Non-competitive Exhibits.

Messrs. Pipers, Bayswater, furnished a space of nearly 3,000 square feet in the largest tent with a garden scheme representing a fine herbaceous, Alpine and water garden. This exhibit was a show in itself. Three large bays were planted with Liliums, Spiræas, Delphiniums, Gaillardias, and other border flowers, and next was a rockery that led to two pools planted with Nymphæas, and at the back of these were outcrops of stonework gay with Alpines in flower. The group was completed with a bog garden and several beds of flowers cut in the turf.

In the same tent Messrs. Pipers showed specimens of topiary. (Large Gold Medal.)

Messrs. Edward Webb and Son, Stourbridge, were awarded a Gold Medal for a magnificent exhibit of flowers, fruits and vegetables. Arches furnished with Sweet Peas were a feature of this fine collection, which included good Melons, Tomatos, Peas, Cucumbers, Onions, Potatos, and other produce grown from seeds.

Messrs. Sutton and Sons, Reading, had one of the finest non-competitive exhibits in their collection of Sweet Peas, for which a Special Gold Medal was awarded. This magnificent exhibit was the feature of the Sweet Pea tent, and included some eighty varieties.

Messrs. Dobbie and Co., Marks Tey, were awarded a Gold Medal for Sweet Peas. There were ninety vases, representing about 60 varieties, including King White; New Marquis, rosy-mauve; Ruby Palmer, rich ruby red; Mrs. McIlwrick, mauve and pink; Blue Picotee, white, faintly-edged with purple; and Queen of Spain Spencer, shell pink; all of which are novelties. This firm also exhibited Violas and Collcrette Dahlias.

Messrs. W. H. Simpson and Sons, Birmingham, showed varieties of Sweet Peas, for which a Silver Medal and a Certificate of Merit were awarded.

Sweet Peas were also shown by Messrs. E. W. King and Co., Coggeshall, Essex (Silver-Gilt Medal); and Miss Hemus, Upton-on-Severn (Silver Medal).

Mr. A. F. Dutton, Iver, Buckinghamshire, showed Carnations. (Gold Medal.) Lady Grey, Enville Hall, Stourbridge, also showed Carnations, for which a Silver Medal was awarded.

Mr. H. J. Jones, Ryecroft, Lewisham, showed splendid border Phloxes. It was a massive group of fine colours well blended for colour effect, and all the plants were growing in pots. (Gold Medal.)

Messrs. Young and Co., Hatherley, were awarded a Silver-Gilt Medal for a grand exhibit of perpetual-flowering Carnations.

Messrs. Godfrey and Son, Exmouth, staged Canterbury Bells of a good strain. (Silver Medal.)

Mr. William Lowe, Beeston, Nottinghamshire, showed Roses, for which a Silver Medal was awarded.

Messrs. Dicksons, Chester, exhibited border flowers on a table space 40 feet long, for which a Silver-Gilt Medal was awarded.

Messrs. Forbes, Ltd., Hawick, displayed Pentstemons, Delphiniums, Phloxes, and border Carnations. (Silver-Gilt Medal.)

Mr. W. A. Manda, St. Albans, showed hardy Cacti, Ferns, and Orchids. (Bronze Medal.)

Miss S. Thompson, Handsworth, exhibited cactaceous plants. (Bronze medal.)

Messrs. Jarman and Co., Chard, showed Sweet Peas, Roses, Pelargoniums, and Centaureas. (Silver Medal.)

Mr. H. N. Ellison, West Bromwich, had greenhouse Ferns in variety. (Silver Medal.)

LINNEAN.

June 19.—The President announced that a dinner would take place on Thursday, October 30 next, at 7 p.m., to inaugurate the new session, and that details would be circulated in due course.

Dr. C. E. Moss introduced the recent discoveries of varieties in Britain of certain plants, instancing three varieties of Populus nigra and as many of Alnus glutinosa, Ranunculus ficariæformis, Primula scotica var., Lyceum barbarum confused with L. chinense, both of which occur, and the Orchids Gymnadenia Wahlenbergii and G. densiflora, both figured by Reichenbach.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

June 5.—*Committee:* Messrs. Z. A. Ward (in the chair), H. Thorp, J. Evans, D. McLeod, Dr. Hartley, J. Bamber, C. Parker, G. Weatherby, A. J. Keeling, W. Shackleton, A. G. Ellwood, J. Lupton, J. Cypher, and H. Arthur (secretary).

A *Large Silver-Gilt Medal* was awarded to Mr. R. Ashworth, Newchurch (gr. Mr. Gilden), for a miscellaneous group, and Messrs. Armstrong and Brown, Tunbridge Wells, for a mixed group.

A *Large Silver Medal* to Mr. A. Warburton, Haslingden (gr. Mr. Dalgleish), for a miscellaneous group.

Silver Medals to Messrs. Cypher and Sons, Cheltenham; the Liverpool Orchid and Nursery Co.; and Messrs. A. J. Keeling and Sons, Bradford.

Other exhibitors were: Mr. O. O. Wrigley, Bury (gr. Mr. Rogers); Mr. Z. A. Ward, Northenden (gr. Mr. Weatherby); Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton); Messrs. Stuart Low and Co., Enfield; and Messrs. Charlesworth and Co.

NEW AWARDS.

First-Class Certificate.

Coelogyne Pandurata variety, from Messrs. Armstrong and Brown.

Awards of Merit.

Odontioda Vuylsteke "Ashlands" var.; and O. Vertumis, both the property of Mr. R. Ashworth.

LAW NOTE.

RAILWAY AND CANAL COMMISSION.

Increased Rates for Garden Produce.

In the Royal Courts of Justice, before Mr. Justice Bankes, the Hon. A. E. Gathorne Hardy, and Sir James Woodhouse, Wednesday, July 2, 1913, the S.E. and Chatham Railway Company asked for a day to be fixed for the hearing of their application for leave to raise their rates for merchandise traffic by 4 per cent.

Mr. Lynden Macassey, Counsel for the Railway Company, said: Will your lordship permit me to mention the case of the application of the South-Eastern and Chatham Railway Company, the London, Chatham, and Dover Railway Company, and the South-Eastern Railway Company's Managing Committee? As the Court knows, it is an application for an increase of three different kinds of rates, and, acting on the directions of the Court, we published a notice in *The Times* and various other newspapers, asking all persons who deemed themselves aggrieved by the increase to furnish objections to the Registrar within twenty-one days. In pursuance of that notice, the Registrar, I believe, and the South-Eastern and Chatham Managing Committee have received objections from three persons. One set of objections is sent by Messrs. Elders and Fyffes, Limited. It is a notice to abstain from the proposed increase of rates in respect of banana traffic and certain other kinds of fruit; another is an objection by the Horticultural Trades Association of Great Britain and Ireland, who object to an increase in rates in the case of trees, plants, and shrubs; and then there is another general notice of objection from the Corporation of Reigate. As regards the first two objections I have mentioned, those of Elders and Fyffes, Limited, and those of the Horticultural Association of Great Britain and Ireland, they seem to me, as far as I can understand them, to be notices rather in respect of through traffic than in respect of the local traffic, to which alone our application to this Court relates. I should tell the Court that under Section 30 of the Act of 1899 we are, of course, precluded from raising our rates on our own line until we obtain the prior approval of the Court. It seems to be suggested by some of these objections that Section 30 of the Act of 1899 applies not merely to local rates, but to through rates which are quoted and charged by other companies for traffic on their line on to our line, and in the reverse direction. That, of course, is a view which the Managing Committee do not accept, and, anyhow, it is a view, if there is any issue between the parties on that score, which will not be adjudicated upon by this Court; it will be a matter for the Court of Chancery to restrain the South-Eastern Company, or to grant the complainants any remedy that they think fit. But, so far as this application is concerned, it purely relates to local traffic on the South-Eastern and Chatham Managing Committee's system, and not all local traffic, but local traffic of two kinds—merchandise traffic between competitive local stations, and also merchandise traffic by passenger trains—at company's risk and at owner's risk. My application now is to ask the Court to fix a day for the hearing of this application. I am in a little difficulty about the objections by Messrs. Elders and Fyffes and by the Horticultural Trades Association. No doubt we can ascertain between this date and the date which the Court may fix for the hearing what exactly their position is—whether they are objecting to through rates with this particular traffic, or to local rates.

Sir James Woodhouse: Are they here now?

Mr. Veitch: I appear for Elders and Fyffes and for the Horticultural Trades Association.

Mr. Justice Bankes: You hear what the learned counsel says, that the objection seems to be with reference to through rates.

Mr. Veitch: I do not admit that for one moment. There is nothing in this objection to show that it relates to either through rates or local rates, one or the other; it applies to both.

Mr. Lynden Macassey: No doubt the difficulty arises in this way: There were two notices which were published by the South-Eastern and Chatham Managing Committee; there was first the notice in respect of the increase of the local rates to non-competitive stations, and there was the other notice which was published by them in conjunction with all the other railway companies in respect of through traffic. The notices of objection we have heard appear to relate to both those rates, and, of course, my friend is entitled by Act of Parliament to bring, as far as the local rates are concerned, any objection before the Court. It may be a question of convenience afterwards for the Court to say whether, if there is to be a case for the consideration of the increase of local banana rates and also a case to consider the question of the increase of through banana rates, whether both those cases might not more conveniently be dealt with at one and the same time.

Mr. Justice Bankes: You are only asking now for an increase in the local rates.

Mr. Lynden Macassey: That is all.

Mr. Justice Bankes: That would be the only point before us in your application.

Mr. Lynden Macassey: That will be so, but, of course, if the question of the increase of the through banana rates is to be raised under the Act of 1894, it would seem to be a little inconvenient that a case involving very much similar circumstances should be tried by the Court at different times. Probably an arrangement might be come to by which both those might be taken by the Court on one occasion. Of course, I cannot bind the advisers of Messrs. Elders and Fyffes.

Mr. Veitch: Of course, this is a case of very great importance, because, although it is only an application of the South-Eastern and Chatham Managing Committee, at the same time it may create a very serious precedent in the case of the other railway companies, who are not obliged to come to this Court in the first instance.

Mr. Justice Bankes: That leads me to make this suggestion. I have been looking at the recent Act, and that Act contemplates in one of its provisions that this Court would make an order which shall give persons the opportunity of the matter being reconsidered, that it should be an order not necessarily applicable for all time, but

it should be an order with liberty to apply, or an order, we will say, for a certain number of months. It has occurred to me whether, from the point of view of these objectors, it would suit their case better for the Court to make an order of that kind in the first instance with regard to your company, which would give them, of course, an opportunity of replying at any later stage if they were so advised.

Mr. Veitch : I am very anxious that the railway companies now should justify the increase in rate rather than put upon me some months hence the onus of showing why the Court should retrace its steps.

Mr. Justice Bankes : You wish to maintain your objection.

Mr. Veitch : If your lordship pleases.

Mr. Justice Bankes : Very well. Of course, that being so, we must deal with it. If you want a decision before the Long Vacation I think you will have to take Tuesday, the 15th.

Mr. Veitch : Will your lordship make it two or three days later. In this case we have to go into an enormous number of railway accounts over a series of years, and work of preparation will be very heavy.

Mr. Justice Bankes : I quite follow that, but we must, in fairness to the railway company, consider this before the Long Vacation if we can. I partly threw out the suggestion I did because I realised the difficulty of presenting this case in anything like detail in the short time at your disposal, but if you want to do it we must do it. I cannot promise the following Monday because I may have to sit in the Court of Criminal Appeal. Therefore, I must begin it that week; and it is much more convenient for my other work that I should begin on Tuesday, at the beginning of the week, than, perhaps, commence jury work and have to break off and to come here.

Mr. Lynden Macassey : May I say this, if it is at all for the convenience of my friend who appears for Elders and Fyffes, that the South-Eastern Managing Committee are quite prepared, as the objection relates only to a specific class of traffic, to defer the increase of rate on that particular class of traffic until such time as the general increase is adjudicated upon in the case of all the railway companies. My friend is appearing, I understand, to support a complaint against other railway companies for an increase of through rates on this particular banana traffic, and it should all be dealt with at the same time. That would enable a modified form of your lordship's suggestion to be given effect to.

Mr. Justice Bankes : What I think we had better do is, we had better fix Tuesday, the 15th, and meanwhile you have my suggestion before you, and you have now the offer of the railway company, and if between now and the 15th the objectors think that the best course to take, under all the circumstances, is to allow the railway company, if they make out a prima facie case, of course, to take an order which shall be a limited order—that is to say, shall be without prejudice to the liberty to apply—if they think that the best course, then we can dispose of it without much difficulty in a short time.

Mr. Lynden Macassey : Yes, they have my offer on that.

Mr. Justice Bankes : I think that will be the best course, then.

Sir James Woodhouse : Does your offer apply to all the objectors?

Mr. Lynden Macassey : Only one limited class of traffic.

Sir James Woodhouse : But there is also the horticultural traffic.

Mr. Lynden Macassey : I am quite prepared in that case to make the same offer.

Mr. Justice Bankes : Very well, we will fix that day, and you shall all consider your position in the meantime. If the objectors make up their minds that they will not persist in their present objection, but will reserve any objection for some future occasion, they will intimate that to the Registrar, and then we shall know where we stand.

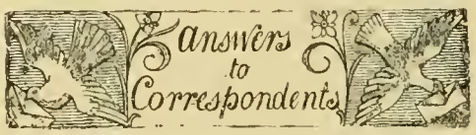
Sir James Woodhouse : Of course, I think it is desirable the objectors should understand that the Court should have the fullest assistance as regards any objections that are going to be taken. If the time is insufficient for that it would be well worth while considering whether the suggestion thrown out by the Court should not be adopted for the purpose of having the matter thoroughly threshed out.

Mr. Veitch : Do I understand Mr. Macassey's offer applies also to through rates? I understand the company's construction is that through rates do not come within Section 30 of the Act of union between the two companies.

Mr. Justice Bankes : You had better discuss that with him; I do not think we have any power. You must deal with that by friendly arrangement.

Mr. Lynden Macassey : I can give no undertaking on behalf of the other companies who are parties to the through rates.

Mr. Justice Bankes : You are not being shut out for all time—that is to say, it is a mere question how far Mr. Macassey has suggested the concession; you must arrange that. All we say is, the date shall be the 15th. You must intimate the position you are going to take up through the Registrar.



Attar of Roses : *E. S.* You will find particulars of the Attar of Rose industry in Bulgaria in *Gardeners' Chronicle*, April 20, 1912, page 252, where it is stated that the Rose cultivated in Bulgaria and East Roumelia is a variety of Rosa Damascena, the red Damask Rose. Around the borders of the plantation either a single or double row of a white Rose is usually planted, a variety of Rosa alba; but the perfume from this variety is not so good as that obtained from the red Rose.

Names of Plants : *G. H. H. W.* Seedling variety of Heuchera sanguinea.—*T. H. R.* 1, Hemerocallis flava; 2, Œnothera fruticosa; 3, Philadelphus coronaria; 4, Campanula latifolia; 5, Tradescantia virginica; 6, Veronica prenja.—*A. W. Williams.* 1, Cistus salvifolius; 2, Cistus corbariensis; 3, Clematis recta.—*J. A. J. Briggs.* 1, Rhus canadensis; 2, Pittosporum tenuifolium; 3, Cedronella triphylla.—*R. T.* 1, Cryptomeria japonica; 2, Cupressus pisifera var. squarrosa; 3, Cedrus Libani; 4, Cupressus Lawsoniana var.; 5, Cedrus Deodara; 6, Tamarix gallica.—*A. W.* Roses : 1, Renée Wilmart-Urban; 2, Madame Ravary; 3, Prince de Bulgarie; 4, Cheshunt Hybrid; 5, Exquisite; 6, Madame Leon Pain; 7, Tuscany; 8, Le Progrès.—*T. Bridge.* Rose Paul Lédé.—*T. Sexton.* Roses Mrs. F. W. Flight (pink), Non plus Ultra (crimson).—*J. W.* 1, Betty; 2, Prince de Bulgarie; 3, Madame Ravary; 4, Gustave Grünerwald; 5, Hugh Dickson; 6, George C. Waud.—*E. B.* Hedysarum coronarium.—*W. H. Euston.* 1, Campanula persicifolia; 2, Melittis Melissophyllum; 3, Salvia Horminum; 4, Salvia rutilans; 5, Oxalis floribunda.—*R. G.* Tragopogon pratensis—*W. T. and Co.* Deschampsia cæspitosa.—*Dublin.* 1, 2, Roses too faded to identify; 3, Geranium ibericum; 4, Buphthalmum salicifolium; 5, Linum flavum; 6, Spiræa Aruncus.—*F. E. G.* Coronilla cappadocica. — *A. B. H.* Iris sibirica var. orientalis alba, and Escallonia hybrid, near exoniensis.—*Gardner.* (a), White, Lychnis alba; (b) mauve, L. coronaria.—*E. W.* Begonia argyrostigma; 2, Begonia President Carnot. The variety Gloire de Lorraine is affected with "rust" due to the presence of mites. Dip the leaves in tobacco water.—*J. H.* 1, Lantana hybrida; 2, Sedum carneum variegatum; 3, Diosma ericoides.—*A. M., Londonderry.* 1, Astrantia major; 3, Claytonia perfoliata.—*R. T. A.* 1, Vanda parviflora; 2, Saccolabium bellinum; 3, Sophronitis cernua. *F. Z., Rotherfield.* 1, Gesneria tubiflora; 2, Stachys lanata; 3, Santolina incana; 4, Geranium pratense; 5, Sedum reflexum; 6, Sedum album.

Peach Leaves : *J. T.* The Peach trees are attacked by the Shothole fungus (Cercospora circumscissa). Spray with the ammoniacal solution of copper carbonate just as the leaves are expanding, and repeat the operation at intervals. A correspondent writing in our pages for October 14, 1905, p. 282, stated that he had used Campbell's sulphur vaporiser against the disease with good results.

Peach Stones Splitting : *F. G. W.* The splitting of the stones is due to some check to the plants, caused most probably by excessive moisture at the roots early in the season. Next spring, if the weather proves very wet, cover the border with spare lights or some other material to ward off the rains. See reply to *J. H.*, p. 444, vol LIII.

Photographing Flowers : *E. P.*—In reply to your inquiry as to the best apparatus for photographing horticultural subjects, it will be found that a half-plate camera, taking pictures 6½ inches by 4¾ inches, is the most useful all-round size, and you should take care to choose one by a good maker. Rigidity is of great advantage, also a long extension—viz., long bellows—so that the front of the camera draws out a very considerable distance. A substantial tripod should be used, and one which has a long sliding joint, such as the "Ashford" stand. It is almost a necessity to have at least two lenses of varying foci, useful sizes being 8 inches and 12 inches. These need not, for plant photography, be of the very high-priced anastigmat variety, the more modest rapid rectilinear, provided it gives perfect definition, even though working at only *f*/8, will serve excellently. A shutter is rarely, if ever, required. The plates used should be orthochromatic (or equally colour sensitive, a term which is by no means accurate, though useful in the sense in which it is used), and these plates should always be backed to prevent halation or spreading of the high lights. There are many varieties of excellent plates, and it is largely a matter of personal choice which is considered the best. Satisfactory results have followed the use of Royal Standard Orthochromatic plates, using, in addition, a yellow light filter where necessary. Personal tuition is the best way of learning how to use the camera, the chief points to master being exposure (which should always be ascertained by the use of an actinometer) and development. No matter how excellent the outfit unless the worker is skilful and painstaking no certain and reliable results can be anticipated.

Rose Trees : *Delta.* The soil mentioned would be suitable for your purpose, especially as you suggest mixing sand and horse manure with it. Do not employ the lowest layer, but some of the stiffer soil, just below the dark loam.

Vines : *E. H.* Your vines are in a very enfeebled condition; the foliage is not of sufficient substance to withstand injury by strong sunlight. The trouble arises from the roots not being in a suitable medium. The soil may contain too much of some manurial substance; it may be insufficiently aerated, or it may contain something deleterious. The stronger vines have done better because, not being cut back, they have produced a comparatively large number of leaves which caused a more vigorous root action and enabled them to overcome unfavourable conditions which were too much for the weaker vines.

Propagating Brambles : *G. A. Constant Reader.* The best method of increasing the Loganberry and American Blackberry is to cover the tips of the current year's shoots with light, sandy soil in the autumn. These will be found to root freely the first year. When sufficiently rooted they may be detached and planted in good soil in their permanent quarters. Another method of propagation is by layering, but this requires a longer time. Neither of these subjects grow vigorously when raised from seed.

Figs Diseased : *W. H.* The Figs are attacked with Cercospora Bolleana. All diseased leaves and fruits should be collected and burned, and the trees sprayed with diluted Bordeaux mixture, which will check the disease. Where the disease is very bad, it is best to root up and burn the trees, afterwards planting new stock in fresh soil.

Communications Received.—G. and Son—B. K. T. G.—C. H.—Bunurkaig—I. S. E.—T. T. A.—G. S.—Journeyman — H. F. — Outside Foreman — Constant Reader—T. L.—W. R. R., Canada—C. F. B.—W. I.

THE
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CONTENTS.

ILLUSTRATIONS.

THE DEVELOPMENT OF THE RED HYBRID TEA ROSE.

A REVIEW OF RED ROSES.

THE notable advance of the Hybrid Tea Rose during the past 35 years is a matter of common knowledge, but during the early period of its development most of the new varieties were pink and blush of various shades. It was soon felt that the triumph of the H.T. would be incomplete until we had real Red Roses of this type, for red is the colour we constantly associate with the highest development of the Rose, and with its most grateful fragrance. Nearly all the poets have associated white with the Lily and red with the Rose. Perhaps we scarcely wanted the poets to praise the red of the Rose. We may think we were already conscious of its supremacy, but they may themselves, without our being conscious of it, have guided our thoughts in this direction. At least, there is plenty of authority for the proposition. "My love is like a red, red Rose," sings Burns, and for Coleridge, "The bride hath paced into the hall; red as a Rose is she." Anacreon told of the nectar poured by the gods to hail the Rose, "a ruby tide, the sweetly Orient buds they dyed," and in the old distich attributed to Halliwell "the Rose is red, the Violet blue"; while Mrs. Hemans thinks of the Rose "to crimson glory burst." It is, however, unnecessary to labour the point, for the supremacy of the Red Rose is acknowledged by all. The shows of an "early year," when the boxes are filled with nothing but pink and white, are felt to be lacking in some essential quality; and the judge who, when going through the exhibition on the look-out for the best bloom in the show, is fortunate enough to light upon a perfect flower of Horace Vernet or Avoca instinctively feels he has found what he wants, and though as a conscientious man he goes carefully through the rest of the flowers with the bloom in his hand, he knows it is really wasted labour. For as the Rose is the Queen of the Flowers, so the perfect Red Rose is the Empress of the Roses.

In tracing the development of the modern Red Roses, we need not go very far back to find the origin of the denizens of our gardens to-day. In old time the Crimson Damask was considered one of the most useful of Roses, just as Turner's Crimson Damask is still in our gardens, and occasionally at our shows.

The old Crimson China came in 1810, and 1819 saw the birth of the celebrated Rose du Roi, an ancestor of the great Hybrid Perpetual race. Then there was that lovely little Rose, the old Tuscany, dyed deepest purple, most velvety in texture of petal, and delicious in fragrance. In spite of all our modern Roses, when I can get an opening bud of Tuscany I find it a delightful companion as a buttonhole. Whatever the date of its introduction, it must have been before 1820, for Dr. Lindley included it among the garden Roses of the Gallica section in his well-known Monograph. Gloire des Rosomanes, still one of the few good perpetual pillar Roses, came in 1825, and 1832 saw the development of R. semperflorens in Fabvier, closely followed by Cramoisie Supérieure in 1834.

Perhaps the birth of the modern Hybrid Perpetual may be placed about 1842. The bright red Géant des Batailles came in 1846, and thenceforward the development of this group proceeded apace; Victor Verdier came in 1851. The birth of Général Jacqueminot, in 1854, must certainly be considered an epoch in the history of the Red Rose, founder, as it was, of a group which includes some of our most perfect crimson flowers, Fisher Holmes (1865), Horace Vernet (1866), Prince Camille de Rohan (1861), and others. The group headed by Triomphe de l'Exposition, in 1855, is still represented in our gardens by Captain Hayward, raised by Bennett in 1894, while Charles Lefebvre, which dates from 1861, is, I think, the founder of a group which includes Dr. Andry and Hugh Dickson, the latter one of the best red H.P.s in cultivation.

Mme. Victor Verdier, which came in 1863, though somewhat cherry-red in colour, has probably furnished at least one brilliant Crimson Rose in Victor Hugo, produced in 1885.

Nevertheless, the Hybrid Perpetuals have considerable limitations; the flowers at their best are grand, and the perfume glorious, but the flowering period in summer is somewhat short, the second flowering in autumn is not free, and the habit which most varieties affect, of sending up long waving shoots in autumn, carrying a few flowers at their tops, is somewhat inconvenient. For a large part of the summer they are flowerless.

The autumnal flowering of the Hybrid Perpetual had been attained by the introduction of the indica strain. The Tea Roses were, in fact, sufficiently perpetual, but they were wanting in hardiness, and it was by a fresh resort to this strain to modify the hardier Hybrid Perpetual that hybridists sought to secure a combination of the characters lacking—continuity of flower, and vigour and hardihood of growth.

Messrs. Paul and Son, of Cheshnnt, had the honour (and it is no mean one) of introducing in 1873 the first Red Hybrid Tea in Cheshunt Hybrid, the offspring of Mme. de Tartas and Prince Camille de Rohan. La France had come out six years earlier, but it was at first called an Hybrid Perpetual, and Cheshunt Hybrid was the first Rose to be recognised as an Hybrid Tea. It is of fine vigorous growth, and free in flowering, and though somewhat wanting in form, and of a colour apt to be dull and unattractive, much must be credited to the first of a new race. It was five years before it had a rival among the Red H.T.s, and this came in Reine Marie Henriette, in 1878, obtained by crossing the varieties Mme. Bérard and Général Jacqueminot. Though this was long called the "Red Gloire" it was of much the same unattractive shade of red as Cheshunt Hybrid. Shortly afterwards, in 1880, came Longworth Rambler, perhaps a brighter colour, but sadly wanting in form, and the next year, 1881, a quite distinct break appeared in Reine Olga de Wurtemburg, a Rose with Gloire de Dijon and the hardy North American Rosa setigera among its ancestors. In many ways Reine Olga was a decidedly more attractive Rose than its predecessors, the flower bunches hang more gracefully and the colour is brighter, though beauty of form was still some way off. Notwithstanding that little, if any, development has taken place on the lines of this Rose, it may not unfairly be regarded as a landmark in the history of the red Roses, being one of the very first of the decorative Roses. Soon afterwards, between 1881 and 1885, came the three Waltham Climbers, the first and the third still sometimes met with; No. 1 being the best colour, and No. 3 of better shape. About this time, too, came Souvenir de Thérèse Levet, a dark red Tea Rose, apt, however, to be of rather dull colour in this country.

The year 1885 gave us a really fresh departure in W. F. Bennett, of good growth and free in flowering, perhaps the first of the dwarf H.T.'s. It is rather curious that all the earlier red H.T.s had been of more or less climbing habit, but W. F. Bennett was more manageable in this respect, and was found useful, especially under glass. Its thin and papery petals, however, were unable to stand much rain, and this caused it to disappear somewhat early from our gardens.

The year 1887 produced two Roses worth notice, Bardou Job, a seedling from the old Gloire des Rosomanes, a Rose of semi-climbing habit, and flowers of a rich crimson with a deep plum-coloured shading, not unlike the bloom of Grapes, rather loose in build and scarcely more than semi-double. At its best it is a fine-coloured flower, and the plant does well on a low south wall, and often as an 8 ft. pillar, but is not very hardy. The other Red Rose of this year is Princesse de Sagan, variously described as a China, a Tea, or a H.T. It is one of the dwarfest of Roses of a spreading habit, with dark, yet bright crimson flowers, and makes an excellent Rose for bedding or edging, but like the Chinas the flowers are wanting in form.

Another H.T. of 1887, the Meteor, may be noticed in passing, but need not detain us, nor do we find any other red H.T. worth notice till we come to the Marquise de Salisbury in 1890. This is a Rose of fine dark crimson, not much more than semi-double, but the young flowers are of a pretty shape. I always look upon this as one of the first of the true decorative Roses. Mme. Ravary among the yellows was two years, and Mme. A. Chatenay in the pinks eight years later. Marquise de Salisbury possesses extremely sharp and strong prickles, with which its stems are densely covered, a fact that will be well known to those who have to arrange the flowers. The second crop of summer flowers are apt to get rather burnt and small if the weather proves hot and dry. Another gap of three years and there appeared Marquise Lita (often, but I am told wrongly, spelt Litta), a cross between Lady Mary Fitzwilliam and Eugène Fürst, a good carmine-coloured flower, and perhaps the first of the Red H.T.s to make a really good exhibition Rose. The flower is of good shape, and stands well in a box and on the plant, but the plant is not a strong grower, nor, I think, very long lived.

From this date onwards the number of new Red H.T.s steadily increases, nearly every year producing one or more new varieties.

In 1894 there were two Red Roses, Ards Rover and François Dubreuil. Ards Rover is a strong H.T. (sometimes described as an H.P.) of very vigorous, climbing habit, useful for a pillar, trellis, or screen. The flowers are crimson and freely produced. They are of moderate size, and look well in the garden, but are rather wanting in form. It was the first of the three Roses bearing Ards' name, and I incline to think the most generally useful of the three. François Dubreuil is a Red Tea of a dark crimson colour, perhaps the best of the Crimson Teas; but the form is not first-class, and, like the other Red Roses of this class, the colour is sometimes dull.

1895 also gave us two Red Roses, and, like the previous year, one was a climber, Paul's Carmine Pillar, and the other a dwarf plant, Princess Bonnie. They are both H.T.s. Paul's Carmine Pillar is a really beautiful decorative Rose of vigorous growth, producing shoots which grow 10 or 12 feet in a season, with good foliage, which is free from mildew. The flowers are single, or nearly so, carried in small trusses, mostly at the top of the shoots, and open gradually. They are a brilliant carmine-crimson colour, but unfortunately there is but one flowering, and that is very early; the flowers have little fragrance.

Princess Bonnie was a pretty little Rose of carmine colour and semi-double. It was delightfully fragrant, free-flowering, and perpetual. It is a pity that a Rose that smelt so good was not of a better colour and shape. I speak of it in the past tense, for, though a considerable advance on decorative Roses at the time, it must be regarded as superseded. It was raised as a seedling from Bon Silène, a rose-coloured Tea, and W. F. Bennett.

The only Rose I have down for 1896 is the Rosette de la Légion d'Honneur. It flowers rather late; if hard pruned (which it ought not to be), it is very late, not flowering till it has made considerable growth. It is best treated almost like a Noisette, or pegged down, pruning being directed rather to thinning than to cutting back the shoots. The flowers are only of moderate size and cherry-red in colour, with a yellow veining, but it makes a pretty button-hole Rose. Its strong points are its brightly-coloured buds and good foliage.

1897 gave us only one Rose of any note, but that was Gruss an Teplitz, still without a rival of its particular type. According to Mr. Arthur Paul it was raised by crossing a seedling from Sir J. Paxton and Fellenberg with Papa Gontier. It is a very vigorous plant, of semi-climbing habit, and carries most beautiful foliage; the flowers are bright crimson, produced in small clusters in considerable quantity, and more or less continuously throughout the season. Those who would see some quantity of it may do so by visiting Harrow churchyard. It is useful for a really big bed, or for a specimen standard. When so grown it makes a huge head and must have plenty of room and a strong stake. Pruning should be only moderate.

The following two years were rather barren in regard to Rose novelties. I have nothing for 1898, and Exquisite, which appeared in 1899, need not detain us, though it was a prettily pointed flower, with a tinge of magenta in the crimson. *White Rose.*

(*To be continued.*)

LINUM SALSOLOIDES.

This is one of the most satisfactory plants for a retaining wall exposed to full sunshine. I planted a specimen three years ago, and in the middle of June it was literally smothered with flowers. These are of the white colour called "steely," with purplish veins, and are of the typical Linum shape, but hardly so large as the flowers of L. perenne. The plant is a native of the Mediterranean Alps, and appears to be represented by two forms. Mr. Farrer, in his delightful book, *Among the Hills*, speaks of the close association of this plant with Hypericum Coris, and adds that the two plants have much the same habit, but that the Flax is laxer in growth. Clearly this does not describe my plant, which is quite prostrate, its woody, wiry stems being closely interwoven, and firmly appressed against the stones. Presumably this variety is the nanum of Sundermann's catalogue, which again is probably identical with the prostratum of Farrer's own list.

I have, so far, found the plant impossible to propagate by cuttings, and a skilful gardener to whom I have given material has been equally unsuccessful. I have taken cuttings in the end of June after flowering, and in March when it is throwing out fresh shoots, but with no success. True, I have at the present moment half a dozen cuttings that have remained green since March, but examination a fortnight ago failed

[*From a photograph by Dr. Somerville.*

Fig. 22.—Linum salsoloides; flowers white with purplish veins.

to discover a single rootlet. Perhaps, however, some of them may yet strike, but I am not hopeful. Seed, however, seems to be setting this year, though hitherto there has been none. *William Somerville, Oxford.*

IRIS FOLIOSA—A JULY GEM.

The gay Iris season is nearly over, except for some of the more aquatic species, but just now there is a very conspicuously brilliant, blue flower growing in the open borders. It is not often seen, but is well worth growing; its colour being so striking and distinct, but withal difficult to describe. It is well named Iris foliosa, as it grows in leafy masses, rather untidily, but in lists it is usually called I. hexagona Lamancei.

The plant has a densely creeping light-brown rhizome half-an-inch thick, with closely set ridges where the old leaf-bases have withered; a fresh rhizome forms on each side of the flowering stem. At first the leaves are rather a bright green, but they become glaucous as they grow older. They are 1 inch broad and 2 to 3 feet long, of a rather thin texture, and prominently ribbed. The tip of the leaf ends in a slender point with a small hook bending at a right angle.

The short stem is hidden away among the thick foliage, and is 9 to 10 inches in length, rarely more, and spreads almost horizontally, so the flowers lie near the ground. It is curiously zigzag in direction, leafy, with flowers in the axils of the upper leaves. The lower leaves on the flowering shoots are 2 feet long, the upper ones 12 to 8 inches. There are from one to four flowering axils, generally three, each bearing two flowers on very short pedicels.

The flowers open rapidly in succession, so that for a short period the flower stem is thickly set with strikingly blue flowers, which measure 3 inches across.

The standards are long and narrow, of a light blue shade, with a white claw. The blades of the falls are over an inch broad and three or more inches long—a brilliant vivid blue, slightly deeper towards the centre, rather tending to violet-blue, while the middle of the blade is occupied by a triangular patch of white streaked with green, and a deep golden central line accentuates the beauty of the flower. The greenish-white styles have light, lilac-blue tips; the pollen is white. The small triangular ovary has six ridges in three pairs together on the angles. The flowers are scentless.

The flowering season is rather short. During the last six years that I. foliosa has flowered with me the earliest date of opening has been June 23, and the latest July 17, any one flowering period not exceeding a fortnight. The best way to enjoy the flowers is to cut the stem as soon as the first ones open, as they last well in water and continue to open in succession for several days. I. foliosa grows easily and increases quickly in a light, rich sandy loam, and stands the winter well in a warm, dry soil.

If the season is dry just before or at flowering time, a good soaking with water occasionally will be beneficial. In early autumn after flowering it may be taken up and replanted, as the rhizomes soon get too matted.

After the foliage has died down it passes the winter almost wholly underground, as the new shoots make scarcely any growth until spring.

The Leafy Iris hails from the South-Eastern United States, Missouri, Kentucky and elsewhere, and a closely allied form, I. hexagona, comes from a similar part of North America, Florida and Louisiana. The foliage of I. hexagona is almost identical, but the flower-stem is tall instead of short. The six ribs of the capsule are equally spaced, and the flower is lilac and not blue.

The only other species belonging to this small group is the curious copper-coloured I. fulva, from New Orleans. It has a similar but more widely creeping rhizome and long, deep-green leaves, which remain on the plant through the winter. The small terra-cotta-coloured flowers with pendant falls grow terminally and in the leaf-axils on a slender stem about 2 feet in height.

The plant likes a light, rich soil in a moist position, and does well by a sunny pondside; it will even submit to be under water during winter and spring.. It flowers from the middle to the end of June. It is unique in its colouring, but not so effective as I. foliosa, neither is it so tractable in cultivation. *Elconora Armitage, Ross.*

TRILLIUM RIVALE.

There are some thirty species contained in this genus, mostly inhabitants of North America, although two or three are found in Japan and Eastern Asia. In habit they bear a great resemblance to each other, with the characteristic three leaves in a whorl, borne on a stem varying from a few inches to a foot or more in height.

[*Photograph by W. Irving.*

Fig. 23.—trillium rivale; flowers white, marked with purple spots.

The similarity of the name of the Trillium here illustrated with that of T. nivale may very easily lead to some confusion. With the names, however, the resemblance ends, for T. nivale has pure white flowers, and may be classed as a form of T. grandiflorum, while the subject of this note, T. rivale, has the white flowers more or less marked with purple spots.

According to Watson in the *Proceedings of the American Academy*, xx. (1885), 378, it is found on stream banks in the Siskyon mountains of California, and coast ranges of South-western Oregon. It was first collected by W. H. Shockley in the year 1880 and by T. Howell in 1884. It has only recently been introduced into cultivation, but has proved to be quite hardy when grown in similar conditions to those which suit the well-known T. grandiflorum. Grown in a cold frame, T. rivale comes into flower early in March, the blooms expanding just above ground, but develop in size as the stems and leaves grow, till they are at their best at about the end of the month. In suitable conditions the stems reach a height of about 6 or 9 inches. *W. I.*

ORCHID NOTES AND GLEANINGS.

MESSRS. SANDER AND SONS, BRUGES.

The establishment of Messrs. Sander and Sons at Bruges, Belgium, is famous for its Azaleas, Camellias, and other decorative plants for sale in bud, for standard and pyramid Bay-trees in tubs, and for enormous numbers of Kentia and other Palms and foliage plants. Nevertheless the most important branch is that devoted to Orchids, and these plants occupy a large proportion of the sixty or more glasshouses.

The Orchid department may be divided into two sections—one devoted to the raising and culture of hybrid Orchids, and the other for the reception and cultivation of imported species. In this latter work Messrs. Sander have always taken a leading part, and the introduction to Europe of many garden favourites has been due to their enterprise. The chief inducements to risk the heavy cost of collecting are, first, the certainty of flowering new and fine varieties and albinos out of any large importation obtained from the proper localities, and, secondly, the certainty of getting a remunerative return for the space occupied even by ordinary varieties by the sale of cut flowers. A good example of this was given in the two houses of the true Lælia Gouldiana which we saw in April last, and which at Christmas were covered with graceful sprays of white and rosy-mauve flowers, numbering 7,000, all open together. Similarly satisfactory results were also given by the houses of white Lælia anceps, and the long lean-to houses, with splendidly grown plants of Phalænopsis Schilleriana, and P. Rimestadiana. At the time of our visit many of the showy Cattleyas, including C. Dowiana and aurea, were present in large quantities, one long house being almost entirely devoted to the true C. Warscewiczii Sanderiana, which has an established reputation for being not only the finest form, but one which may be depended upon to bloom. A house of C Schröderæ had a fine display of blooms, some nearly white forms, and one even brighter in colour than "The Baron." A large batch of C. Mossiæ showed the good quality of the strain, and specimens of the

blush-white variety, Arnoldiana, the pure white form, Wageneri, and Reineckiana, white with coloured lip, were in bloom. Suspended from the roof were a good specimen of the pure white C. Warneri alba, and one of C. Luddemanniana alba, with several specimens of other albinos, including C. Myra Peeters, C. Schroderæ alba, C. O'Brieniana alba, C. Mendelii alba, and C. Dusseldorfei Undine.

A house of Cymbidium insigne Sanderi showed its occupants as not only beautiful when in bloom, but elegant in habit in the non-blooming season. This plant has been extensively used for crossing, and some further developments, including a cross with it and C. grandiflorum, are well on the way to flowering size. Dendrobiums occupied many houses, one being filled with D. superbiens, D. bigibbum, and D. Phalænopsis; while in others were the flowers of D. Bronckartii, D. thyrsiflorum, D. Wardianum, and its variety album; the fringed-lipped D. Brymerianum, and D. Harveyanum, which also has its bright yellow petals fringed; D. formosum giganteum, D. Jamesianum, D. Devonianum, D. superbum and its white form; the white D. Dearei and the new D. Schuetzei and the beautiful D. Sanderæ of the same section. At one end of one of the houses was a selection of curious Orchids—Bulbophyllums, Cirrhopetalums, and others, some being in bloom, including the pretty little Vanda alpina.

Vanda cœrulea of the best type is grown in quantity, the plants being sturdy and well over the critical time after importation.

Two houses of Miltonia vexillaria and its hybrids had many in bloom, among the imported plants being several of the deep rose-coloured M. v. Empress Augusta Victoria, and several home-raised forms of this type, which have larger and still brighter flowers. Some of the forms of M. Bleuana, M. Hyeana, and M. St. André also showed great improvement in colour.

A house of Aërides, Saccolabiums and Vandas presented a spectacle now rarely seen, for these former favourites are seldom imported, but V. Kimballiana, with its rose-lipped flowers, and the white V. Watsonii will always be in demand. A quantity of Renanthera Imschootiana were well furnished with bright-red flowers, and the elegant Angræcum Sanderianum was effective with its white sprays of bloom.

Houses of the showy Oncidiums, Sophronitis, Lælia purpurata, L. tenebrosa, Cochlioda Noezliana, and the ever-welcome best type of Odontoglossum crispum (Alexandræ) follow, in most of which interesting plants were in bloom.

ORCHID HYBRIDS.

Possibly for the same reasons that the baby is the centre of solicitude and admiration in the home circle, hybrid Orchids engross the attention of cultivators, causing them to treat with apparent (not real) neglect the grown-up plants. Mr. Sander conducted us to a fine block of houses in which the operations of raising and development are carried on from the seed to the plant in flower; and here by his kindness we learnt some particulars which may be of service to others. We had evidence of the success of the practice in the hundreds of thousands of seedlings in all stages, the hundreds of store pots showing scarcely a break in the lines.

Mr. Sander attributes much of his success to "pricking-off" into these small store pots, made up of a special preparation, the material being carefully prepared with a smooth surface and well watered before the tiny seedlings are inserted. In this compost it is found that the seedlings thrive and grow rapidly until the rooting stage, when they are removed to fresh store pots made up of half Sphagnum-moss and half Polypodium-fibre, and when large enough to have single thimble pots either Polypodium-fibre or a mixture of it and half Osmunda-fibre with some Sphagnum-moss is used, care being taken to have the material fine enough to favour the rooting of the little plants. The advantage of the moss and fine Polypodium-fibre mixture in the first pricking off is that its uniformly smooth surface, retentive of moisture, admits of the removal of the tiny spherical seedlings from the seed-pans earlier than when a more open material is used, whilst their progress is hastened by the early transplantation. In the glass cases were large quantities of freshly-germinated crosses. Cypripediums are not so much used, but secondary crosses of Odontioda and new crosses with Cochlioda Noezliana are being worked, and the improvement continued on the fine hybrid Odontoglossums, Cattleyas and Lælio-Cattleyas for which the establishment is famous. Here as in other places we heard of unexpectedly good results, and of unfulfilled expectations from wide crosses, attributed to the diverse nature of the subjects used; but this uncertainty gives zest to the pursuit. A noticeable point is that air is freely admitted to the plants in all stages of growth. Leaving the houses of seedlings in all stages, but not yet of flowering size, we came to the ranges of mature hybrids, in each of which some good things were in bloom.

In one cool house in three divisions the first was of Odontoglossum Edwardii crosses, many with spikes, the next consisted of Odonticdas, with several fine forms of O. Bradshawiæ in bloom, two of the deep bronzy-red type of O. Charlesworthii raised here; O. Cooksoniæ, O. Cupid, and some others. In the best forms of O. Bradshawiæ a near approach to the so-called scarlet O. crispum is attained, but trial is being made to evolve an exact counterpart of the best form of O. crispum with scarlet flowers, and among the thousands of small plants plunged eight together in larger pans it is hoped that the desired result will be shown.

A goodly number of blotched forms of Odontoglossum crispum, both imported and home-raised, were in bloom, and many handsomely blotched hybrids, including the O. crispo-Harryanum bruggense, some good forms of O. amabile, O. eximium, O. ardentissimum, and a great many unnamed hybrids, some of which will develop into exceptionally good things. One named Rio Tinto, of a bright copper-red with thin, yellow margin; some handsome forms of O. Jasper and hybrids of O. Lawrenceanum were specially attractive. Several houses of Lælio-Cattleyas and Brasso-Cattleyas each contained some good forms in bloom.

Messrs. Sander have new tints in Brasso-Cattleya Digbyano-Mendelii and other well-known forms not yet excelled in shape; they have obtained also colour changes in other garden favourites, especially intensely dark forms of L.-C. Dominiana: in one, obtained between Cattleya Mendelii and Lælia Latona, we noted a vivid rose-purple band on the rose-coloured petals—a very attractive combination.

The crosses of Miltonia Warscewiczii, including Odontonia St. Alban, which were flowering profusely, are desirable plants for decorative purposes.

Grammangis Ellisii.

Among the rare Orchids which were conspicuous at the recent Holland House Show the Madagascan Grammangis Ellisii was noticeable. This remarkable species—the only one in the genus—was introduced in 1858 or 1859 by the Rev. W. Ellis. It is one of the most distinct Orchids, its large, oblong pseudo-bulbs and strong growths giving it a commanding appearance. From the young growth is produced a ponderous raceme of pendulous flowers; one plant shown at the Exhibition produced two spikes from one and the same growth, bearing together sixty-four flowers. The blossoms, each of which is as large as that of Lycaste Deppei, are arranged cylindrically on stout stems about three feet in length. They are of peculiar shape, and present a singularly varied combination of colours even for an Orchid; they are, moreover, very sweetly scented. The predominating hue is not particularly brilliant—it is a purplish brown, marked out with dull yellow; but the general effect of the flowers is decidedly handsome. It has, indeed, been remarked by one noted grower that the most gorgeous East Indian would not lose caste by keeping it company. Grammangis Ellisii has unfortunately proved a refractory subject under cultivation, and though it has been several times imported since its first introduction few growers can claim any great or permanent success in its culture.

Messrs. Charlesworth, however, appear to have overcome the attendant difficulties by giving the plants every encouragement in the way of light, heat, and moisture. The species is commonly known in gardens as Grammatophyllum Ellisii. *W. H. White, Burford, Dorking.*

POTATOS AND DISEASE.

Last season was a most disastrous one for many cultivators of the Potato; the havoc caused by disease (Phytophthora infestans) was widespread, and destroyed many promising crops. Certain remedies have been prescribed for this disease, and the most usual is the spraying of the haulm of the plant with Bordeaux Mixture. It has been found that this method is to a certain extent efficacious, but I suspect that the Potato crops could be rendered much more immune through the judicious application of certain artificial manures in addition to the ordinary natural manures generally used. One of the leading English Potato growers has stated that there is no such thing as a "disease-proof" Potato. I am, however, not of this opinion, and I believe that within the next decade a race will be evolved which will withstand disease. It is only a matter of scientific and careful breeding and selection. For the last two or three seasons I have been experimenting with a variety of Potato which readily contracts disease, and certain treatment in the way of manuring has given me excellent results. I am convinced that potash applied to the soil is an almost certain preventive of disease. Potassium fertilisers are known to promote a short, sturdy growth of the haulm, and this result alone materially increases the plant's power of resistance to disease. The mycelium of the fungus which causes Potato disease is known to penetrate the tissues of the foliage, which it subsequently destroys. The effect of the potash is to enable the tissues to resist the entrance of the germ-tubes, which, emitted by the zoöspores, normally penetrate the epidermis of the tuber or foliage. The subjects upon which they operate are in a harder and more solid state, and this enables them to resist the development of the spores. The foliage, particularly, becomes so tough and leathery that it is quite immune to the action of the disease germs. A plant like the Potato, rich in carbohydrates, requires large quantities of potash in the soil. Last spring I treated a small plot of ground, which had been liberally supplied the previous autumn with animal manure, with a top-dressing of sulphate of potash and planted it with Potatos. In the same environment another plot of ground (also liberally manured, but not treated with potash) was planted with the same variety of Potato. In the autumn, when the crop was raised, there was no disease on the plot treated with the artificial manure, while on the other there were diseased tubers on almost every plant. About a fortnight after the plants began to show through the soil another top-dressing of potash was given; and the strong, tough, hardy foliage of the potash-treated plants stood out in marked contrast with those which were not treated. So far as quality is concerned the potash-treated plot yielded tubers which were appreciably finer in this respect. The season was a good one for a test of the kind and was certainly favourable to

the spread of disease. I have found sulphate of potash (K_2SO_4) much the best form in which to apply this manure, and as it is a crystalline salt, it is readily soluble. It usually contains from 46 per cent. to 52 per cent. of potash (K_2O), and I think the best form of application is by way of a top-dressing at planting time, followed by another application about two weeks after the shoots appear above the soil. In using this manure, I think sulphate is safer than muriate of potash, because when the latter is used as a top-dressing there is considerable danger if it comes into contact with the plant. Muriate of potash is best applied to the soil during winter. Kainit is not sufficiently rich in potash to be of any value for this particular purpose. I am well aware that the use of potash is injurious when applied to some soils, owing, no doubt, to its action upon the calcium carbonate present in them. Then, many clay soils simply require some agency to release the potash which is already locked up in them. My own experience is limited to a light, loamy soil, but I give it in the hope that it may be useful to others, who might test it for themselves and endeavour to discover, if possible, the exact amount of potash required for effective treatment. Potash is usually a constituent of all suitably compounded artificial manures for Potatos, but it is not present in sufficient quantity to be of very great value in warding off disease. The Board of Agriculture, for example, recommends the following mixture as an artificial manure for Potatos :—

Half-hundredweight nitrate of soda, ½ cwt. sulphate of ammonia, 2 cwt. dissolved bones, 2 cwt. superphosphate, 1 cwt. sulphate, or muriate, of potash.

The quantity to be used per acre is given as from 5 to 8 cwts., if supplemented with a liberal dose of animal manure ; or if without the latter, double the quantity of artificial may be used. The Board, it is worth noting, does not recommend a top-dressing of artificial manure for the Potato crop ; but this is precisely where I have found potash to be of the utmost value. Further experiment on the lines I have indicated would seem necessary before any particular quantity of potash per acre can be recommended as ensuring the best results. *George M. Taylor, Midlothian.*

CANADA.

TRILLIUM GRANDIFLORUM IN CANADIAN WILDS.

Nothing gives greater pleasure to the sojourner in a new land than the wild flowers that have been treasured in gardens at home. Trillium grandiflorum in clearings in the bush, shady, spongy ravines, and circling round the gaunt pines, has shone out this season like great, white stars amidst their cool, leafy surroundings. I have measured many flowers, and in one instance, a little along in half shade on a dry rooty slope, they were 5 inches across and lasted a month, fading off to a warm rich rose. Among the lovely wildings of Canada, T. grandiflorum, Cypripedium pubescens, and Nymphæa odorata [the fragrant waterlily of Lake waters], are three of the most exquisite, but the Trillium is among the first to usher in the spring, and, after a winter that does not always spell comfort, its Easter loveliness seems to come with a special meaning. The fair beauty of the plant is astonishing, even in the most unlikely situations ; in practically barren soil, on dry, shady banks, or near creeks (as brooks or small streams are named), though never actually in wet soil. The flowers are much prized for simple decorations, and in retreats not far from such a city as Toronto the brown earth is white with blossom. Moving gently in the wind and lit up by the spring sunshine as it sends shafts of light through the branches, one realises that, beautiful as it is on the rock garden, it is more so in the wilds where black squirrels run over fence and branch and the racoons whisk their bushy tails. *E. T. Cook, Ontario, Canada.*

CALGARY HORTICULTURAL SOCIETY.

Mr. W. R. Reader, secretary of the Calgary Horticultural Society, has been appointed Park Superintendent for that city. Mr. Reader is an Englishman, but has resided in Calgary several years.

CROCUS FLEISCHERI.

One of the most distinct members of the whole genus, C. Fleischeri belongs to the section "Intertexti," of which there are only two constituents. The other one, C. parviflorus, I have not seen in cultivation, although it appears to have been grown at some time or other. The plant illustrated in fig. 24 is remarkable for its yellow corm, covered with a tunic of brown fibres, arranged in vertical strands as though plaited. It belongs to the spring-flowering section, coming into bloom very early in the year, and when grown in the open border should have the protection of glass to ward off heavy rains and protect the flowers from the weather. The leaves, usually four or five to each corm, are long and very narrow, while the flowers are about 2 inches in diameter. They are pure white, with a pale yellow, unbearded throat. As it comes into flower so early, C. Fleischeri makes a charming subject for growing in pans for the Alpine house. In such a house its somewhat frail flowers are seen to advantage. It is grown in loamy soil, to which is added a little leaf soil and plenty of coarse, gritty sand.

Although C. Fleischeri has been recorded from Lycia, it is known to occur at the western extremity of Asia Minor, near Smyrna, and at the eastern extremity of the Cilician Taurus, where it is found at an altitude of over 6,000 ft. *W. I.*

Fig. 24.—Crocus fleischeri; flowers white, with a pale yellow unbearded throat.

FORESTRY

PRESERVING TIMBER BY CHARRING.

The beneficial effects of charring Oak posts before placing them in the ground was clearly demonstrated a short time ago at Holwood, in Kent, in taking down an old boundary fence and erecting a new one. Probably the open, gravelly soil had as much to do with the longevity of the fence in question as the charring process ; but the fence had stood with little or no repairs for seventy-three years. To the last the charred portions of the posts, which extended for about one foot above and three feet beneath the ground, were perfectly sound, the remaining portions being so much decayed that they would not carry the horizontal bars on which the upright pales were nailed. The charring process is easily and cheaply carried out by lighting a fire of wood and placing the portion of each post which is to be treated over the flame. This is done by supporting each end of the post on a large stone or block of wood at the required height. The wood should not be merely surface scorched, but thoroughly burnt to, say, three-quarters of an inch in depth. This not only forms an outer covering to the timber, but forces the tannin and other products inwards, thus effectually sealing up the inner layers of wood and preventing fungus and insect attacks. The principal point where charring is required is a little above and below ground level, the portion most readily affected by atmospheric and other changes. It has been found that by immersing the burnt portion of each post in tar the lifetime of the timber is further increased ; and since both processes can be carried out as the erection of the fence proceeds, and cost very little, there is no reason why this simple method of preserving fencing timber should not be always adopted. The tar is most easily applied and most efficacious in its results, if put on before the timber cools down after the charring operation.

TIMBER OF THE CLUSTER PINE.

Though the Cluster or Maritime Pine (Pinus pinaster) has attained to large dimensions in this country, the timber is practically useless except for the manufacture of cheap packing boxes and as firewood. Several trees containing from 80 to 100 cubic feet of timber have come under my notice, and in one instance in Kent the wood was used experimentally in several ways, but with very unsatisfactory results. One of the largest trees, containing fully 90 cubic feet of wood, was sawn into planking of various sizes, and the timber used for general estate purposes. Some of the boards were about 3 feet wide and, having been sawn to 3 inches in thickness, were peculiarly adapted for flooring and shed cleading. In one notable case thirty of the boards were used as flooring for a dry faggot shed—a well-built building and thoroughly ventilated; but in a few years they were all so decayed that they fell to pieces when removed.

When we take into consideration the size and age of the trees from which the planking and fencing were cut, and remember that the timber is permeated with resin—and on that account heavier than almost any other Pine wood that has come under my notice—it seems remarkable that the lasting properties are not greater. It has, however, long been known that the lasting properties of the timber of the Cluster Pine are comparatively small, and that even as firewood it can only be considered as of inferior quality.

The Cluster Pine is a tree of rapid growth, and at Keston, in Kent, has produced one and a third cubic feet of timber per annum for ninety years. It is best known as a seaside tree, and is valuable for reclaiming sandy wastes and dunes; but in Kent equally rapid growth has been recorded where the trees are growing on deep, gravelly soil. *A. D. W.*

NEW HOLLAND PLANTS.

The somewhat vague title "New Holland plants" was formerly used to designate an extensive class of hard-wooded plants, some of which, however, were natives of Australia. They were at one time very commonly grown to form large specimens, upon which an infinite amount of labour and skill was expended, at a time when glass and other aids to cultivation were very inferior to those procurable at the present day.

Their production was extremely slow—it took years to build up a really satisfactory plant. As cut flowers very few of these plants are of any value, the stems being too short for present-day ideas. Messrs. J. Cypher and Sons staged a large exhibit of New Holland Plants last year, but the specimens were looked upon more as ancient relics of a bygone period than as examples of modern culture.

Although the day of large specimens is over, many of the hard-wooded species are still grown as small, bushy plants in pots five or six inches in diameter. They are usually grown, if at all, in large numbers, as they demand a house to themselves, their conditions of culture not resembling those of any other flowering plants. Heaths are still popular in this form, but of the two hundred or so varieties originally known, only about a score are now in general cultivation. During the season, good flowering plants may be purchased of such species as Erica candidissima (white), E. Cavendishiana (yellow), E. cerinthoides (scarlet), E. colorans (white and pink), E. gracilis (purple), E. gracilis nivalis (white), E. Massonii (red), E. hyemalis (rosy-pink), E. melanthera (mauve), E. persoluta alba (white), E. propendens (lilac), E. ventricosa (purplish-red), and E. Willmorei (rosy-pink). There has lately been a demand for miniature plants in quite tiny pots. Erica gracilis and E. persoluta lend themselves readily to this mode of treatment, and during the present season quite a number of miniature plants of E. ventricosa have been seen in Covent Garden Market.

Next in popularity to the Heaths come the Boronias, of which the sober tinted B. megastigma is perhaps the most valued, on account of its delicious perfume. B. elatior and B. heterophylla are good plants, with showy blossoms; B. serrulata, which used to be considered a good test of the cultivator's skill, is now quite rare. Epacris of various sorts, with blossoms ranging in colour from white to bright red, are still grown in considerable numbers; the fact of their blooming even in the depth of winter being in their favour. The long sprays can be cut, and effectively used in table decoration. There are other plants of this class which are suitable for growing as small bushes—notably, Aotus gracillima Aphelexis (now classed under Helichrysum) humilis, A. macrantha purpurea, Chorizemas, Crowea angustifolia, C. saligna, Eriostemons, Pimeleas of different varieties, and Polygala Dalmaisiana. *W. T.*

FOREIGN CORRESPONDENCE.

DISTRIBUTION OF ALPINE PLANTS.

I do not understand Mr. Thompson's comment (see Vol. LIII., p. 381) on my note upon endemic plants. He must surely be aware that phytogeographists look upon the centre of dispersion of any plant as the source of the species, not its sole habitat. For instance, Dr. Christ, in his admirable work, *The Swiss Flora and its Origins*, gives Siberia as the centre of dispersion of the Swiss Pine, as well as of the Edelweiss. Of course, he did not mean—nor did I—that these plants are only to be found in their country of origin. *H. Correvon, Floraire, Geneva.*

NOTICES OF BOOKS.

The Flora of Queensland.*

Frederick Manson Bailey, the veteran State Botanist of Queensland, has been labouring on the Flora of his native State an indefinite number of years, as he records reminiscences of events of the year 1844. Working in isolation from botanical colleagues, books, and type specimens he has nevertheless accomplished much that is useful to his countrymen, and interesting to scientific men. Queensland has an area nearly six times that of the United Kingdom, stretching through 10° 40′ to 29° of south latitude, and about 15° of longitude, and rising to elevations up to 5,500 feet, presenting, therefore, great variety of climate and vegetation and conditions favourable for the production of crops of both tropical and temperate cereals, vegetables, and fruits. Heavy floods, succeeded by prolonged droughts, are in some districts a drawback; but engineers are accomplishing much to lessen the evils. Apart from the illustrations, concerning which we have something to say further on, Mr. Bailey's book is much more than a catalogue, as it embodies "copious notes on the properties, features, etc., of the Plants." Aboriginal and other vernacular names are cited, where known. The book is in many respects supplementary to the same author's *Synopsis of the Flora of Queensland*, a work issued, with additions, between 1886 and 1890. The catalogue comprises all classes of plants down to microscopic Fungi and Algæ, and the lists of most groups are very copious; but there are few records of collectors and localities. Mr. Bailey gives no statistics and attempts no analysis of the composition of the vegetation, but a cursory examination is sufficient to reveal the fact that all the characteristic Australian families are abundantly represented within the boundaries of Queensland, though in the north there is a considerable Malayan element, belonging to such families as the Meliaceæ, Lauraceæ, tribe Myrteæ of the Myrtaceæ, and Palmaceæ, of which there are about thirty species belonging to eighteen genera. Epiphytic Orchids are also numerous, including between forty and fifty species of Dendrobium. One species of Rhododendron has been discovered, and Bailey enumerates eleven species of Nepenthes, ten of which were originally described by himself. So far as known these are all restricted to Queensland. Among characteristic Australian genera Acacia stands first with 130 species, and Eucalyptus is represented by about 65 species. Boronia, Dodonæa, Leucopogon, Goodenia, Stylidium, Hakea, and Grevillea are abundantly represented. We have said that Bailey gives no statistics, but he does mention that the woods number about a thousand kinds, including kinds suitable for all purposes to which wood is applied. The following paragraph from the prefatory part is instructive:—"Besides those plants marked in the catalogue as possessing certain valuable economic properties, there are probably a number of others equally rich. In fact the Queensland Flora contains plants which yield almost all the substances obtained from the vegetable kingdom. In food for stock it is uncommonly well supplied, and, what is of the greatest importance, the indigenous plants are suitable to the climate in a remarkable degree. For instance, what grasses other than the indigenous ones could be found to sleep through years without rain, and then, at the advent of a week or so of good rain, spring into life and cover the country with fresh green herbage, not only, let it be understood, from the seed which might be preserved in the earth, but also from the old roots, which to all appearance had been destitute of life? It may be safely said that very few, if any, other parts of the world could furnish grasses equally good with such a tenacity of life." In this connection it may be mentioned that the catalogue contains nearly 300 species of native grasses belonging to about 90 genera. Equally interesting are Bailey's remarks on the germination of seeds as influenced or affected by climate.

The illustrations add much to the usefulness of this book, almost every family being represented by at least one species. There are reproductions of about 1,000 pen-and-ink sketches, mostly characteristically executed, though sometimes weak in detail, especially in the dissections. The sixteen excellent coloured plates are by the well-known flower painter, Mrs. F. C. Rowan, whose large and beautiful collection of paintings of Australian flowers at the Colonial and Indian Exhibition in 1886 is remembered by some of us. The plants depicted are: Wormia alata, Sterculia quadrifida, S. trichosiphon, Flindersia pubescens, Hardenbergia retusa, Cassia Brewsteri var. sylvestris, Archidendron Vaillantii, Melaleuca Leucadendron, Eugenia Hislopii, Delarbrea Michieana, Clerodendron Cunninghamii, Piper Mestonii, Hernandia peltata, Pimelea hæmatostachya, Phaius grandifolius var. Rowanæ, and Alpinia arctiflora. These are all showy subjects, and some of them very striking, even in the distance, from their very brilliant colouring. The crimson, orange, and white open carpels of Sterculia quadrifida, revealing the almost black seeds, are very conspicuous. Similar colours are exhibited by the necklace-like pods of Archidendron, which is one of the very few Leguminosæ producing several carpels from each flower. Eugenia Hislopii is one of the most beautiful of the genus, and bears dense clusters of red and white flowers on the old wood, succeeded by large red fruits. Piper Mestonii is remarkable for its orange-crimson flower-spikes, and Pimelea hæmatostachya is a highly ornamental species with the flowers in dense spikes 1½ to 2 inches long, similar to Trifolium incarnatum. The object is to show that the book will be a valuable aid in

* *Comprehensive Catalogue of Queensland Plants both Indigenous and Naturalised.* By F. Manson Bailey, C.M.G., etc., State Botanist. A. J. Cumming, Government printer, Brisbane.

obtaining knowledge of the Australian Flora; not to discover small errors. It is remarkably free from evident mistakes, but the plate named Delabrea [Delarbrea] Michieana appears to be an association of leaves of the true plant with the beautiful blue fruit of an Elæocarpus *W. B. H.*

"Les Aspects de la Végétation en Belgique."

The above is the title of an official Belgian publication, the scope and character of which is somewhat fully explained in these columns, September 18, 1909, p. 195, more especially in relation to the districts into which the country is divided. The fascicles of this work as indicated in the general title are partly descriptive, partly pictorial, including a folio volume containing 86 plates of views of vegetation. The littoral and alluvial districts are there dealt with in detail. A further instalment of the work has now appeared devoted to the "Districts Flandrien et Campinien." There are four maps with brief explanations, and twenty folio photographic plates illustrative of the vegetation, both natural and artificial. The woods in Flanders are composed largely of Pinus sylvestris; the soil is often of the very poorest, yet they have been reclaimed from barren wastes within less than a century. In the Campine, Pines are gradually replacing the Heath. The uncultivated open ground is almost wholly acid and unproductive. Cultivation yields little more than Rye, Potatos, Spurrey and Buckwheat; but, thanks to the sandy nature of the soil, and to cheap labour, a second crop in the year is almost invariably secured. Further inland the conditions are different; Apple orchards are a feature, and a variety of crops are grown, including Tomatos on a large scale. The work done by the recently instituted Ecological Society in this country might well form the basis for the production of a similar series of volumes on the aspects of vegetation in our Islands.

MYOSOTIDIUM NOBILE.

The New Zealand Forget-me-not, as this plant is generally termed, is a native of Chatham Island, which is situated about seventy miles to the east of the southern island of New Zealand. Here the Myosotidium grows on the sea beach, just above high-water mark, near enough to the salt water to be drenched with the spray. Unfortunately it is, by all accounts, being exterminated in its native home by the cattle that now overrun the land. It was introduced into this country in 1858, and was first described in the *Botanical Magazine* in 1859, but for many years was treated solely as a greenhouse plant, and the earlier illustrations of it were evidently prepared from poor specimens which had been grown under glass. Mr. John D. Enys, of Enys in Cornwall, was the first to introduce seeds into that county from New Zealand, and to grow it permanently in the open garden, and it is owing to his generosity that it is now to be met with in almost every garden of note in Cornwall. He has exhibited fine plants in tubs at the Temple Shows, and these attracted much attention. There is no comparison between the somewhat weak growth exhibited by pot plants and the vigorous habit manifested by well-grown specimens in the open garden, where the plants sometimes attain a height of 3 feet, and produce leaves often as much as 2 feet in length and 18 inches in breadth, the foliage suggesting that of the Rhubarb and being particularly attractive owing to its bright-green colour and glossy surface. These splendid specimens throw up dozens of branching inflorescences (see *Gard. Chron.*, July 4, 1908, fig. 5), the flower-heads of which are often 8 inches in diameter, while the individual blossoms are about half an inch across. There is considerable variation in the colour of the flowers. In the best form they are a uniform deep blue, but in others they are blue in the centre fading to white at the edge. At Enys a pure white variety is grown which is very beautiful. The fact that in its native land this species grows in sea-sand has led to this material being used extensively in its culture in this country. In some cases only a heavy mulch is given over a subsoil of porous compost, but at Menabilly, where it is certainly as well grown as in any other garden, a large hole is made in the ground, a cart is sent down to the beach and filled with sand, and this is emptied into the hole, the Myosotidium being then planted in it At Menabilly, the plants are grown immediately in front of high walls facing in various directions, and apparently the plants like least a full southern exposure. In such a site, on hot summer days, the radiation from the wall is intense, and the leaves will often flag badly. When making growth the Myosotidium requires a copious supply of water. The plants are generally in the zenith of their beauty in the month of May, when a large colony carrying hundreds of large, deep-blue flower-heads is a glorious sight. It is unfortunately only in the south-west that this plant can be treated as an open-air subject. Mr. Enys used formerly to grow his plants under a wall facing south-west, but he has now made a plantation under a north wall. Here the plants have made excellent growth and have flowered well. After attaining full size they rarely retain their vigour long, gradually dwindling in size. When this occurs they are rooted up and replaced by seedlings. The flowers are followed by large, four-winged seeds and self-sown seedlings may often be seen springing up in numbers around the parent plants. The illustration in fig. 25 shows a plant growing in a South Devon garden close to the mouth of the River Dart. It carried over twenty flower-heads, some of which were eight inches across. It reproduces itself by self-sown seedlings. *Wyndham Fitzherbert.*

Fig. 25.—Myosotidium nobile in a South Devon garden: flowers blue.

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Trichopilia Backhouseana.—This species is one of the best white, free-flowering Orchids, and one that deserves a place in every collection, for spikes of white flowers suitable for almost any form of decoration are not common. T. Backhouseana sometimes passes under the name of T. Hennisiana. The plant requires only a trifle more warmth than Odontoglossum crispum; therefore in summer it may be grown at the warmer end of the cool house, or in a suitable position in the intermediate house, the latter being preferable during the autumn and winter months. T. Backhouseana is fond of light, but not of the sun's rays, which sometimes turn its leaves yellow. Well-drained Osmunda-fibre is a suitable medium for the roots. As roots from a healthy plant are large and numerous, they require considerable pot-room. Now that the plants of this species have passed their flowering season, and growth has commenced, they may be repotted if necessary. In potting it is advisable to keep each plant well elevated, so that it may be watered without any fear of water lodging in the young growths, for these, like all other Trichopilias and Pilumnas, are easily rotted. Established and well-rooted plants will need but little root disturbance, merely turning them out of their pots, placing them in larger, well-drained receptacles, and filling around the ball with the compost, making it moderately firm. Enough water should be sprayed over the surface to keep the compost only just moist, but when growing and rooting freely the plant will take as much water as the cool Odontoglossums. Keep the leaves clean by sponging.

Cypripedium.—Such dwarf-growing species of Cypripedium as C. bellatulum, C. niveum and C. concolor having passed out of flower the present is a good time to repot them. These plants often give more trouble to the cultivator than all the rest of the Cypripediums, and when once they get into an unhealthy condition it is difficult to restore them to health. One of the chief causes of decline is a close and heavy compost. A compost of this nature retains moisture for too long a time, and causes the roots to decay, for growing as they do in Nature in the hollows and on the surface of limestone rocks, the plants are always in well-drained conditions. They prefer a warm, moist atmosphere with plenty of ventilation, and should be placed in a position where the foliage will be near to the roof, slightly shading them whenever the sun shines directly upon them. The potting of these species should not be done oftener than is necessary, as the plants do not grow or extend themselves nearly so fast as the majority of Cypripediums: and, no matter how carefully the work is done, a few roots are generally injured, these being very brittle, and the result of injury to the roots is more felt by them than by their congeneric species or hybrids. The proper time for repotting is a few weeks after flowering, and plants that are healthy and have room for further development should not be disturbed. I may mention that at Burford we have a healthy specimen of C. concolor which has not been repotted or disturbed since it was purchased in 1904, and the plant has produced several spikes of bloom every year. When it is necessary to repot well-established plants it is advisable gently to break the pot, removing it piece by piece. If the plant is well-rooted this can be done without disturbing the roots or drainage material. The whole mass should then be placed in a clean pot of sufficient size to allow for several seasons' growth. Fill around the roots to about half the depth of the pot with drainage material, surfacing it with good fibrous loam and mixing with it plenty of old mortar rubble. About 2 inches of the compost pressed firmly with the hand will be enough for the strongest plants to root in, and still less must be used for weak ones. There is no need to elevate the plants above the rim of the pot, for they will grow equally well if potted so as to allow a good space for watering. Carefully attend to the watering of these species at all times, and it is important always to allow each plant to become thoroughly dry at the root before water is given. A few days on the dry side will do no harm; but whenever water is needed it should be given abundantly. Sponge the foliage occasionally, and in so doing care must be taken that the succulent leaves are only raised a very little above the level they grow, or their mid-ribs will crack.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

French Beans.—A liberal sowing of French Beans should be made as soon as possible to provide supplies during September. A sheltered position should be selected so as to avoid injury by early frosts. Ground which has been occupied by spring Lettuce will be suitable, but it must be thoroughly broken up, and if too dry it should be well watered the day before the seeds are sown. The drills should be made 2 feet apart and about 2 inches deep. The Belfast and Earliest of All are good varieties for this sowing. Plants from which supplies are being gathered should be freely watered with weak, liquid manure from the farmyard, and the pods should be regularly picked (whether required or not) to prolong the bearing period.

Winter Spinach.—A sowing of Long-standing Prickly Spinach should be made now, and another in ten days' time It is better to make two or three sowings during the month than to sow a large quantity at once. The ground should not be too light; if it is dug just before before the sowing, it should be trodden fairly firm before the drills are drawn. These latter should be 15 inches apart and 1 inch deep. If slugs are troublesome lime should be dusted over the surface of the bed in the early morning and the plants carefully examined. The plants should be subsequently thinned to 3 inches apart, as they will stand the winter better if they are separated. Frequent sowings of summer Spinach should be made, and the plants freely watered with clear water to prevent their running to seed.

Celery.—The planting of this crop should be finished as soon as possible and the plants well watered as soon as they are put out. In planting late Celery it is not necessary to leave much space between the plants, as they do not grow so large as those planted earlier in the season. Their advantage lies in the fact that they will stand the winter better and keep later into the spring. When earthing-up the early Celery the bed should be examined, and if at all dry a thorough watering should be given twenty-four hours before the soil is to be applied to the stems. When tying up the plants the heart of each must be kept quite free from soil.

Leeks.—Plantations of Leeks can be made now for consumption during the spring. Good, rich soil should be chosen for this purpose, and the roots liberally supplied with water in dry weather. Leeks which were planted early should be watered with liquid manure from the farmyard and the soil kept open by the use of the Dutch hoe.

Globe Artichokes.—As soon as the Artichokes are cut the old stems should be removed and a good watering given. Young plantations made last spring should be freely watered with liquid manure. If the plants are in good condition they will provide supplies later in the season.

Early Potatos.—Certain varieties of Potatos will now be ready for lifting. This should be done as soon as possible in order to prevent a second growth, which is almost inevitable after the first heavy rain. The tubers should be stored in a cool, dark shed until required for use; the seed tubers for next season's planting may be exposed to the light for a few days in order to harden the skins, and then stored in a cool, dry place that can be freely ventilated.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Roses.—Dead flowers should be removed from the Rose trees every two or three days, or the beds will look untidy. The plants should have been mulched early in the season before the dry weather set in; but if this was not done it is not too late to mulch after the first crop of flowers is over with a view to benefiting the autumn crop. Many of the early-flowering climbing Roses will have shed their blossoms, and the old flowering wood should be pruned and thinned. A few of the young growths from the base should be retained and attached to the supports; but the growths should not be crowded or they will not ripen. If there are signs of aphis infestation the plants should be syringed with an insecticide.

Anchusa.—As the first flower spikes of Anchusa pass over new growths will in many cases be observed. If the old spikes are cut back the new growths will develop, and will continue to flower until the end of the season. Young plants raised from seed sown in the spring should be repotted as occasion demands or planted in the reserve garden. The plant is easily propagated, and self sown seedlings are often found in the border. These can be potted if required and planted out in the spring.

Antirrhinum.—It was formerly the practice to sow seeds of Antirrhinums in July or August to produce flowering plants for the following season. Except for very early flowering this is not necessary; plants raised early in the year will flower from July to the end of the autumn. If, however, flowers are required in May or June, seeds should be sown now in the open ground. The colours are very varied and attractive, and the plants are extremely useful for bedding.

Violas.—It is difficult to keep Violas flowering freely in very dry weather, and they should be sprinkled with water at least once a day. If they show signs of exhaustion a little artificial manure or soot sprinkled between the plants and watered in will form an effectual stimulant. Dead flowers should be constantly removed. Old plants in the reserve garden should be cut down to encourage new growth, from which cuttings may be obtained for planting in the autumn.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Salvia splendens.—Where small plants of this resplendent Salvia are required cuttings should be at once inserted. These may be obtained from the plants now in 10 inch pots, placed three in a small 60-size pot, and grown as rapidly as possible. When rooted they should be transferred to 4½ inch pots and stopped according to the time at which they are required to flower.

Begonia Gloire de Sceaux.—Plants of this Begonia should now be ready for their final potting. They should be frequently examined for traces of the small yellow thrip which is so dangerous to them; it is often fatal before it has been detected. It usually shows on the young leaves, which become wrinkled and crippled-looking, and should be combated by regular fumigation. The atmosphere of the house should be kept close, warm and moist, and the plants well shaded from the sun.

Ipomæa rubro-cærulea.—(See Coloured Plate in *Gard. Chron., Feb.* 15, 1913).—Seeds of this climber may now be sown for autumn and winter flowering. It is a useful decorative plant, both for the table and for the stove. Three seeds should be sown in each 60 pot, placed in a frame with gentle bottom heat. When the two first leaves have appeared the pots should be taken out of the frame and placed on a shelf near the glass. When the plants have outgrown the pots they should be transferred into those of 6 inch size and placed in a stove or warm house. A stake should be placed in the centre of each pot around which the young tendrils can climb. The plants should be finally transferred into 10 inch pots in a compost of three parts good, rich loam, and one part leaf-mould, coarse sand, wood ash and decayed cow manure. The pots

should then be placed in the position in which the plants will flower and the growths trained over wires across the roof. The flowers must be removed as soon as they fade, or seeds will form and the flowering season be shortened. The pots may be placed with advantage on some turf.

Tree Carnations.—These should now be stopped for the last time, so that they may produce flowers early in the winter. The earliest batch may be given a top-dressing of Clay's fertiliser and soot mixed together, about a dessertspoonful to each plant once a week. The plants should be carefully examined for traces of small, green caterpillars. They should be syringed with nicotine and afterwards well shaken, and regularly fumigated if grown indoors. "Malmaisons" are subject to the same pest, and should be treated in a similar manner.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel. Moulton Paddocks, Newmarket.

Strawberries.—The Strawberry-beds being now clear of fruit, preparations must be made for next year's crop. Layers one year old usually produce the finest fruit, and if the layer is rooted early, and full advantage is thus taken of the summer sun to promote growth, the plants will become healthy and vigorous. Most varieties will provide any quantity of layers, and those required should be rooted at once in 3-inch pots. A small crock should be placed over the hole, and the pots then filled to the brim with good permeable soil containing a fair proportion of leaf-mould. The layers should then be fastened down to the soil with wire pegs. A small stone is sometimes used instead of a peg, but is not quite so satisfactory. As a rule the first crown to be formed on the runner will be the best and should be secured, the runner being cut away a few inches beyond. Old plants which do not seem inclined to produce runners should be thoroughly soaked with clear water; extra moisture will probably bring about the desired end. A warm border in the walled garden is the best position for the earliest plants, for here they are sheltered from the cold winds in spring. They should not, however, be left in this position for more than a year, and, as they will be moved later on, they may be planted rather closely—say 18 inches apart each way. If the ground has been previously occupied by early Potatos or Peas, it should be well dressed with well-decayed manure from the farmyard. It should then be thoroughly soaked and allowed to settle, after being trampled down, as in the making of an Onion bed. Before the young plants are put in they should have their roots moistened; they should be handled with care and planted with a trowel as deeply as possible without covering the crown. The soil should then be rammed around the plant, which will, with proper care and attention, produce a profitable crop early next season.

Gooseberries.—Cordon trees yielding dessert fruit should now have their shoots pinched. They should first be thinned out to the desired number, and the remainder pinched back to four or five leaves, the leader being left to grow unchecked. The fruits will now be colouring, and the trees will require a good deal of water. The older ones should be given a mild stimulant, but in small quantities, or the fruits will split. Heavy rains sometimes produce splitting, and unless the fruits are to be used almost immediately a temporary overhead protectior should be provided. If the leaves become soiled from red spider or any other cause a good syringing with clear, soft water will be found completely efficacious.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Vines.—Vineries in which the Grapes are just colouring should be slightly ventilated throughout the night, but except in favoured localities a little fire-heat will be necessary. In the case of Muscats the temperature should not fall below 75°. The shoots and lateral growths which have already been stopped will now be making fresh growth, and this should be completely removed. The foliage should be carefully examined for traces of red spider, and means taken to eradicate or prevent attacks of the pest. To guard against scorching of the foliage ventilation should be given in the morning on bright days. In localities where the rainfall is usually heavy the outside borders should be covered with wooden shutters or pieces of corrugated iron from the middle to the end of July. This will protect the borders from excessive damp, and will enable the Grapes to keep longer hanging on the vine. The inside border should also be mulched, while the Grapes are colouring, with manure from an old Mushroom bed or some other material, and be kept dry. Late vines, on which the Grapes have to hang during the winter, should be more severely thinned than summer ones. Those with large bunches, such as Black Alicante, will require the most thinning, and if the berries seem still to be too thick when they have attained to full size some more should be removed. Clean, healthy foliage is an important factor in the proper ripening of the fruit, and has also a good effect upon their keeping qualities. The paths and surfaces of the house should be damped daily, and a little vine manure occasionally sprinkled about to create a slight scent of ammonia, and so check red spider. The fire-heat at night must be regulated according to the weather. The vines from which the Grapes have all been cut should be frequently syringed, to keep the foliage clean and healthy. The top and bottom ventilators should be fully opened, and if the inside border seems dry it should be thoroughly moistened with clear water. Exhausted vines should be replaced with fresh ones, preferably canes that were one year old last spring, or were raised from eyes struck early this year. This operation should not be postponed, as the present is the best time to perform it. The house should be thoroughly cleansed from insects, and a fresh border prepared, as advised some weeks ago for a new vinery.

Tomatos.—Tomato seed sown this month to provide winter fruiting plants should be kept near the glass from the time of germinating, with plenty of ventilation. When the second leaf appears upon the seedlings they should be transferred to 3-inch pots, and when these are filled with roots, to 6-inch pots. The best soil is turfy loam, with not too much manure. They should be potted firmly, and again placed near the roof glass. Ample ventilation should be provided to keep the plants sturdy and short-jointed.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Old Manure Beds.—The planting of early Celery should now be completed. The ground should be kept fairly damp until the roots are established, but will not require much watering this month. Preparations should be made for setting the main crop of winter Celery on the old cold beds as soon as the Cauliflowers are disposed of. Small ridges should be made 2 feet apart, and the plants set in the ridges at a distance of 6 inches from each other. The spaces between the ridges can be filled with drills of Radishes and Spinach, or two rows of Lettuces. Part of these beds may be reserved for sowing a late batch of Beans (such as the Nigra) for autumn use, the frames and lights being called into requisition to prolong the yield. The Cauliflowers in the clôche beds should now be nearly ready, and water should be freely administered. Cauliflowers should be marketed at this season in large quantities.

Melons.—The fruits on the plants which were set at the end of March and beginning of April are ripening apace, and should be examined daily. The chief indication of ripeness is the cracking around the stalk; those displaying this symptom should be cut and sent to market or placed in a cool situation for home consumption. Home-grown Melons are infinitely superior to the imported varieties, the flavour of the latter being often completely spoiled by their being cut before they are ripe and subsequently sent on a protracted voyage. The main crop Melons will require ample watering; this should be done three times a week in the early morning. Ventilation should gradually increase until, towards the middle of the month, a full supply of fresh air is afforded by day and night. The growths should be carefully pruned, the object being to enable the healthiest plants to bear fresh female flowers which shall set their fruits when the first crop have attained to three-quarters of their full size. When the first batch has been gathered the frames should be put over the plants which were set early in June, as the clôches are not now able to afford them adequate shelter.

Cucumbers.—The lights should be whitewashed (with the syringe rather than with a brush), and when stopping the side shoots—which will give the young fruits room to grow straight—any superfluous fruits should be removed. Ventilate freely in the daytime, but not as yet at night.

Open-air Ground.—Open-air crops require frequent watering. All Carrots and Turnips are now ready for market, and when they are disposed of their place can be filled with Cauliflowers, Celery or Kidney Beans. Early Broccoli (such as Walcheren or Leamington) will also be suitable if the ground is not required again before Christmas. Witloof Chicory should be well grown by this time, and the Dutch hoe should be frequently worked through the drills. If the plants are too thick they should be thinned out; they will then produce larger roots and stronger plants, and can be pricked out, if necessary, early in August. The Marrows set in April are now in full bearing. They should be regularly pricked when 6 inches long to prolong the crop and increase the yield. An occasional watering with liquid manure should be given.

Nursery Beds.—Seeds of Endive La Truffec or La Meaux, and the Batavian Green for a succession, should now be thinly planted in well-prepared beds. Germination should be encouraged by frequent light waterings, otherwise, unless the seeds are quite new, they are apt to germinate unevenly. Accommodation will soon be required for sowings of spring Cabbages. This crop is susceptible of considerable improvement by intensive culture, both in quality and in earliness, if plenty of water and manure are available. There are many varieties which are suitable for such treatment; Harbinger does well both in wet and dry seasons, but it is rather small, and should be sown very early. Myatt's Early, Offenham and Ox Heart should be sown in conjunction to form a succession. All nursery beds not in use should be broken up to provide fine soil for covering the sowings in July and August.

THE APIARY.

By Chloris.

Wax.—The cappings from the shallow frames should be carefully preserved and kept from other pieces of comb, as they make the best wax, which will fetch a good price, and win prizes when placed on the show bench. When performing this operation of melting, it must be recollected that the wax must not be allowed to boil or come in contact with fire, or it will lose its texture, aroma, and colour. After the wax is melted, place a mould in a bowl of hot rain-water; if this cannot be obtained, then distilled water should be utilised. Use enough to cover the mould within a quarter of an inch of the top. When the top layer of wax has set, pour over it some hot water, of the same heat as that in the bowl. Allow the wax to remain until quite set, and it will float out of the mould, when it should be allowed to remain in the water until quite cold. When pouring the wax into the mould, strain it to remove all foreign matter. The whole operation is best carried out in a warm room, or cracked cakes will result. The colour of the wax should be primrose, clear yellow, or lemon. It may be polished, if desired, and a piece of old silk is best to use. As soon as the wax is cold (and polished), it should be stored in an air-tight tin, so that its aroma may not evaporate. Should a wooden box be used, then it must be of wood that is free of any scent.

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APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, JULY 22—
Southampton Fl. Sh. (2 days). Ulster Rose Sh. (2 days).

WEDNESDAY, JULY 23—
Leamington Fl. Sh. (2 days). Cardiff and County Hort. Soc. Sh. (2 days). Tunbridge Wells Agric. and Hort. Sh. (2 days). Hayward's Heath Fl. Sh. Twickenham Hort. Sh. Yorkshire Agric. Soc. Sh. at York (3 days).

THURSDAY, JULY 24—
Horticultural Club: Excursion to Sir Frank Crisp's residence at Henley-on-Thames. Roehampton Fl. Sh. Carnegie Dunfermline Trust Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—61.0.

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, July* 16 (6 p.m.); Max. 68°, Min. 53°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Thursday*, July 17 (10 a.m.); Bar. 29.7; Temp. 67°.

PROVINCES.—*Wednesday, July* 16, Max. 65° Margate, Min. 54°, Stornoway.
Weather—Fair.

SALES FOR THE ENSUING WEEK.

TUESDAY NEXT—
Sale of Howbery French or Intensive Gardens, Wallingford, Berkshire, by Wilson and Gray, 100, Mount Street, Grosvenor Square, London. At the Mart, London, E.C.

The Artificial Ripening of Fruits.

The changes which occur during the ripening of fruits are numerous and varied—starch disappears and is replaced by sugar, organic acids decrease in amount, and bitter substances, such as tannins, are destroyed, or at all events lose their astringency.

Of these changes the last is perhaps, from the commercial point of view, the most important; for if a fruit tastes ripe the eater thereof is not concerned with its precise chemical composition. Hence it is a matter of importance to discover means which may serve to ripen fruits artificially. Picked green and packed, they may be "shipped" without damage and ripened when wanted.

It is stated that the practice of artificially ripening Dates by exposing the fruits to the fumes of vinegar has been used for centuries by the Arabs. According to an article in the *Agricultural News* (West Indies), the Japanese impress art into the service of nature in a somewhat similar way. They cause Persimmons to ripen by storing the fruit in a closed cask in which the national alcoholic beverage (saké) has been kept.

Yet more recently, as already mentioned in these pages, carbon dioxide has been used for this purpose. The method which has been employed is described by Professor Francis Lloyd in *Science*, and consists in exposing unripe fruits for fifteen to thirty-six hours to carbon dioxide under pressures of from fifteen to forty-five pounds per square inch.

The results of experiments of this kind indicate that artificial ripening may be induced by subjecting unripe fruits to carbon dioxide; but the physiology of the process is not altogether clear. The most plausible suggestion which has been put forward is as follows:—

Astringency is due to the action on the tongue of the tannins contained in the unripe fruit. It disappears if the tannins are destroyed, or if these bitter substances are prevented from acting on the tongue. Carbon dioxide seems to produce the latter effect, and in the following way: Associated with the tannins in plant tissues are coagulable substances. Such substances when caused to coagulate hold the tannins very strongly, so strongly, indeed, that the latter substances are prevented from giving rise to an astringent taste when the fruit containing them is eaten. In short, the coagulated substance plays the part of the coat of a bitter pill, enabling the latter to be taken untasted. The explanation may be that which has been given; but we are inclined to think that other changes are induced by carbon dioxide. For example, it is possible that the effect of carbon dioxide is to hasten the oxidation processes of the tissues, and hence to cause a partial or complete destruction of the astringent substances. Recent experiments have shown that when plant tissues are exposed to carbon dioxide their specific oxidising substances, previously held in check by "inhibitors," are set free from this restraint, and so are able to set up oxidation in the cells. Whatever be the precise interpretation of the process the important thing is to ascertain whether a similar process may be induced in our common large fruits; for although artificial ripening is primarily of importance to the grower of tropical fruits—Dates, Bananas, Persimmons, and the like—it may prove also of service to the home grower.

Coloured Supplement.—The subject of the supplementary illustration is Nymphæa "Conqueror," one of the newer varieties raised by M. LATOUR-MARLIAC. The specimen shown in the illustration was grown in Mr. LEOPOLD DE ROTHSCHILD'S garden at Gunnersbury. Mr. HUDSON, who is responsible for the cultivation of the Gunnersbury House Nymphæas, describes this variety as one characterised by its robust growth and free-flowering habit. It is easy of culture, but requires to be planted in rather deeper water than some other varieties of more tender growth. The variety has been given the Award of Merit of the Royal Horticultural Society.

THE CRYSTAL PALACE FUND.—We offer our hearty congratulations to the *Times* on the success which has crowned its efforts to assist the Lord Mayor in raising funds for the purchase of the Crystal Palace. The *Times* set out to collect £90,000, and the work has been accomplished in fourteen days. Our readers will be glad to know that the preservation of the Palace and grounds for the public use is now assured.

HONOUR FOR ORCHIDIST.—Alderman WILLIAM BOLTON, the well-known Orchidist of Warrington, and member of the Orchid Committee of the Royal Horticultural Society, having sent HER MAJESTY THE QUEEN a number of choice Orchid flowers, received a telegram from Lord DERBY, Knowsley, that HER MAJESTY wished to thank him personally. An invitation was enclosed for himself and Mrs. BOLTON to attend the garden party on the 10th inst. Alderman and Mrs. BOLTON attended, and were graciously received by HER MAJESTY, who expressed her thanks and appreciation of the beauty of the flowers.

VACANT APPOINTMENTS AT ABERDEEN.—The Central Studies and Staff and Forestry Committees of the Aberdeen and North of Scotland College of Agriculture require a lecturer in forestry in the College in succession to Mr. William Dawson, who has been appointed Reader in Forestry in Cambridge University. The commencing salary offered in this case is £350 per annum. It has also been resolved to advertise for a lecturer in horticulture at a commencing salary of £150, rising by annual increments to £300.

HAMPSTEAD GARDEN SUBURB CO-PARTNERSHIP FESTIVAL.—In connection with the above festival a flower show was held on Saturday, the 12th inst., when a good schedule of prizes brought together a number of excellent exhibits. The quality, particularly in vegetables and Sweet Peas, was of a high standard, though a falling off in entries generally was recorded. A novel feature here is the Gurney Trophy Competition, open to the various co-partnership tenants' societies. The trophy is held for one year only, and is awarded the society making the best general display in the co-partnership classes. Last year Ealing was successful, and Ealing made a fair bid for the honour on this occasion also, but were beaten by the Hampstead Tenants' Society. In a class open to children under 14 years of age for the "Best Collection of Wild Flowers, collected and arranged by the exhibitor," there was keen competition, the 1st prize being well won by a Croydon boy with a fine collection, nicely staged, and correctly named. The large central square, in the vicinity of which the festival is held, has undergone a desirable change since the previous one held here two years ago. Avenues of Limes and suitable flower beds nicely filled with colour have replaced the clay heaps and builders' bric-à-brac, and the neatly-kept gardens skirting the tree-furnished roads leading from all points to the centre testify to the thoroughness of the management of the Garden Suburb.

BOTANICAL GARDENS AT BATOUM.—Mr. P. STEVENS, the British Consul at Batoum, writes: "The year 1912 was marked by the foundation of Botanic Gardens, and it is hoped that the institution will do much to advance botany in the district. The primary object of the gardens is to supply the natives and settlers from Russia with economic seeds and plants of all kinds in lieu of importing them from tropical possessions. Professor KRASNOV has been appointed by the Russian Government to lay out the gardens on an extensive piece of land which has recently been acquired some seven miles north of Batoum. This property comprises hilly lands at various altitudes up to about 1,000 feet, covers an area of 81 acres, is well situated on the coast with northern and

southern sloping aspects, and contains a variety of soils suited to the cultivation of tropical and semi-tropical plants. The experimental stations which it is proposed to attach to the nurseries will prove what plants can be acclimatised for commercial purposes, and a thorough-going system of classification and arrangement of plants is to be introduced. The funds for carrying out this work and maintenance of the gardens are to be assigned annually by the State."

Phœnix Roebelinii.—In the Floral Hall of Harrods, Ltd., in the Brompton Road, London, this elegant species of the Date Palm well displays its almost circular heads of plume-like bright green foliage. The fact that this comparatively little-known Palm is available for decorative purposes is important, especially when it is considered that the earliest introduction was of stems a foot or more in height, and it was thought improbable that dwarf plants, to be obtained at a sufficiently reasonable rate to admit of their being used for indoor decoration, would ever be forthcoming. Phœnix Roebelinii was described in the *Gardeners' Chronicle* by Mr. James O'Brien, from a plant said to have been imported from Manila, and it was illustrated in the *Gardeners' Chronicle*, October 26, 1889. The plant received a First Class Certificate at the Royal Horticultural Society, March 11, 1890, the specimen resembling a two-stemmed, dwarf tree Fern. For years the species was extremely rare, and we were pleased to see it playing such a charming part arranged with vases of Carnations, Sweet Peas, Lily of the Valley, and Orchid flowers.

Sweet Pea Trials.—We are informed that a party of Sweet Pea growers gathered at Reading on the 10th inst. to inspect the Sweet Peas at University College, and to visit the trials of Messrs. Sutton and Sons at Southcote, near Reading. The visitors included the Rev. Harold Mayall, Dr. Phillips, Dr. Hinton, Messrs. Leonard Sutton, Robert Sydenham, Herbert Smith, James Agate, W. J. Unwin, T. A. Weston, H. E. Ward, Horace J. Wright, Harry L. Foster, H. H. Lees, T. Want, A. Moring, Ralph Aldersey, W. Iggulden, H. D. Tigwell, George Aitkens, Arthur Hallam, A. E. Usher, Wheeler, F. G. Drew, J. H. Millard (J K. King and Sons), J. Jones (H. Eckford), W. J. Neily (Webb and Sons), J. S. Baker, and Walter P. Wright. The International Trials were in splendid condition, and reflected great credit on Mr. Drew and his assistant, Mr. Barnes. An advisory committee of trade and amateur experts first went through the trials and made recommendations, and subsequently a sub-committee of amateurs, who had nothing on trial, made the awards as follows:—*Silver Medals:* Edna May Improved, sent by F. C. Woodcock, Walmer; and Walter P. Wright, sent by W. J. Unwin, Histon, Cambridge. *Awards of Merit*: Edna May Improved, Walter P. Wright; Deal's Cerise Seedling No. 226, sent by B. W. Deal, Brooklands, Kelvedon; R. F. Felton, sent by Robert Bolton, Warton, Carnforth; Leslie Imber, sent by W. J. Unwin; white Picotee Seedling, sent by G. L. Hutt, Lullingstone Castle Gardens, Eynsford, Kent; Hercules, sent by Star and Son, Great Ryburgh, Norfolk; Florence Wright Spencer, Stark and Son; Red Chief Improved, R. Bolton; and Colour Schemes, sent by Messrs. Sutton and Sons. The party then drove to Southcote, where, after inspecting the extensive and splendidly-grown trials of Messrs. Sutton and Sons, they were entertained to tea by Mr. Leonard Sutton. Cordial votes of thanks were given to Messrs. Leonard Sutton, F. G. Drew, Horace J. Wright, and Walter P. Wright.

Centenary of a German Nursery.—The firm of T. J. Seidel and Co., of Laubegast, Dresden, is this year celebrating its hundredth birthday. It is not often that a firm has existed under the same name for so long a period, and Messrs. Seidel have published a very dainty little souvenir to mark the event. This book contains an account of the history of the firm and numerous illustrations showing the chief partners in the business, beginning with the founder, Traugott Seidel, who was born in 1775. Other illustrations show the nursery at various stages of its existence, the last one giving a very good idea of the large size of the present space occupied.

Kainit as a Fungicide.—The *Agricultural News*, West Indies, publishes a note on the value of kainit as a fungicide. It is said that useful results have accrued from spraying leaves of certain plants with a solution of this fertiliser. It does not appear to have any perceptible effect in the prevention of disease when applied in the usual way as a manure. One curious action of kainit is worthy of note. It seems that when applied to the soil in large amounts the manure increases the conductive power of the soil for heat, and hence keeps the temperature more uniform. In Germany it was found to reduce the severity of frost.

Use of Paper Bags in Grape Culture.—A British consular report states that the practice in Maryland, U.S.A., of enclosing bunches of Grapes in paper bags while they are growing on the vines appears to possess many advantages. These bags protect the fruit from destruction and injury by birds, against extremes of temperature, drought and rain, and even from light frost. The Grapes can also be kept on the vine, it is said, for about six weeks after they have ripened, which enables them to be marketed long after the Grape season is over. The bags, which are usually 2lb. ones, and have a small puncture in the bottom for air circulation, are placed over the Grapes, and fastened by pins, when the Grapes are about the size of Peas.

Hop Mildew.—The attention of those concerned with the control of Hop mildew is drawn to Bulletin 328, published by the Cornell University Agricultural Experiment Station. The Bulletin contains a careful record of sulphuring experiments, and of the success with which the use of this insecticide has met. Failure to control this serious disease is to be traced often to the insufficient capacity of the sulphuring machine, which should have a maximum capacity of not less than 100 pounds. Machines of less capacity do not distribute enough sulphur per acre. The amount which should be used is not less than 40 to 50 pounds per acre, and in case of severe attack 75 or more pounds should be applied. The first sulphuring should be made before the disease has declared itself. The author of the Bulletin, Mr. F. M. Blodgett, is inclined to think that "flour sulphur," which, so far has not been much used, will prove superior to flowers of sulphur. According to the manufacturers, flour sulphur can be made into a finer and more uniform powder than the common flowers of sulphur. Flour sulphur is prepared by distilling sulphur in a small iron receptacle, the temperature of which is raised to a point above the melting point of sulphur. The sulphur vapour condenses, is run into moulds, allowed to harden, and ground to the required degree of fineness.

Australian Fruit.—The *Journal of the Royal Society of Arts* quotes a reference in the *Restaurant and Hotel Review* to the grading and packing of Australian fruit. The expert who contributes the article states that nothing is permitted to be sent which is not perfect, and the grading is of such a high order of merit that a single Apple or Pear taken from a consignment is certain to be representative of the whole. No doubt those of our readers who import Australian fruit will have noticed a decided improvement in grading and packing during the last few years, the result of which is a great and growing demand for Australian supplies in England. Gros Colman grapes arrive with the beauty of their bloom hardly impaired, and the Queensland Pineapple is greatly in demand. The advantage of the availability of first-class fruits from Australia, at a time when English fruits are rare, is obvious.

Destruction of Insect Pests in France.—A recent issue of the *Revue de Phytopathologie* gives an interesting account of the means employed by the Ministry of Agriculture to exterminate an insect-pest—Icerya purchasi—in the department of Alpes-Maritimes. The pest is usually found on Orange and Lemon trees, and it has done extensive damage in many tropical and sub-tropical countries; but has almost everywhere been successfully checked with the aid of another parasite—Novius cardinalis—which feeds upon and ultimately kills the Icerya, its favourite host. The Icerya breeds with the utmost rapidity, and has damaged many of the trees at Cap Ferrat; but until last year the cause of the mischief was unknown. As soon, however, as the identity of the pest was discovered the Department took steps to introduce and acclimatise the Novius cardinalis, specimens of which were obtained from the entomological station at Portici, near Naples. These specimens, and some others obtained from Portugal, were placed in a breeding cage at the end of July, and by August 15 a first detachment of the parasite was placed on an infested Lemon tree. By the end of the season other colonies were distributed in various gardens of the peninsula. To establish a colony of the Novius cardinalis it is only necessary to place a few leaves, with the nymphæ of the Novius attached, in small wire baskets, and suspend these on the branches of an infested tree. On issuing from the chrysalis the insects soon reach their prey, and immediately deposit their eggs in the Icerya, chiefly in the parts of the body near the ovaries, where the larvæ, as soon as hatched, find abundant food at the expense of their hosts. Another way is to place branches infested with Icerya in the breeding cages for twenty-four to forty-eight hours; these will by that time be covered with the parasite, and can be removed and placed on the trees. The Novius cardinalis is now perfectly acclimatised at Cap Ferrat, and is to be found everywhere. On the other hand, the spread of the Icerya is kept well within bounds, and from some gardens it has completely disappeared. It is to be hoped that owners of Orange and Lemon plantations will remember not to spray their trees with any sort of insecticide which would infallibly kill the useful insect as well as the noxious pest.

Artificial Manures.—Leaflet No. 270 published by the Board of Agriculture deals with the sale of low-quality manures at excessive prices. The leaflet draws attention to the need for the purchasers of artificial manures not only to understand the meaning of the analysis which accompanies the invoice and advertisement of the manure, but also to be able to calculate the value of the manure according to its content in nitrogen, etc. Users of artificial manures may obtain from the Board the following leaflets:—No. 72, "The Purchase of Artificial Manures"; 80, "Use of Artificial Manures"; 93, "Farmyard Manure"; 106, "Fertilisers for Market Garden Crops"; 170. "The Uses of Lime"; 175, "Waste Organic Substances as Manures"; 254, "The Composition of Seaweed and Its Use as Manure."

Nature Reserves in Belgium.—A part of the *Jubilee Volume* of the Royal Society of Botany of Belgium is devoted to a plea for the protection of Nature. In an admirably illustrated and exhaustive article on this subject Professor Massart discusses the reasons why natural sites must be protected, and points out how the countryside of Belgium is being disfigured by the spread of factories. After demonstrating the pressing need for establishing nature reserves, Professor Massart proceeds to discuss the kinds of sites which should be protected and the type of protection which is needed in the several cases. The volume concludes with an interesting account of

what has been done in other countries to remedy the consequences which ensue when "trade's devouring train possess the land and dispossess the swain." It is indeed satisfactory to learn that nearly all civilised nations are alive to the need for preserving the natural amenities of their several countries. In times past it was assumed that Nature could look after herself, and it seemed unnecessary and almost absurd for men to presume to lend her assistance. Now, however, we are all alive to the facts that the work of destruction and defacement is fatally easy and that reconstruction and embellishment are inevitably slow processes. Therefore indiscriminate destruction must be checked, and at the least Nature must be given time and opportunity in which to repair the ravages of man, beside which those of time are but superficial.

Cook, the President, in his opening address, spoke of the joy that it gave him to see such a display in spite of terrific heat—a continuous day temperature of 96 degrees, with a hot wind that made everything uncomfortable for Roses and people. The flowers were kept fresh by spraying every half hour or so. Next year the society hope to hold a greater festival. The first exhibition has given the committee and officers a vast amount of work, and there have been moments when the outcome of all the preparations was a matter of much doubt, but the result is compensation for all. The keenest interest was manifested in the competition for the Silver Cups and other valuable prizes offered. When we say that the schedule comprised classes for 36 blooms, distinct, in two divisions, and boxes were used for the first time in Canada unless any of the latter should be required for any purpose, none of the seed-pods should be allowed to ripen, otherwise it may well become a nuisance and smother up everything else. Its pure yellow flowers are particularly attractive when arranged either by themselves or with other flowers. To have them last as long as possible when placed in water, the flowers should be cut when they first open. If this is done they last quite a week before the petals drop. For crumbling walls it is a capital companion to Corydalis lutea, Veronica Cymbalaria, and other plants that appear to thrive well in such situations. It forms a dense groundwork of ornamental foliage, surmounted by a wealth of large yellow flowers. It does not require a large amount of soil and thrives almost anywhere. *Wyndham Fitzherbert.*

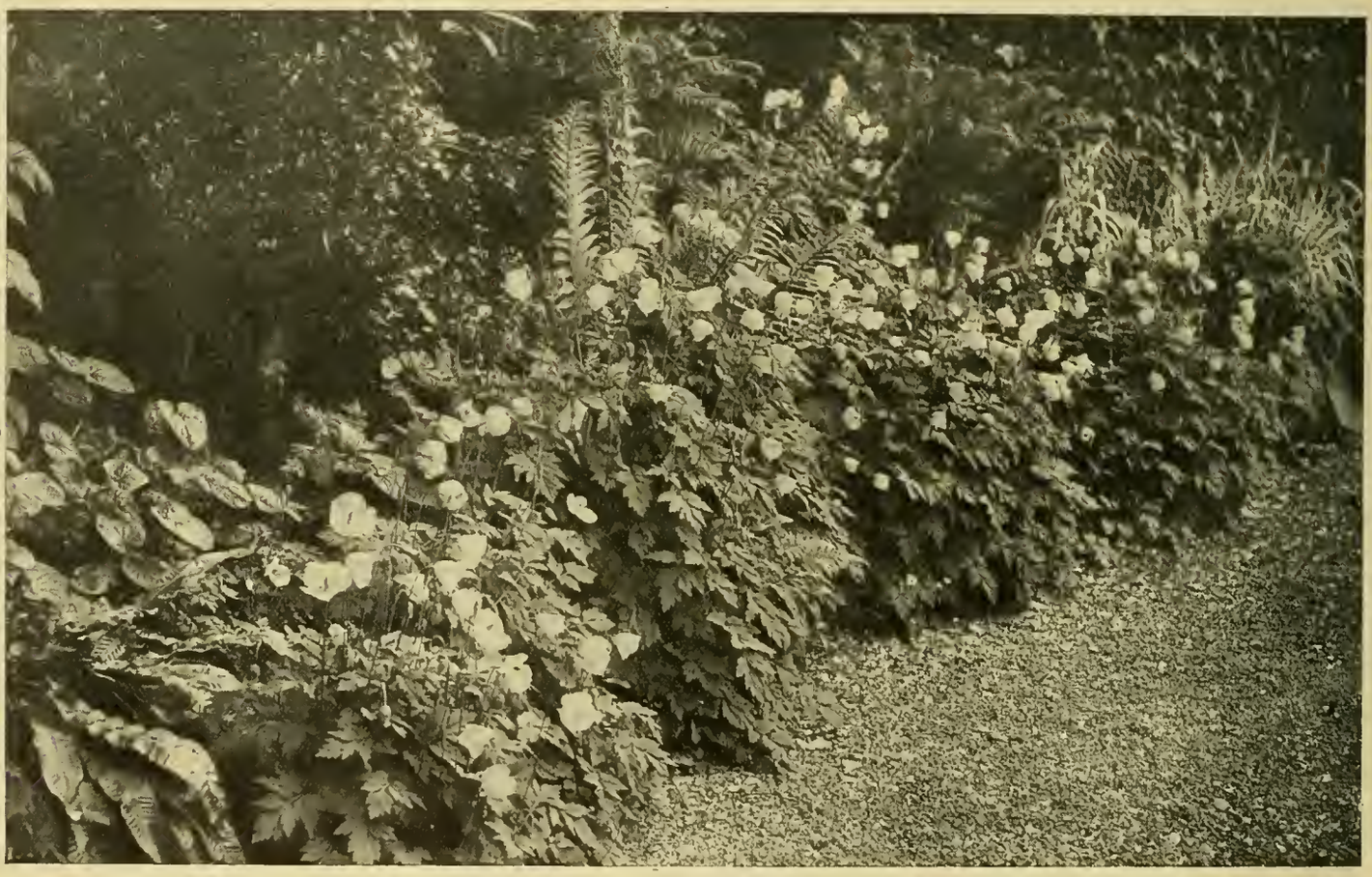

FIG. 26.—WELSH POPPY (MECONOPSIS CAMBRICA) AS A BORDER PLANT.

PÆONIA DELAVAYI (see *Gardeners' Chronicle*, vol. LIII., p. 405, fig. 169).—In respect to Mr. BALL'S note and figure of this plant, Mr. E. H. WILSON writes from America as follows :—"The type—P. Delavayi—is probably not in cultivation; it differs from the plant figured in *Gardeners' Chronicle* in having broader lobes to the leaves. The correct name of the plant illustrated is Pæonia Delavayi var. angustiloba (see *Plantae Wilsoniana*, Part III.). I introduced this same plant to Messrs. VEITCH'S in 1904. It is stoloniferous in habit, and is perfectly hardy here in Boston.

THE FIRST ROSE SOCIETY'S SHOW IN CANADA.—An event long looked forward to by flower-lovers in Toronto took place on the 3rd inst., and was a brilliant success, far exceeding expectations. Some of the exhibits were quite equal to the best English Roses, and the bloom—the best in the show—of A. K. Williams was superb. The exhibition was patronised by many of the leaders of Canadian society, and there was evidence that the Rose Society of Ontario is built upon a firm foundation. Mr. E. T. (vases also were there), it will be seen that the society is severely practical.

WELSH POPPIES.

THE Welsh Poppy, Meconopsis cambrica, is a native of Britain, but is a very showy and desirable perennial plant for the garden.. The type bears single flowers of a bright yellow colour, and is also represented by double forms having yellow and orange-coloured blossoms respectively. The species and its varieties will succeed in almost any soil, provided it is well drained in the winter. The species is common in the crevices of the steep dripping precipices on the higher Carnarvonshire mountains. The number of flowers produced by a single plant is wonderful, and if the roots are only kept moist the plants will continue to blossom for a lengthened period. In a north border they succeed well, and will last in flower well into July. Once it is established in the border there is but little fear of losing the Welsh Poppy. It reproduces itself very abundantly from seed, and

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

NATURALLY-GROWN ROSES.—During the present season the extreme beauty and gracefulness of our ordinary Hedge-Rose, or Briar, has been more than usually displayed. Many garden varieties are capable of the same natural effect if permitted to grow more or less in their own way, especially Ramblers and the stronger-growing varieties in each section. There is an old, tumble-down cottage near here which is a mass of lovely Roses. At one end an immense bush of Félicité-et-Perpétue flings out trailing growths ten to twenty feet long, which are just bursting into flower. No attempt has been made to train the growth of the plant, and it wanders over the roof of a small lean-to shed at the side of the cottage in the most picturesque and charming manner. In the centre of the cottage and over the roof Reine Olga de Würtemburg makes a splendid show, its deep scarlet blossoms contrasting finely with the creamy-white ones of Félicité-et-Perpetue. At the other end is a bush of William Allen Richardson of the deepest and purest orange I

have ever seen in this variety; while that part of the roof which is unoccupied by the Roses is covered with thick Ivy. The general effect is wonderfully beautiful, and I have seen many artists attempting to transfer some of its charms to canvas. Now, the graceful habit of these plants was obtained without any trouble at all, and is, in fact, pure accident rather than design. We can, however, learn something from the result of such entirely natural growth, and, for my own part, I consider that many of our old climbers are never more effective than when climbing at will over an old hedge. A tall, rather sparse hedge usually contains a few stems rather stouter than the rest; a few strongly-growing Ramblers should be placed near these so as to climb up them. The Roses should be vigorous enough to hold their own against the roots already established, and some good soil should be provided. This will naturally soon be occupied by the old roots, but the Roses will probably get a good start, and a little judicious feeding afterwards will sustain them. I have adorned many old hedges in this way myself, and have never known the Roses to fail to grow. They select for themselves the most graceful positions, and very little training is necessary or even advisable. The stumps of worn-out fruit trees are good positions for climbing Roses, or the whole tree may be retained (as it often is, for the sake of the blossom, even when it has ceased to fruit), in which case a Rambler Rose planted at the base will soon provide a lovely show of blossoms hanging from the branches. Thus what might have been an eyesore when once its own flowering time was past is rendered a thing of beauty. Most of our strongly-growing climbing Roses are overtrained, and by this practice much of their beauty is lost. *A. Piper, Alexandra Road, Uckfield.*

Correlation in the Peach.—The number of correlations recorded is not large, and a clear and definite new discovery in this interesting subject must be always of great interest. A recent number of *Science* contains a case noted by Professor Hedrick, of the New York Experiment Station, which is of value also from the practical point of view. The examination of a large number of Peaches of distinct varieties when in flower revealed the fact that the base of the calyx cup was coloured green in some and orange-yellow in other cases. This coloration was found to be correlated with the colour of the flesh, the white-fleshed varieties being those with the green at base of calyx cup, and the yellow-fleshed those with the orange pigmentation. No exceptions were found, and no intermediates. Thus, where the parentage was known, varieties were found to inherit these characters alternatively. Apart from the scientific interest of this discovery, it is of some practical value. Nurserymen check the accuracy of their stock when blossoming by the examination of the flowers, and the presence of a small-flowered sort among large-flowered varieties denotes an error. But it may happen that two large-flowered varieties are mixed together, and therefore, if of different flesh colours, this can now be determined in the flowers. This interesting discovery forms an excellent argument for more minute examination and description of our varieties of fruits with a view to greater accuracy in the determination of correct nomenclature. *B.*

Quality at the Shows.—May I ask the courtesy of your columns in order to make a protest against the way awards are made at the Horticultural Shows? And may I be informed whether there are any recognised rules for the guidance of those who officiate as the judges of "non-competitive" exhibits? For it has struck me (and the opinion is shared by many others) that at the recent large Shows the highest awards have been given almost without exception to the most imposing exhibit, regardless of quality. Take Sweet Peas for instance. You have in your columns time after time advised your readers when showing Sweet Peas to stage them so that each spike will stand clear of its fellows, so that the public will be able to see the size and quality of each bloom. Yet I have noticed at two of the recent large Shows that huge exhibits containing vases of short-stemmed blooms, packed like bloaters in a box (so that their inferior quality shall not be too plainly visible), were given a higher award than smaller exhibits which contained far better flowers. So that it would seem that the trade grower to gain leading honours must aim at making as gorgeous and extensive a display as possible regardless of superior quality. If officials of Societies are going to allow it to be understood that the firm which fills the largest space may expect the highest award regardless of the quality of the exhibit then it is time for someone to speak out. One wonders, too, whether judges are strictly impartial where trade exhibits are concerned. For my part I would suggest that firms should not be allowed to display their names on exhibits until after the judging has been done. Of course, I am well aware that some firms have a certain style of exhibiting which makes them readily recognised. *H.*

The Royal Horticultural Society's School of Horticulture.—The Council of the Royal Horticultural Society are prepared to receive a few further applications from young men between the ages of seventeen and twenty-two years for a two-years' course of practical and scientific training in horticulture at the Society's gardens at Wisley, Surrey. A syllabus, with form of application, can be obtained on application to the Secretary, Royal Horticultural Society, Vincent Square, Westminster. *W. Wilks, Secretary.*

Lilium sulphureum.—I enclose a photograph (see fig. 27) of Lilium sulphureum, bearing 16 flowers. The same bulb produced 12 flowers in 1912. *Robert Dimsdale, Ravenshill, Lechlade, Gloucestershire.*

Fig. 27.—Lilium sulphureum: flowers white, with yellow throat and crimson stamens.

Strawberry "President".—Can anyone kindly give me information about this Strawberry, sometimes called "Green's President," as to when, where, and how it was raised? I have given a good deal of attention to Strawberries for the last 25 years, testing nearly all the new ones, and raising a great many seedlings myself, and am to-day inclined to consider President quite the best existing variety, reckoning all points. It is vigorous on almost all soils—perhaps on all if well cultivated—is an immense and continuous cropper, solid of flesh, very richly flavoured, and equally good for dessert and preserving. It is difficult to name another variety of which so much can be asserted. Great numbers of new Strawberries are advertised and put on the market, but, except now and again one, they fall into the limbo of second and third rates. Royal Sovereign is almost the only one that in my time has maintained its position, but this has been owing to other features than that of first-rate quality, which no one can claim for it. The truth is we none of us know how to set to work to raise a first-rate Strawberry. Messrs. Laxton have worked the hardest, but they will perhaps forgive me for saying that they made an initial mistake in using the insipid American blood, which gave them "Noble," and has been largely infused into their entire strain of seedlings. I speak in humility as having myself failed to raise anything worth keeping. My reason for seeking information about Mr. Green and the origin of his "President" is that, to my mind, he must have had better material to work with than modern raisers have had or used. For one thing he attained to great richness of flavour altogether apart from the British Queen blood. Anyone at all experienced in Strawberries can see that President has in it no trace of British Queen ancestry. My own opinion, fortified by a good deal of experiment, is that it is a mistake to use British Queen at all, not only because it has exceptional soil requirements, but because it scarcely ever, if ever, transmits its flavour to its progeny. In its seedlings, whether it is used as father or mother, the flavour either disappears, or is accentuated into a foxy and disagreeable taste. The blemish of the green tip to the fruit is also passed on, and often much exaggerated. An instance of the effects of British Queen blood may be seen in the variety "Epicure"—named on the *lucus a non lucendo* principle, for it is quite insipid—which has a most noticeable green tip and no single good quality of British Queen. English raisers of Strawberries and of other fruits are disadvantaged by the fact that they cater for an undiscriminating public. In France the people will not look at a big, bright fruit if it is worse flavoured than a small, dull-coloured one. In England they ask only for something big, red, and plentiful, and therefore a legion of seedlings which ought to have been strangled at birth are suffered to live and pass into currency. But if we desire to raise Strawberries worth eating we ought to cut our losses and begin all over again with the admirable Mr. Green, if we can ascertain anything about his material and methods. *G. H. Engleheart.*

SOCIETIES.

ROYAL HORTICULTURAL.

July 15.—There was a much smaller show than usual on Tuesday at the Royal Horticultural Hall, Vincent Square, and the steady rainfall, which was otherwise so much needed, caused a rather poor attendance. The outstanding features of the show were the magnificent collection of fruit trees in pots from Messrs. James Veitch and Sons and the beautiful Carnations shown by Mr. James Douglas. There were very few Orchids, but hardy border flowers were well represented. The Orchid Committee recommended 1 First-class Certificate and 3 Awards of Merit.

The Floral Committee awarded 12 Medals to collections and 3 Awards of Merit to novelties. The Fruit and Vegetable Committee awarded one Gold and One Silver Knightian Medal to collections of fruit.

At the three o'clock meeting of Fellows in the Lecture Room, Professor R. H. Biffen, M.A., delivered the ninth Masters Memorial Lecture, the subject being "Some Factors in the Prevention of Disease in Plants."

Floral Committee.

Present: Henry B. May, Esq. (in the chair), and Messrs. G. Reuthe, Chas. E. Pearson, W. J. James, Charles Dixon, John Dickson, Arthur Turner, J. W. Moorman, John Green, C. R. Fielder, J. T. Bennett-Poë, Bernard Crisp, W. J. Bean, W. P. Thomson, J. F. McLeod, John Jennings, Charles Blick, E. H. Jenkins, C. T. Druery, George Gordon, W. Cuthbertson, George Paul, W. A. Bilney, and Thomas Stevenson.

Mr. James Douglas, Great Bookham, exhibited a magnificent collection of Carnations. The varieties which received Awards of Merit aroused much admiration. Other first-class varieties were Hercules (deep maroon), Mrs. G. A. Reynolds (buff-apricot), Cecilia (yellow), Jean Douglas (bright red), and Renown (a buff fancy marked with fiery red). (Silver Flora Medal).

Messrs. H. B. May and Sons, Upper Edmon-

ton, gave special prominence to an excellent batch of Gymnogrammas in their exhibit of stove and greenhouse Ferns. Besides the better-known species we noted Gymnogramme chrysophylla Reginæ with more than the usual amount of "gold," G. wettenhalliana and G. Peruviana argyrophylla, two silvery varieties. Against the wall Messrs. May arranged a large group of floriferous standards of Fuchsias Corallie and Thalia. (Silver Flora Medal.)

Messrs. Dobbie and Co., Edinburgh, showed many beautiful flowers in their collection of Sweet Pea novelties for 1914-15-16. Many of these, such as a large-flowered bright red, several

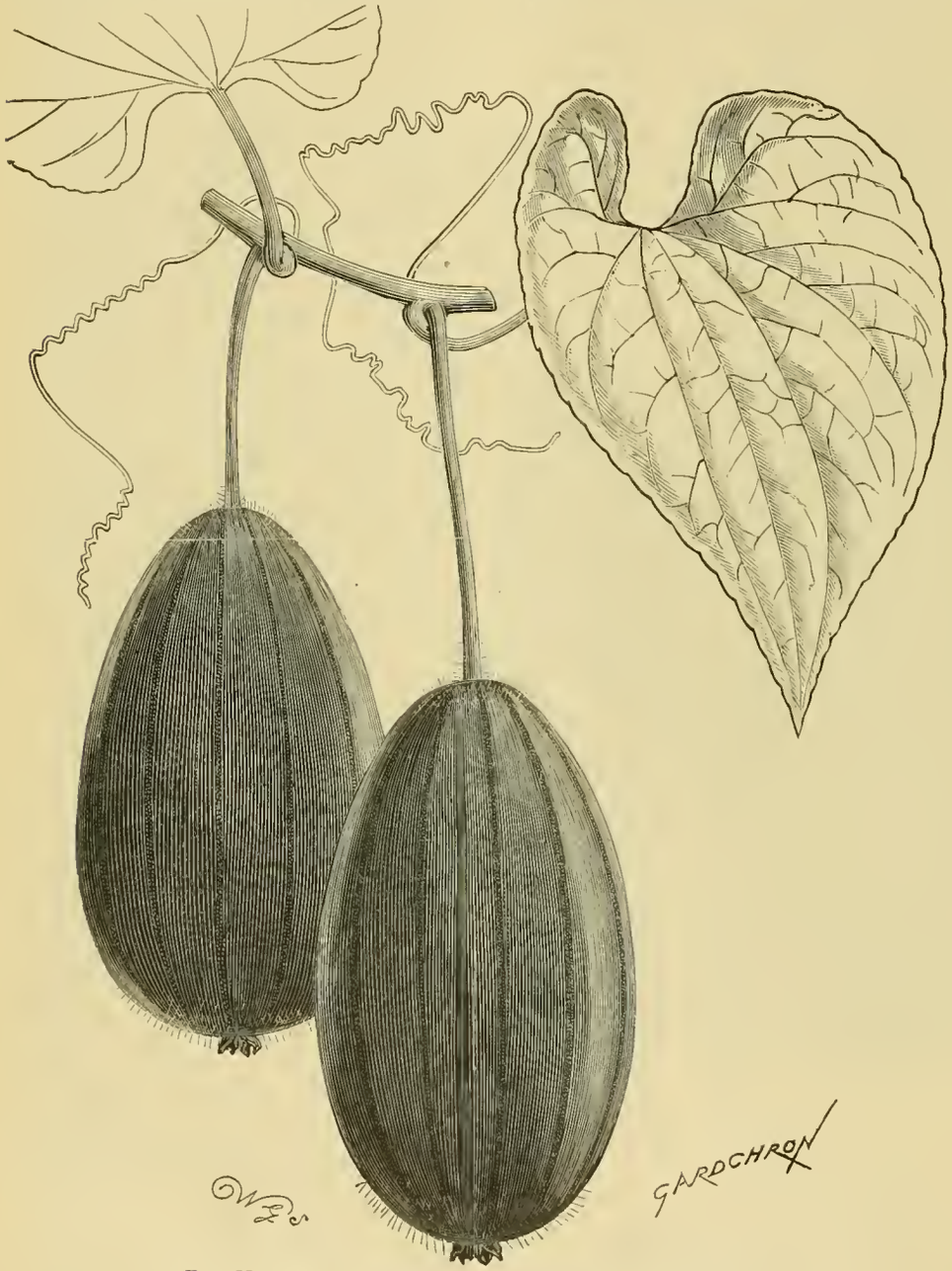

Fig. 28.—fruits of thladiantha dubia : colour, dull red.

(Awarded Cultural Commendation on Tuesday last when shown by Col. Lockwood, M.P.)

charming pinks, and a good blush white, were unnamed. Of the others Margaret Atlee (shades of pink with a suggestion of yellow at the base of the petals), Early Cream, Ruby Palmer, and King White, were excellent. (Silver Banksian Medal.)

Messrs. Wm. Cutbush and Son, Highgate, showed Caladiums, Codiæums, Clerodendron Balfouri, Coleus Cordelia, and various Liliums in a bright collection of indoor plants.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, staged a stand of the richly-coloured Rose Rayon d'Or in the centre of a large collection of cut Roses, which were attractively arranged with greenhouse Ferns. (Silver Banksian Medal.)

Messrs. G. Bolton and Son, Buntingford, Herts, included large stands of such good Roses as John Cuff, Avoca, Hugh Dickson, and Mons. Joseph Hill in an extensive collection of cut blooms. The exhibition boxes, which were placed at intervals along the front, contained large, well-formed blooms, which showed traces of the recent rains.

Messrs. Hobbies, Ltd., Dereham, gave especial prominence to vases of the fragrant pillar Rose "Effective" in a small but choice collection of Roses. Other desirable new varieties were Lemon Queen and Pink Pearl.

Messrs. H. Cannell and Sons, Eynsford, Kent, showed a good collection of cut Roses and trusses of brilliantly coloured zonal Pelargoniums.

Messrs. Fred Smith and Co., Woodbridge, made an attractive display with vases of herbaceous Phlox, Romneya Coulteri, Kniphofias, Gaillardias and other hardy flowers in a large group against the end wall. Not only were the flowers of high quality, but good taste was evidenced in their arrangement. (Silver Flora Medal.)

Messrs. Geo. Bunyard and Co., Ltd., Maidstone, showed a wide range of desirable border flowers, amongst which the varieties of Campanula platycodon were especially noticeable. (Silver Banksian Medal.)

Messrs. T. S. Ware, Ltd., Feltham, Middlesex, relied largely on flowers with shades of blue and lavender for making an effective display. Anchusa italica Dropmore variety, Eryngium Oliverianum, Salvia nemorosa virgata and Veronica pyramidalis were happily blended with the flowers with yellow shades of colour. (Bronze Flora Medal.)

Mr. Maurice Prichard, Christchurch, showed such sterling varieties of Astilbe as Pink Pearl, Juno, Venus, Vesta and Princess Juliana, and a large batch of the very showy Spiræa palmata in an excellent exhibit of hardy flowers. (Bronze Flora Medal.)

A large bush of Desfontainea spinosa bearing numerous scarlet and yellow flowers occupied the central position in Mr. G. Reuthe's exhibit from Fox Hill, Keston, Kent.

Mr. G. Miller, Wisbech, included many vases of herbaceous Pyrethrums and several good varieties of Delphiniums in a well arranged collection of border flowers. (Bronze Banksian Medal.)

Mr. James Box, Haywards Heath, Sussex, arranged a very large collection of hardy plants and cut flowers just inside the entrance of the Hall. A central pool contained several good Nymphæas, but the conception was rather artificial, the fronting of Pentstemon Newbury Gem, Erica vulgaris alba, etc., being incongruous; but this was amply atoned for by the excellence of the other portion. (Silver-Gilt Banksian Medal.)

Messrs. G. and A. Clark, Ltd., Dover, filled the centre of a collection of hardy flowers with a large number of Downer's "Pride" Carnation —a sweet-scented, pure-white variety of great merit. (Bronze Flora Medal.)

Mr. Howard H. Crane, Highgate, also showed a collection of Violettas.

Messrs. Carter, Page and Co., London Wall, London, contributed a great variety of the dainty little Violettas and a smaller collection of zonal Pelargoniums. (Bronze Flora Medal.)

Mr. L. R. Russell, Richmond, showed a tastefully-arranged collection of border flowers fronted with a row of profusely-berried Nertera depressa.

The Guildford Hardy Plant Co., Guildford, included spikes of Dracocephalum virginianum album, Sidalcea Listeri and Francoa appendiculata in a very attractive collection of hardy border flowers.

Messrs. Wm. Fells and Son, Hitchin, built a small rock garden.

Award of Merit.

Carnation "Firefly."—A border variety, producing large scarlet flowers. The petals are rather too bunched and full at the centre for an outdoor variety. The calyx and stem are both good and the flowers sweetly scented.

C. "Bookham White."—Another border variety of a very beautiful ivory-white, with well-formed flowers, and fine-textured petals. Calyx and habit are good, but the variety lacks fragrance. These two shown by Mr. J. Douglas, Great Bookham.

Delphinium "Mrs. W. J. Sanderson."—This is a variety notable for its pure colour, a deep marine blue, with scarcely a touch of purple, rather than for the size of flower, which is medium only, or habit of spike which is full and close-flowered. The variety reminds one of Masterpiece or Mrs. Rushton, and has the same neat white eye to the flower, but the colour is a purer blue. In full light this is a very beautiful plant. Shown by W. J. Sanderson, Esq., Warkworth, Northumberland.

Cultural Commendation.

Thladiantha dubia.—Some very fine pot plants of this cucurbitaceous creeper were shown, heavily laden with the fleshy red hanging gooseberry-like fruits, which, are sometimes nearly 3 inches long. The species is dicœcious, and when introduced about 1861 from China (it was figured in the *Bot. Mag.* in that year) created considerable discussion, but at that time only the male plant was known, and the fruit and female flower in the *Bot. Mag.* plate are those of a different species. The leaves are cordate, tapering at the tip; the flowers are yellow and no inconsiderable ornament, and the habit is vigorous, so that the plant should be a little more common on the roof or trellis-work of cool houses. Shown by Colonel Lockwood, Romford (gr. Mr. A. Bagg).

Other Novelties.

Delphinium Van der Weyeri is a strange introduction from British East Africa, and under cultivation may lead to something very useful. As shown the plants appeared to have been cultivated in pots under glass, and though from 1 to 3 feet in height, only carried from two to four flowers each. The most striking characteristic of the flower is that it is sweet scented—it was even compared with the Stephanotis—but it is also a very pure white and of large size, being nearly 2 inches in diameter, with the upper sepal separated from the four lower. This was shown by Mr. Van der Weyer.

Mr. Maurice Prichard showed three interesting new forms of Sidalcea Listeri, deeper in colour than the very pale pink of the type, and in two of the forms with rounded instead of fringed petals. They were named after the Rev. Page Roberts, and as Strathfieldsaye seedlings.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. sec.), J. S. Moss, Gurney Wilson, J. Wilson Potter, R. G. Thwaites, F. M. Ogilvie, T. Armstrong, C. H. Curtis, W. Cobb, J. Charlesworth, W. H. Hatcher, J. E. Shill, R. Brooman White, W. Bolton, C. J. Lucas, H. G. Alexander, A. Dye, W. H. White, S. W. Flory and Sir Harry J. Veitch.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Banksian Medal for an interesting group of Orchids, both hybrids and species, at one end being a very remarkable plant of Vanda cœrulea, with thirty pairs of leaves and a very fine spike of pale-blue flowers netted with violet. Some Lælio-Cattleyas, Cattleya Lord Rothschild, hybrid Odontoglossums, the pretty Odontonia Magali Sander, Odontioda Vuylstekeæ, O. Charlesworthii, O. Keighleyensis and other hybrids were noted, and among species Ancistrochilus Thompsonianus, Platyclinis filiformis, Maxillaria marginata, M. Meleagris, M. nigrescens and other Maxillarias, Masdevallia corniculata, Bulbophyllum barbigerum and several Dendrobium Dearei.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Banksian Medal for a group in which were two plants of the pretty Paphinia cristata (see Awards). The showy Sophro-Lælio-Cattleya Sibyl (S. L. heatonensis × L.-C. Haroldiana), with bronzy-orange flowers with purple-veined lip; several good Odontoglossums, two plants of Catasetum fimbriatum, Cycnoches chlorochilon, the rare Lycaste trifoliata, a nearly white form of Miltonia vexillaria, Dendrobium Dearei, Anguloa Cliftonii and Peristeria elata.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, were awarded a Silver Banksian Medal for an attractive group containing good examples of many favourite species, including Aërides multiflorum, Cattleya Harrisoniæ, Vanda cœrulea, Oncidium Krameri, O. amictum, Chysis bractescens, Cirrhopetalum pulchrum, Cœlogyne Massangeana and various Dendrobiums. Also Cypripedium Maudiæ, Odontioda Thwaitesii, Miltonia Bleuana and other hybrids.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier) sent Catasetum Colmanæ, resembling C. Cliftonii, but with the large yellow lip spotted with red and the thick callus coloured chestnut brown; Anguloa Cliftonii, with four flowers, and the pretty Odontioda Papilio "Gatton variety," with red flowers having white markings on the petals, and white front to the lip.

E. de Q. Quincy, Esq., Oakwood, Chislehurst, sent a well-flowered plant of Cypripedium Wiertzianum (Rothschildianum × Lawrenceanum).

Monsieur H. Graire, St. Fuscien, Amiens, sent Odontioda Brindejonc des Moulinais (Odontioda Devossiana × Odontoglossum Arlequin), with rather small claret-red flowers. The name might better be restricted to one of the three words used or some other name of a single word given.

The Earl of Craven, Coombe Abbey Coventry (gr. Mr. H. Chandler), sent Lælio-Cattleya Martinetii Coombe variety (Cattleya Mossiæ Arnoldiana × Lælia tenebrosa), a distinct form with primrose-yellow sepals and petals and purple lip.

AWARDS.

First-Class Certificate.

Dendrobium Dearei McBean's variety, from Messrs. J. and A. McBean, Cooksbridge. A magnificent form of this fine, white Dendrobium and the largest which has yet appeared, the blooms being nearly twice the size of the original and of a pure snow white.

Award of Merit.

Odontioda Cooksoniae verustum (*O. ardentissimum* × *C. Noezliana*), from Lieut.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A model flower of fine size and brilliant red colour. The front of the lip is bluish-white, the crest yellow.

Odontioda Thwaitesii Purple Emperor (*O. Harryanum* × *C. vulcanica*), from E. H. Davidson, Esq., Orchid Dene, Twyford. A remarkable variety with large bronzy-purple flowers, with lilac-coloured lip freckled with white, and with yellow crest. The finely-grown plant bore a branched spike of thirty-five flowers.

Paphinia cristata, from Messrs. Charlesworth and Co., Haywards Heath. A charming old Orchid which has been known since 1843, but has been always scarce. The plant is of dwarf habit, the flowers usually produced two on a short spike, being 4 inches across and of a rich claret colour, with white lines. Lip dark purple with white hairs at the apex. It is placed by some authorities under Lycaste. P. grandiflora (grandis) and P. rugosa are described as distinct species, and are found under those names sometimes in gardens, but the cultivated plants appear to be all forms of P. cristata.

Fruit and Vegetable Committee.

Present: George Bunyard, Esq. (in the chair), and Messrs. Jos. Cheal, J. Bates, F. Perkins, G. Woodward, Ed. Beckett, A. Grubb, A. W. Metcalfe, H. Markham, J. Davis, Wm. Pope, P. C. M. Veitch, J. Willard, Geo. Wythes, John Harrison, W. Poupart, and C. G. A. Nix.

Messrs. James Veitch and Sons, Ltd., Chelsea, arranged, against the back wall, a wonderfully fine collection of fruit trees in pots. Each young tree was a model of cultural skill, and bore a heavy crop of perfect fruits. The most attractive to the general visitor were the 6 feet high bushes of Apple Lady Sudeley, which were thickly studded with bright crimson fruits. Standard fan-trained Peaches, dwarf pyramid Nectarines and bushes of heavily-laden Plums and Greengages also formed part of this excellent exhibit. (Gold Medal.)

Lady Wernher, Luton Hoo, Luton (gr. Mr. A. W. Metcalfe), exhibited 7 large boxes containing giant Strawberry fruits of the varieties Givon's Late Prolific and the rich Mulberry-red Waterloo. (Silver Knightian Medal.)

W. J. Sanderson, Esq., Northumberland, was awarded a card of Cultural Commendation for huge fruits of Strawberry "Bedford Champion."

The Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. Ed. Beckett), showed perfectly formed roots of Beet "New Intermediate," for which a Cultural Commendation was awarded, and the committee desired that seeds be sent to Wisley for trial.

Trials at Wisley.

July 15.—At their meeting on this date the Council of the Royal Horticultural Society approved the following recommendations for awards made by the Fruit and Vegetable Committee at Wisley on July 7 to the subjects indicated.

First-Class Certificate.—Strawberry British Queen from R.H.S. Gardens.

Award of Merit.—Strawberries: Cropper, Fillbasket*, Progress, Rival. (Of the above, Fillbasket has already received an Award of Merit. They were all sent by Messrs. Laxton, Bedford.) Pea Alderman*, from Messrs. Dickson, Newtownards, and Messrs. Dobbie, Edinburgh. Pea Exhibition*, from Messrs. Wheeler, Gloucester. Pea Favourite, from Messrs. J. Veitch, Chelsea. Pea Masterpiece, from Messrs. Sutton, Reading. Pea Premier*, from Messrs. Bell and Bieberstedt, Leith. Pea Quite Content*, from Messrs. Dobbie, Edinburgh. Pea Sir Arthur Bignold, from Mr. Holmes, Tain. Pea Warriston Wonder, from Messrs. Bell and Bieberstedt, Leith.

Highly Commended. — Peas: America* (Holmes), Battleship (Carter), Best of All (Wheeler), Discovery (Dickson), Harvestman* (Carter), International* (Carter), Laxtonian* (Hurst), Magnum Bonum* (Sutton), Marquis of Stafford (Holmes), Peerless* (Sutton), Prodigy* (J. Veitch), The Clipper (Sydenham), Up to Date (Sutton), Victor* (J. Veitch), Orwell (Staward).

Commended.—Pea Ideal* (Sutton).

The varieties marked thus * have already received awards

NATIONAL ROSE.

Exhibition at Gloucester.

July 15.—In honour of the Gloucestershire Rose and Sweet Pea Society having attained its twenty-fifth anniversary, the National Rose Society held their provincial show (in conjunction with the local society) at Gloucester on Tuesday last. Most of the leading growers and better-known amateur exhibitors were represented, and the keenest competition was met with in every section. The season has not been a good one for Roses in all districts, but whilst local rosarians complain of the forwardness of their Roses owing to the dry weather, Messrs. A. Dickson and Son, Newtownards, Ireland, who have also an extensive nursery at Ledbury, Gloucestershire, regard the season as having been most favourable to them; indeed, one of the best. Certain it is, however, that anyone looking at the magnificent display staged at Gloucester on Tuesday, from most parts of the kingdom, would have concluded that so far as the season has been concerned Rose growers and exhibitors alike have not had much to complain of.

The show was opened by Lady Cunynghame, and the Mayor of Gloucester, the City High Sheriff, and members of the Corporation attended in state. The Mayor subsequently entertained the officials and friends to luncheon on the ground.

For the National Society's premier award, the Jubilee Fifty-Guinea Trophy and Gold Medal, in the nurserymen's class for 36 blooms, distinct varieties, there were six entries, the competition resulting in the success of Messrs. Hugh Dickson, Ltd., Belfast, who showed a remarkably fine stand of beautiful Roses. Messrs. B. R. Cant and Sons, Colchester, were placed second, and Messrs. A. Dickson and Sons, Ltd., Newtownards, Ireland, third.

For a trophy in the amateur section, and Gold Medal, Mr. Tom Park, Bedale, carried off the 1st prize among eight strong competitors, of whom Mr. Franklin Dennison, Leamington, was second, and Dr. T. E. Pallett, Colne, Essex, third.

Considerable interest was evinced in the struggle in the amateur class for the local society's 30 Guinea Silver Challenge Bowl (for 36 varieties), which for the last two years has been held by Mr. Conway Jones, of Hucclecote, Gloucester. After a very hard fight Mr. Conway Jones succeeded in winning the bowl outright. Mr. George Prince carried off a Challenge Cup for 9 blooms of Harry Kirk, shown in a single vase.

Captain W. J. Thorpe, Hucclecote, won Mr. Conway Jones' Silver Challenge Cup for 12 varieties open to Gloucestershire amateurs, the National Society's Silver Medal for the best bloom in open amateur classes with a George Dickson, and a Silver-Gilt Medal for the best collection of 12 Roses. The Silver Challenge Cup offered by Messrs. John Jefferies and Son, Cirencester, for some Tea or Noisette Roses, shown by Gloucestershire amateurs, went to Mr. George Bonner, Barnwood. The Challenge Cup presented by the Mayor and Corporation of Gloucester for 9 varieties in the division for City of Gloucester amateurs was won by Mr. J. G. Orpin, Tweenbrook Avenue. There were 5 entries. The National Rose Society's Silver Medal for the best bloom in this class was won by Mr. Orpin with a flower of J. B. Clarke. The N. R. Society's Medal in the county cottagers' class was awarded to Mr. John Waite, Hucclecote, with a flower of Hugh Dickson.

The National Society awarded 6 Silver Medals to nurserymen and amateurs. For the nurserymen the medal for a Hybrid Tea went to Messrs. Alex Dickson and Son for H. V. Machin; for a Tea to Messrs. D. Prior and Son, Colchester, for a bloom of Mrs. E. Mawley; and for a Hybrid Perpetual to the King's Acre Nurseries, Hereford, for a fine flower of A. K. Williams. For the amateurs a medal for the best Tea went to Mr. J. H. Welsh, Londonderry, for a Mrs. Foley Hobbs; for a Hybrid Tea to Mr. Garnett Holt, Ray, Hereford, for a George Dickson, and for a Hybrid Perpetual to Mr. Tom Park, Bedale, for an A. K. Williams.

Other prize-winners in the nurserymen's section were Messrs. George Prince, Longworth; John Mattock, Oxford; Ernest Hicks, Wallingford, Berks; English, Ltd., Gloucester; John Jefferies and Son, Cirencester; D. Prior and Son, Colchester; and Henry Drew, Longworth.

New Seedlings.

The new seedlings, which were staged in a separate tent, formed a popular feature of the show. They were generally pronounced to be some of the finest that had ever been shown at a National Society's provincial show. Twenty-three new seedlings were shown, and eight National Society's Gold Medals awarded. Messrs McGredy received four, the first for Colleen, an enormous flower, bright pink, an improvement on Killarney; another for Mrs. F. W. Vanderbilt, the best of the Lyon seedlings, shaded gold and red : a third for Florence Forrester, a massive flower with a slight Tea scent, and a little yellow at the base of the petals, and a fourth for Irene Osgood, a brilliant yellow of the decorative garden variety, which promises to attract a great deal of attention. Messrs. Hugh Dickson were awarded 3 Gold Medals, one for Mrs. Archie Gray, an exhibition flower, pale cream in colour; one for Gorgeous, somewhat resembling the Lyon variety in colouring, promising to be a useful sort alike for the garden as for exhibition purposes, and a third for Countess Clanwilliam, cream tinted with pale pink picotee edging. Messrs. Alex. Dickson and Son won a Gold Medal for G. A. Hammond, a very fine exhibition Rose, of good shape and yellow in colour. It was interesting to note that two new Roses, just in commerce, Irish Fireflame (Messrs. Alex. Dickson) and Old Gold (Messrs. McGredy), secured the 1st and 2nd Prizes, respectively, for table decorations, which were won by Mrs. J. W. Cook, Radstock (1), and Mrs. Colston Hale, Warminster (2). Miss E. E. Riddle, of Cranham, was third, the Rose shown by this lady being Mme. Abel Chatenay.

Sweet Peas.

The Sweet Pea display was one of the finest and largest ever staged in the history of the local society. Mr. A. W. Stirling, Goring-on-Thames, carried off the Challenge Cup for 24 distinct varieties, Sir Samuel Baker, M.P., Blandford, Dorset, being second. The "Edwin Lea" Challenge Cup for the best display was awarded to Mr. E. Horwood, Stroud, Mrs. W. Gordon Canning being second. The Winfield Challenge Cup for 6 distinct varieties was carried off by Mr. W. Jarratt Thorpe. The National Sweet Pea Society's Medal for the best bunch of Sweet Peas in the show was awarded to Mr. E. R. James, Banbury, for a bunch of yellow Barbara.

ELTHAM HORTICULTURAL.

July 10.—The thirty-fifth annual show in the grounds of Eltham Court proved successful, but a heavy thunderstorm which occurred shortly after the opening hour prevented many from seeing the lovely grounds attached to the Court. In the competitive classes thirteen were provided for Roses. Four competed for the "North" Cup, valued at 25 guineas and offered for the best collection of 48 blooms, distinct varieties; the 1st prize was awarded to Messrs. B. Cant and Sons, Colchester, who showed handsome flowers, large, clean and highly coloured, including the varieties Captain Hayward, Aug. Hartman, a new variety of a cherry-red colour and faultless shape; Edward Mawley, Mildred Grant, J. B. Clark, Horace Vernet, Madame Theodore Roosevelt, His Majesty, British Queen, Mrs. Amy Hammond, Gloire de Chédane Guinoisseau, deeply coloured and shapely; Leslie Holland and George Dickson; 2nd, Messrs. F. Cant and Co., Colchester; 3rd, Messrs. G. and W. H. Birch, Peterborough.

There were three entries in the class for 24 blooms, distinct; Messrs. B. Cant and Sons were again successful, and were followed by Messrs. F. Cant and Co.

C. C. Eversfield, Denne Park, Horsham, (gr. Mr. M. Bursfield), won the 1st prize for 12 tea or noisette varieties, showing White M. Cochet, Mrs. E. Mawley, Medea, Bridesmaid, Nita Weldon, Maman Cochet and others; 2nd, Messrs. F. Cant and Co.

The following classes were confined to members: Mr. Eversfield secured the cup offered for 18 distinct varieties with a stand of superior flowers, also the Silver Medal of the N.R.S. for the best Rose in Classes 1 to 4; 2nd, G. H. Hammond, Esq., Woodlands, Burgess Hill (gr. Mr. E. Jutland); and 3rd, H. L. Wettern, Waratah, Sanderstead, both exhibitors staging superior examples of popular varieties. Mr. Eversfield was also successful in the class for six tea or noisette varieties, for six triplets and for six flowers of any one variety. The Silver Cup offered for twelve distinct varieties reserved to members growing fewer than 500 plants was won by H. J. Bartleet, Esq., Severndroog, Shooters Hill (gr. Mr. H. Agate), showing high-class specimens. Hugh Dickson was especially good, securing the N.R.S. Medal in that section. 2nd, Mr. F. Barratt, Eltham. Mr. Barratt also won in the classes for six tea or noisette varieties. In a keen competition for garden or decorative Roses Mr. Wettern was successful with Hiawatha, Orleans and Blush Rambler. He also secured the 1st award for single flowers, showing Irish Elegance, Moschata, Nivea and Hiawatha.

Sweet Peas were well shown. In the class for twelve distinct varieties A. F. Blades, Esq., Woodfield (gr. Mr. F. Cordell), was successful, his most prominent varieties being Regalia, Dobbie's Cream, Hercules, Lavender George Herbert, King Edward, Spencer and Melha.

Hardy cut flowers were a fine feature of the show. S. Palgrave Page, Esq., Mottingham Hall, Eltham (gr. Mr. M. E. Brown), was placed 1st for nine bunches.

There were nine competing in the class for table decorations (Sweet Peas excluded), and the 1st prize was awarded to Mrs. Latter, Southend Hall, Eltham, who showed an effective arrangement of Wild Poppies, Gypsophila gracilis and grasses; 2nd, Miss Hollis, Court Yard, Eltham. Baskets of Roses were contributed freely, Mrs. S. Palgrave Page, Mottingham Hall, received the 1st prize for a flat mass of Dorothy Perkins with but few developed flowers. Mrs. Gaitskell, The Croft, Court Road, Eltham, with Caroline Testout, showing many traces of weather in the blooms; 3rd, Miss D. Banwell, Beachcroft, Eltham, with a lovely arrangement of Hugh Dickson in perfect order. This exhibit well deserved the premier award.

Non-Competitive Exhibits.

Mr. W. Chantler, St. Mary Cray, Kent, showed Roses and hardy flowers; Mr. Herbert Dudney, South Road, Erith, Kent, showed Carnations; Mr. A. L. Gwillim, Cambria Nursery, Sidcup, tuberous Begonias, and Mr. G. Reuthe showed hardy flowers and shrubs.

ELSTREE AND BOREHAM WOOD HORTICULTURAL.

July 9.—The fifth annual summer show of the Elstree and Boreham Wood Horticultural Society was held in ideal conditions in Aldenham Park on July 9, and proved a record one, in the number both of entries and of visitors. Lord Aldenham kindly placed the park at the disposal of the society, and the President, the Hon. Vicary Gibbs, had the gardens thrown open to the public. This year there were two extra Silver Cups awarded, one in open competition for Sweet Peas and the other for 12 Roses, open to residents only. The former was won with a magnificent twelve vases by Lord North, Wroxton Abbey, Banbury (gr. Mr. E. R. James), who also staged an honorary exhibit and was awarded a Gold Medal in addition to the Cup. The Cup for 12 Roses was won by J. B. Wellington, Esq. (gr. Mr. G. Allen). The Rose Cup was again won by Messrs. Frank Cant and Co., who were closely followed by Messrs. Harkness, of Hitchin. A large collection of Vegetables was staged by Mr. E. Beckett, V.M.H., gardener to the Hon. Vicary Gibbs, and was awarded a large Gold Medal. Sutton's Early Giant Cauliflower, Duke of Albany Pea, Sutton's Table Dainty Vegetable Marrow, King Edward and May Queen Potatos, Sugar Peas, Aubergines, Kohl Rabi and Sutton's Black Beet were especially fine. Mr. G. Paul, gardener to Mrs. Vasmer, arranged a semi-circular group of Orchids and stove flowering and foliage plants. (Large Silver Medal.) Groups of flowering and foliage plants were also exhibited by K. Edgcumbe, Esq. (gr. Mr. Eggleton) and G. W. Atkins, Esq. (gr. Mr. Lawrence). Trade exhibitors included Messrs. Wm. Cutbush and Sons, with a fine exhibit of Roses, Messrs. Thomson and Chapman, Alpines and herbaceous; and among miscellaneous items Messrs. M. Gleeson and Co., floral arrangements. The winning exhibit of Queen Wasps totalled 375. Table decorations brought eight competitors, the 1st prize being awarded for an artistic arrangement of Nemesias.

EALING HORTICULTURAL.

July 9.—The outstanding feature of the 49th annual show of the above society, which was held, through the kindness of its President, Leopold de Rothschild, Esq., in the beautiful grounds of Gunnersbury Park on July 9, consisted of the many exhibits of magnificent Roses. The 1st prize in the All Comers' class for 48 blooms in no fewer than 24 varieties was won by Messrs. G. and W. H. Burch, Peterborough, for an excellent collection. The "Richard Dean Memorial" Silver Cup and Gold Medal were won by A. W. Perkin, Esq., Greenford Green (gr. Mr. G. Baldwin). In Class B of the Special Division, the best 24 Roses were shown by Mr. W. R. Chaplin, Waltham Cross. The Premier Prize for a semi-circular group of plants arranged by nurserymen was awarded to Mr. Geo. Cannon, Ealing, for a light and tasteful display in which Schizanthuses, Lilium Harrissii and double Begonias were especially well grown.

In the Amateurs' Class the 1st prize group was set up by M. Hulbert, Esq., J.P., Ingleside, Ealing (gr. Mr. T. Skingle); the four groups in this class, arranged along the side of one of the large tents, were very attractive. The specimen plants were of only moderate quality. The most noteworthy in Division I. was a very large pyramid of Hibiscus rosa-sinensis Cooperi, in the collection of Mrs. Spence, East Acton (gr. Mr. H. Knightley), whilst in the class for single-handed gardeners a very good specimen of the "Bottle Brush tree" (Metrosideros florihunda), shown by Mrs. Underhill (gr. Mr. J. Erry) excited the admiration of many of the visitors. Specimen Fuchsias were the best we have seen for a long time; Mrs. Spence won the 1st prize for excellent pyramidally-trained plants fully 6 feet high. A class for bunches of stove or greenhouse flowers, once a regular feature of all flower shows, is still retained at Ealing, and this season induced good competition; but the exhibits were not so effective as in the class for 12 bunches of Gloxinia blooms, in which the exhibit from Mrs. Davies was tastefully arranged with fronds of Maidenhair Fern.

Fruit and Vegetables.

Raspberries and Currants of all kinds were staged in very good condition, but the Strawberries indicated that their season is nearly over. The 1st prize for Grapes was easily won by A. W. Perkin, Esq., who exhibited 2 bunches of exceptionally good Madresfield Court. The best collection of vegetables was shown by Mrs. Spence, who staged excellent heads of Cauliflower. As is often seen, the cottagers staged highly meritorious vegetables; in many instances their exhibits excelled those of the professional gardeners.

Leopold de Rothschild, Esq., Gunnersbury Park (gr. Mr. G. Reynolds), contributed an exceedingly attractive group of stove and greenhouse plants which was arranged opposite the entrance in one of the large tents. Other non-competitive exhibits were Roses from Messrs. James Veitch and Sons, Mr. Arthur Turner,

and Mr. George Cannon; Ivies and other hardy shrubs from Mr. L. R. Russell; a collection of Japanese Maples from Messrs. Fromow and Co., and Sweet Peas from "Tigwells," Greenford, Middlesex.

LIVERPOOL HORTICULTURAL.

July 10.—The Summer Show of this Society was held in the Corn Exchange, an excellent show being the result. Roses were the best yet seen under the auspices of the Society, and the Sweet Peas, although somewhat lacking in quality, compensated by the quality.

For 20 distinct varieties of Sweet Peas R. R. Anderson, Esq. (gr. Mr. N. Hughes), was awarded the 1st prize with spikes of fine substance and colour, having choice blooms of Thomas Stevenson, May Campbell, Mrs. Hugh Dickson, Nellie Jenkins, Dobbies Cream, Edrom Beauty, Mrs. W. J. Unwin, R. H. Felton, etc. 2nd, Dr. J. E. Phillips (gr. Mr. W. Davies). Mr. W. Davies was successful for 12 distinct vases. For 12 vases of blooms with waved standards, J. R. Heron, Esq. (gr. Mr. W. Bond), showed the best collection. For 12 vases of flowers with erect standards the 1st Prize was won by Mr. E. Smith. Jos. Booth, Esq. (gr. Mr. J. R. Ball), won in the class for 12 Hybrid Tea Roses, his best blooms being Madame Mélanie Soupert, Mrs. W. J. Grant, Lyon, and General McArthur.

Thomas Henshaw, Esq. (gr. Mr. F. George), showed the best 18 blooms, distinct varieties, including a fine bloom of Juliet; for 12 distinct varieties, Mr. J. R. Ball secured the 1st award; and for 6 blooms, distinct varieties, J. Watson Todd, Esq. (gr. Mr. A. Griffiths), was successful.

In the class for 12 vases of hardy and bulbous cut-flowers, Mr. J. George proved the winner with a good display.

In the three classes devoted to Carnations and Picotees, Sir W. H. Tate, Bart. (gr. Mr. G. Haigh), excelled in each class. The 1st prize for a decorated table of Sweet Peas was awarded to Miss Newsome, and Mrs. E. M. Allen was successful for the table (Orchids excluded). Joseph Roberts, Esq., in the amateurs' section, was placed in the 1st position in the three classes for Sweet Peas.

Leo Thomson, Esq., excelled for 12 Roses in not fewer than 6 varieties; and for 6 blooms, distinct, Edgar M. Allen, Esq., was awarded the 1st prize. Messrs. J. Gilbourne, J. McFarlane and H. Lunt were successful in the classes for cut Begonias and Carnations.

Gold Medals were awarded to Messrs. A. Dickson and Sons, Newtownards, who contributed a fine display of Roses; The Liverpool Orchid and Nursery Co., who exhibited Orchids; Mr. H. Middlehurst, for Sweet Peas; Messrs. Bees, Ltd., for Delphiniums and Roses, etc.

Silver Medals to Mr. R. Manson, for a bright bank of Roses; Messrs. R. P. Ker and Sons, for miscellaneous plants; Mr. W. Rowlands for cut Roses; Messrs. Jones Bros. Roses; and Messrs. Dicksons, for Delphiniums and Roses.

ROYAL BOTANICAL AND HORTICULTURAL OF MANCHESTER.

July 11 and 12.—Manchester in the past has been famous for the excellence of its Horticultural Exhibitions. Of late years its reputation in this respect has suffered a decline. On this account it is doubly pleasing to record that this year's summer Show marks a distinct improvement on those of recent years. Although in some classes there appeared to be no entries, and in others very few, the principal classes were well contested, and the standard of excellence throughout was of a high character. Roses were particularly good, in size, form, and colour. In the spacious Exhibition Buildings at Rusholme the various exhibits made a fine display.

In the Premier Rose Class for 60 distinct single blooms Hugh Dickson, Ltd., Belfast, secured 1st place with superb flowers, of which the following varieties were particularly good:—Lieut. Chaure, Gorgeous, Brilliant, Mrs. Archie Gray, Mrs. Sam Ross, Rhea Reid, Mrs. Foley Hobbs, Golden Ball, and Mrs. George Gordon. Messrs. Alexander Dickson and Son, of Newtownards, were a close 2nd, with beautiful examples of Lady Ursula, St. Helena, Conway Jones, Alex. Hill Gray, F. K. Druschki, Mrs. Mackellar, H. V. Machin (awarded the Society's Silver Medal for the best Hybrid Tea in the Show), Wellington, and George Dickson. Mr. W. H. Frettingham, Beeston, Notts, was placed 3rd.

For 36 distinct trusses Hugh Dickson, Ltd., was again 1st, his examples of Oriflamme, Leslie Holland, Mme. M. Soupert, Gorgeous, Lyon, and Brilliant were particularly good. Messrs. Alex. Dickson and Son were 2nd with lovely flowers of George Hammond, J. B. Clark, Gloire de Chédane Guinoisseau, Mrs. Mackellar, and H. V. Machin. 3rd, W. H. Frettingham. In the class for 24 Teas or Noisettes Mr. George Prince, of Oxford, was 1st with fine blooms of Miss A. de Rothschild, Comtesse de Nadaillac, Souv. de S. A. Prince, The Bride, and E. V. Hermanos. Messrs. Alex. Dickson and Son were 2nd.

For 12 Teas or Noisettes Mr. Geo. Prince was placed 1st with good blooms of Medea, W. R. Smith, White Maman Cochet, Molly Sharman Crawford, and Nita Weldon. 2nd place was gained by Messrs. A. Dickson and Son with good specimens of Mrs. S. T. Wright, Mrs. Herbert Hawksworth, Alex. Hill Gray, Maman Cochet, and Lady Inchiquin. Messrs. W. and J. Brown, Peterborough, were 3rd.

For 12 Single Trusses of any White or Yellow Rose Mr. Geo. Prince won the 1st prize with superb blooms of White Maman Cochet, and he also gained the Society's Silver Medal for the best Tea Rose in the Show with this variety; 2nd, Hugh Dickson, Ltd., with Mrs. Archie Gray; 3rd, Messrs. Alex. Dickson and Son with Mrs. Cornwallis West.

In the class for 12 blooms of any light-coloured Rose other than White or Yellow Messrs. Alex. Dickson and Son led with Mrs. Theodore Roosevelt (particularly good). Mrs. Jas. Lynas, shown by Hugh Dickson, Ltd., was placed 2nd, and Lyon, shown by Mr. W. H. Frettingham, was 3rd.

For 12 blooms of any Crimson Rose Messrs. Alex. Dickson and Son were 1st with fine examples of J. B. Clark; 2nd, Hugh Dickson with Sir Wm. Quartus Ewart; 3rd, Mr. W. H. Frettingham with Horace Vernet.

In the Amateurs' Classes, Dr. T. E. Pallett, Earls Colne, Essex, took 1st place for 24 blooms. His best flowers were Avoca, Mrs. Foley Hobbs, Lady Ashtown, G. C. Waud, Ed. Mawley, C. J. Grahame, Leslie Holland, and White Maman Cochet.

Mr. F. Dennison, Leamington, was 2nd with Wm. Shean, Horace Vernet, F. K. Druschki, G. C. Waud, Lyon, and White Maman Cochet. 3rd place was gained by Mr. R. Foley Hobbs, Worcester, with Kaiserin A. Victoria, Leslie Holland, Nita Weldon, and J. B. Clark.

In Class 9 for 12 distinct blooms, Mr. F. Dennison was 1st with C. J. Grahame, Florence Pemberton, Avoca (very good), and Hugh Dickson; 2nd, Dr. T. E. Pallett with F. K. Druschki, Mrs. Foley Hobbs, Mrs. C. West, and Lady Alice Stanley; 3rd, Mr. T. Park, Bedale, whose J. B. Clark was of particularly fine colour.

For 18 Teas or Noisettes Mr. T. Park was 1st; his best blooms were Lady M. Corry, Comtesse de Nadaillac, Mrs. Myles Kennedy, Mme. Constant Soupert, The Bride, and White Maman Cochet; 2nd, Mr. R. Foley Hobbs with Medea, Souv. de Pierre Notting, and Mrs. Foley Hobbs.

Mr. T. Park was 1st for 12 Teas or Noisettes with good blooms of Molly S. Crawford, W. R. Smith, Muriel Grahame, Auguste Comte, and White Maman Cochet; 2nd, Mr. F. Dennison; 3rd, Mr. R. Foley Hobbs.

A box of superb blooms of Frau Karl Druschki, shown by Mr. F. Dennison, won premier honours in the class for 12 single blooms of any White or Yellow Rose; 2nd, Mr. R. Foley Hobbs; 3rd, Dr. T. E. Pallett.

For 12 blooms of any light-coloured Rose other than White or Yellow Mr. R. Foley Hobbs was 1st with fine flowers of Her Majesty; 2nd, Mr. T. Park with Wm. Shean; 3rd, Mr. F. Dennison with Lady Moyra Beauclerc.

The class for 12 blooms of any Crimson Rose was won by Dr. T. E. Pallett with magnificent flowers of Avoca; Mr. F. Dennison was 2nd with J. B. Clark; and Mr. T. Park 3rd with A. K. Williams.

Local Exhibits.

In the Local Classes, limited to growers within 20 miles of Manchester, Mr. P. Wilkinson, of Styal, led for 24 distinct blooms; his best were Wm. Shean, Caroline Testout, Lyon, Mabel Drew, Comtesse de Nadaillac, and Florence Pemberton; 2nd, Mr. A. G. Hogg, Altrincham; 3rd, Mr. W. Cowley, Bramhall.

For 12 distinct blooms Mr. B. J. Saxby, Sandiway, was 1st with Wm. Shean, Lady Ashtown, Ed. Mawley, and Kaiserin A. Victoria; 2nd, Mr. J. Holt, Mobberley, Knutsford.

Mr. B. J. Saxby was again 1st for 6 distinct blooms; Mr. J. Holt, 2nd; Mr. R. Hutchinson Booth, Bolton, 3rd.

In the Open Class for 12 bunches of Buttonhole Roses Mr. Geo. Prince was easily 1st. Colour and form left nothing to be desired, and the varieties were well chosen. The names are well worth giving in full:—Lady Hillingdon, Souv. de Catherine Guillott, Georges Schwartz, Souv. de Stella Gray, Lady Roberts, Marie Van Houtte, Rayon d'Or, Mrs. H. Stevens, Liberty, Lady Pirrie, Rosette de la Légion d'Honneur, and Mildred Blackburne. Messrs. W. and J. Brown, Peterborough, were 2nd. Their best bunches were:—Mrs. Aaron Ward, Lyon, Duchess of Wellington, Gen. McArthur, Pharisaer, and Mrs. H. Stevens.

For a display of Roses arranged for effect Messrs. W. and J. Brown carried off the honours with an artistic and effective arrangement.

The prize for a basket of Roses was gained by Mr. W. J. Garner, Hale; 2nd, Mr. O. Robinson, Alderley Edge.

Mr. W. J. Garner was again 1st for 3 beautiful bouquets of Roses.

Sweet Peas, etc.

Sweet Peas, probably owing to the sunless weather, were not so good as one would have wished, colour in particular being lacking. Messrs. Castle Bros., Warton, Carnforth, were the winners in the largest (open) class; 2nd, Mr. R. Wright, Formby, Liverpool; 3rd, Mr. F. A. Robinson, Styal.

In the Amateurs' Class for 12 varieties Mr. J. S. Proctor, Altrincham, was 1st, and Mrs. S. S. Rigg, Rowdon, was 1st in the class for 25 varieties.

For the best group of Miscellaneous Plants arranged for effect (nurserymen), Messrs. Jas. Cypher and Sons, Cheltenham, were 1st; Mr. W. A. Holmes, Chesterfield 2nd; and Mr. W. J. Garner, Hale, 3rd.

The prize for the Best Group of Plants set up by an amateur was won by Mr. W. Duckworth, Ribby, Lancashire.

Class 32, for the best display of Herbaceous Flowers, was won by Messrs. Harkness and Son, Bedale, who staged a fine exhibit, boldly and effectively arranged; Delphiniums, Oriental Poppies, Gaillardias, Lupins, and Gladiolus Crimson Queen were outstanding features in a very fine display.

Mr. O. Robinson, Alderley Edge, was 1st for dinner table decorations with a light artistic arrangement, chiefly composed of Gerbera Jamesonii and Gloriosa superba. Mr. W. J. Garner was 2nd.

Non-Competitive Exhibits.

A comprehensive display of Sarracenias and other Insectivorous plants, together with a variety of foliage plants, was set up by Messrs. Bruce, of Chorlton-cum-Hardy, Manchester. The group was arranged in a pleasing manner against a background of painted scenery. (Gold Medal.)

Mr. A. F. Dutton, Iver, Bucks, had a charming display of cut Carnations, chiefly perpetual flowering, artistically arranged in wicker baskets. Winsor, R. F. Felton, Mrs. A. F. Dutton, Carola, May Day, La Mode, and Mrs. H. Burnett were particularly good (Gold Medal.)

Sweet Peas from Mr. W. J. Unwin, Histon, Cambridge, made a beautiful show; lightly arranged in vases set well apart, with trails of Smilax between, they made a lovely picture. Prominent amongst the varieties shown were Zilla Smith (new), Edna Unwin, Gladys Burt, King Edward Spencer, Orange Perfection, Mrs. Cuthbertson, Scarlet Emperor, Hercules, and Evelyn Hemus. (Gold Medal.)

Messrs. Webb and Son, Stourbridge, set up a prettily arranged exhibit of Sweet Peas,

Hydrangeas, Pink Spiræa, and a comprehensive range of choice vegetables. (Gold Medal.)

A bold and effective group of Herbaceous flowers was shown by Messrs. Bakers, Codsall, Staffs. Amongst other good things Aquilegia glandulosa and Dianthus graniticus were charming. (Gold Medal.)

Messrs. Dickson and Robinson, Manchester, had a display of herbaceous flowers, Zonal Pelargoniums, etc. (Gold Medal.)

A small Rockery on a table was set up by S. Broadhead and Son, Huddersfield. (Silver-Gilt Medal.)

Messrs. Caldwell and Son, Knutsford, staged hardy flowers and Roses. (Silver-Gilt Medal.)

Fruit Trees in pots were shown by W. R. Lee, Esq., Plumpton Hall, Heywood. Peaches, Cherries, Apples, and Gooseberries were well fruited.

FORMBY HORTICULTURAL.

July 10.—This Society held its summer exhibition on this date in the grounds of Briars Hey. The entries were fully up to the average, with an increase of Roses counterbalanced by a decrease in Sweet Peas, which were somewhat late.

The Rose section proved the attractive feature of the show. A generous prize list, including eight silver cups, brought a splendid collection of finely-formed and highly-coloured blooms, and these maintained their beauty until the conclusion of the show, owing to the moderate temperature and lack of sunshine. In the premier class for 12 blooms distinct Mr. A. E. Gunson was awarded the 1st prize, for blooms of excellent quality, chief amongst them being Richmond, Mrs. W. J. Grant, Dean Hole, and Caroline Testout. 2nd, Mr. Joseph Booth, having in his stand the premier bloom of the show in William Shean. Among other 1st prize winners were Messrs. W. Rockliff, T. Carlyle, Loo Thomson, George Lunt, and A. W. Ardern.

This year, for reasons already stated, the Sweet Peas were not so prominent, although the quality of the flowers was good. Mr. Edgar M. Allen staged a dozen vases of excellent flowers, the varieties Edith Taylor, Mrs. Cowdy, Mrs. Cuthbertson, Melba and Thomas Stevenson being noteworthy; 2nd, Mr. J. K. Heron. The winners in the other classes were Messrs. A. Rushworth, J. Gilbourne, and T. B. Burnett. Cut Begonias, Carnations, Pelargoniums, and hardy perennials made a pleasing display, and noteworthy collections were staged by Messrs. J. Booth, Joshua Rea, F. C. Calthorp, J. Gilbourne, E. Sargenson, and F. G. Aindon.

The plant classes were not numerous, but many charming specimens were staged, the 1st prizes being awarded to Messrs. J. Booth, A. Storey, W. Rockliff, J. H. Page, T. R. Burnett, H. S. Hodgkinson, and C. A. Calthorp. Vegetables and fruit were highly creditable, Mr. T. Morris winning in the gardeners' section, and Mr. W. Dickinson in the amateurs' division.

A few exhibits were staged which were not for competition. Messrs. A. Dickson and Sons, Newtownards, and Mr. Karl Thirkildsen showed Roses; Mr. H. Middlehurst, Sweet Peas, and Messrs. Woodward and Cuthbert, cut flowers.

PENZANCE HORTICULTURAL.

July 11.—The first show of the Penzance and District Horticultural Society, held in the grounds of Penalvern, reflects much credit upon its promoters. The standard of quality was of a high order, the entries were numerous (over 600), the show was well attended by the general public, and, fortunately, the weather was fine. The principal features were the exhibits in the classes for Sweet Peas, the table decorations, and the children's collections of wild flowers. In the Sweet Pea section the premier award went to Mr. P. T. Chirgwin, Penzance (gr. Mr. Murray), who staged a really first-class exhibit in which Hercules, Nubian, Clara Curtis and Lavender George Herbert were especially prominent. Miss M. Reynolds, Penzance, was first in the table decorations, but the judges had much difficulty in selecting the best of thirteen splendid efforts in this class. The entries in the children's classes approached 200, and every encouragement was given to the children by the local education authorities. The example of Penzance might profitably be followed in other districts. The fruit exhibits were very fine, and the 1st prize collection of six dishes exhibited by Miss Branwell, Penzance (gr. Mr. Gribble), included Black Currant Boskoop Giant, Raspberry Superlative, Strawberry Royal Sovereign, Loganberry, Red Currant The Comet, and Gooseberry Golden Drop, all of which were beyond criticism. The same exhibitor also won the chief prize for a group of miscellaneous plants in a space not exceeding 50 square feet. T. B. Bolitho, Esq., Trewidden (gr. Mr. Maddern), won numerous 1st prizes. His exhibit of hardwooded flowering shrubs was very interesting. Other principal prizewinners were Miss Nankivell, Heamoor; Mr. W. Polsue, Penzance; Maj. F. F. Oats, St. Just; E. Jenkins, Hayle; W. P. Mumford, Lelant; and C. Evans, Probus. Non-competitive exhibits were staged by Messrs. Young and Co., Cheltenham, who sent some of their well-known Carnations; Treseder and Co., Truro, who staged a charmingly furnished rockery; The Devon Rosery Co., Torquay; George Fox and Sons, Penzance, who showed a good collection of miscellaneous plants; T. R. Bolitho, Esq. (gr. Mr. A. Creek), who staged excellent collections of fruit and plants; and other local gentlemen. The society will surely be encouraged to persevere, and there is no reason why the Penzance Show should not become one of the most popular shows in the country.

WOODBRIDGE HORTICULTURAL.

July 9.—The sixty-second annual show of this society was held in the grounds of Woodbridge Grange on the 9th inst. Many large marquees were required to accommodate the exhibits, and as all Woodbridge makes this occasion a holiday and gala, there was a large attendance.

Roses were a strong feature of the exhibition, being represented in eighteen classes. The leading class was for thirty-six blooms, distinct varieties, and the 1st prize was awarded to Messrs. B. Cant and Sons for fine specimens, including the following varieties:—Augustus Hartman, bright cherry-red; Leslie Holland, E. Mawley, Bessie Brown, Horace Vernet, Lyon (in its best colour), Mme. Chédane Guinoisseau (a magnificent bloom), Mabel Drew, Dean Hole, Mrs. J. Laing and J. B. Clark. 2nd, Messrs. F. Cant and Co.; 3rd, Mr. W. Crisp, Dordham Heath. The winners of the 1st and 2nd prizes also won in the same order for the best collection of 24 blooms, distinct, showing St. Helena and E. Mawley, and Messrs. F. Cant and Co. were awarded the 1st prize for 12 Tea or Noisette varieties, the more notable flowers being Mme. Cusin and W. R. Smith. The class for 24 distinct varieties of the garden or decorative type made an attractive display. Messrs. F. Cant and Co. excelled with a charming display of highly decorative varieties; Red Damask, Madame d'Arblay and Goldfinch were especially outstanding varieties. The president's twenty-guinea silver cup, offered to amateurs for 18 distinct single trusses, brought six exhibits, and the 1st prize was won by Dr. Pallett, Earles Colne, Essex, who showed beautiful examples of Avoca, Maman Cochet, White Maman Cochet, Mrs. Foley Hobbs, Mrs. Cornwallis West and Helen Keller. 2nd, F. H. Fieldgate, Esq., Chester. Lord Rendlesham, Rendlesham Park, Suffolk (gr. Mr. H. Rogers), was awarded the 1st prize for a group of cut Carnations on a run of 3-feet tabling, with a fine collection of high-class blossoms. 2nd, F. Lowe, Esq., The Rookery, Yorford. Other cut flowers generally were numerous and interesting.

The floral decorations at these shows have become a very important feature. There were five entries in the open class for the most tastefully arranged dinner-table decorated with Roses and relieved with foliage or grasses. The 1st prize was won by Mrs. H. Barton, Plainfield, Colchester, with a charming low arrangement of Mrs. A. Tate, in which the coppery-red and fawn-shaded buds showed to perfection. The 1st prize for the best arranged bowl of cut flowers was won by Mrs. L. Hayward, Highlands, Woodbridge, with Le Progrès most effectively arranged. Mrs. G. H. Saville, Woodbridge, secured the premier award for a fancy basket of Roses, using richly-coloured flowers of the Lyon variety arranged in long sprays. In the class for a floral harp, Mr. A. R. Notcutt secured the premier award for a neatly-executed exhibit in Lilium Harrisii, Lily-of-the-Valley, Stephanotis and Croton leaves. Seven competed for the most tastefully arranged circular dinner-table. Miss M. Snell, Ipswich, excelled with crimson Gladioli, Heuchera, Gypsophila and Acers. A large vase for hall decoration was best shown by Mr. G. H. Saville, who used Lilium lancifolium rubrum, Gypsophila, and grasses.

Plants were not shown in great numbers. In the class for a group of miscellaneous plants, J. H. Grant, Esq., was awarded the 1st prize. He used Codiæums, Humea elegans and Begonias, which were tastefully grouped. Mr. F. Lowe was placed in the first position for a group of Carnations, whilst tuberous-rooted Begonias were best shown by J. A. Burners, Esq., Melton Lodge, Woodbridge. The Earl of Guildford secured the 1st award for the best six ornamental foliage plants. The twenty-five guinea trophy offered by the Woodbridge Hunt for nine bunches of Sweet Peas, distinct varieties, was won by the Rev. E. S. King, Clemham Rectory, who displayed a fine collection of blooms.

For the best decorated collection of dessert fruit (Pines excluded) on a table 8 feet by 4 feet 6 inches, with cut flowers and foliage, there was a close contest between C. H. Berners, Esq., Woolverstone Park, Ipswich (gr. Mr. Rogers), and Lord Rendlesham. The winner proved to be C. H. Berners, Esq., who showed Grapes (Black Hamburgh and Buckland Sweetwater), Dymond Peach and Pine Apple Nectarine, Taunton Yellow Melon, Brown Turkey Figs, and Givon's Late Strawberry, with an effective decoration of Rose Irish Elegance. Lord Rendlesham showed fine Black Hamburgh Grapes, exceedingly large Strawberries, and a good Melon. In other classes, Grapes, Peaches, Melons and small fruits were admirably shown.

Trade exhibits were numerous and of an interesting character. Mr. Ernest Morse filled the whole of one tent with Roses, Messrs. Morse Bros. had an interesting collection of cut Roses, Messrs. John King and Son arranged a magnificent display of Sweet Peas, including the bulk of new varieties as well as the best of older varieties, and Messrs. E. Abbott and Sons showed a splendid collection of Sweet Peas.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

June 9.—The monthly committee meeting of the above society was held in the R.H.S. Hall, Westminster, on the 9th inst., Mr. Chas. H. Curtis in the chair. Five new members were elected. Four members were allowed to withdraw double the amount of interest from their deposit accounts, the sums amounting to £6 1s., £4 12s. 4d., £3 2s. 2d., and £2 14s. 8d. respectively; one member withdrew the sum of £20. The sick pay for the month amounted to £61 14s. 8d., including £18 7s. 4d. National Insurance section. The late secretary, Mr. W. Collins, was co-opted a member of the committee in the place of Mr. A. C. Hill.

Publications Received.—***The Land of the Blue Pappy,*** by F. Kingdon Ward. (Cambridge: University Press.) Price 12s. net.—***Bulletin de la Societe Royale de Botanique de Belgique.*** (Bruxelles: Jardin Botanique de l'Etat.)—***The Herbaceous Garden,*** by Mrs. Philip Martineau. (London: Williams & Norgate.) Price 7s. 6d. net.—***Monographie du Genre Primevere,*** par S. Mottet. Price 2 fr.; ***Notes d'Horticulture Experimentale,*** par. A. Petit. Price 3 fr. 50. (Paris: Librairie Agricole de la Maison Rustique.)—***Clay's Successful Gardening,*** by Professional, Amateur and Market Growers. Fifth Edition. (Stratford: Clay & Son.) Price 1s.—***La Flore Algerienne Naturelle et Acquise,*** par le Dr. A. S. Gubb. (London: Baillière, Tindall & Cox.) Price 6s. 6d.—***New Garden Plants of the Year, 1912: Bulletin of Miscellaneous Information.*** Royal Botanic Gardens, Kew. Price 2d.—***The Philippine Coconut Industry,*** by O. W. Barrett. (Philippine Islands: Bureau of Agriculture).

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending July 12, is furnished from the Meteorological Office :—

GENERAL REMARKS.

Weather was generally of a rather changeable character, but over a large portion of Great Britain the latter part of the week was mainly fair and dry. Thunder was heard on Sunday in some parts of Western and Central Scotland, and thunderstorms occurred on Monday at a few of the South Coast stations, and very generally on Thursday in the East and South-east of England.

Temperature was considerably below the average in all districts excepting Scotland North, where the deficit was slight. In the Midland Counties and England East and South-east the deficit amounted to between 4½° and 5.° The highest readings, which occurred mainly on the 11th or 12th, ranged from 78° in England East, and 75° in the Midland Counties, to 67° in Scotland North and West and the English Channel, and to 66° in England North-west. The lowest readings were observed on the 8th or 9th, when the thermometer fell below 40° in most of the western and northern districts, and reached 34° in Scotland East. In England South-east it did not fall below 42°, and in the English Channel it only touched 51°. At a depth of 1ft. the temperature of the soil was in most places below the average, but in many English districts the temperature at a depth of 4ft. was slightly above it.

Mean temperature of the sea was lower than in the corresponding week of last year, and was below the average except on the north and east coasts of Scotland. The mean values for the week ranged from 61.9° at Eastbourne and 60.5° at Seafield to 52° and less on several parts of the North and North-east Coasts, and to 50° at Burnmouth.

Rainfall.—Over the country generally the total rainfall was considerably less than the average. In the Midland Counties, however, it was nearly equal to the normal, while in England South-east and North-west it was in excess. During a thunderstorm on the 6th an inch and a quarter of rain fell at Westbourne, and during the thunderstorms on the 10th an inch fell at Worthing and an inch and a half at Brighton. At Lewisham on the 10th the fall of rain and bail amounted to 0.72in. in the space of 27 minutes.

Bright sunshine was very deficient in all districts excepting Scotland North and East. In the Midland Counties the mean daily duration was less than 2½ hours, and amounted to only 15 per cent. of the possible. In Scotland North the daily duration was 5.3 hours, and in Scotland East 5.5 hours, the proportion of the possible amount being respectively 30 and 32 per cent.

Barometer and wind.—At the commencement of the week a large anticyclone covered the eastern and central parts of the North Atlantic, while an area of low pressure lay over Denmark and the Baltic, the prevailing winds being light to moderate from the northward or north-westward. On the 8th and 9th, when the anticyclone receded temporarily southward, a large depression travelled north-eastwards across Iceland, while a V-shaped secondary disturbance passed from west to east across the United Kingdom, the progress of the latter system being accompanied firstly by a backing of the wind to the southward, and afterwards by a veering to west or north-west. Towards the close of the week a new area of low pressure began to appear off our North and North-west Coasts, and the wind, which was everywhere light in force, again backed to the westward or south-westward.

THE WEATHER IN WEST HERTS.

Week ending July 16.

The wettest week for ten weeks.—Since the present month began there have occurred only two unseasonably warm days, and but three warm nights. On the warmest day of the past week, which was also the warmest day of the month as yet, the highest reading in the thermometer screen reached 72°, but on the following day the same thermometer never rose above 62°. The ground temperatures still remain low for midsummer, the reading at 2 feet deep being 2° colder, and at 1 foot deep 3° colder, than is seasonable. Rain fell on four days, and to the total depth of ¾ inch. This, although only moderately wet, was the wettest week since the beginning of May, or for ten weeks A few drops of rainwater came through the bare soil percolation gauge on the last day of the week, but previous to this no rain water at all had passed through either gauge for five weeks. The sun shone on an average for only 2½ hours a day, which is 3¾ hours a day short of the July mean. Calms and light airs again prevailed, the direction of these light airs being exclusively some point between south and west. The mean amount of moisture in the air at 3 pm. exceeded a seasonable quantity for that hour by as much as 10 per cent. *E. M., Berkhamsted, July 16, 1913.*

JUNE.

Seasonably warm, exceptionally dry, and rather sunny.—Taken as a whole, this was a June of about average temperature, both during the daytime and at night. On the warmest day the temperature in the thermometer screen rose to 83°. In the last twenty-seven years there have been only five other Junes with as high a temperature as this. On the coldest night the exposed thermometer registered 1° of frost—which is in no way very exceptional. Rain fell on only ten days, and to the total depth of less than three-quarters of an inch—nearly all of which was deposited during the first eight days. The total fall fell short of the average quantity for the month by 1½ inches. In only four of the previous fifty-seven Junes has the rainfall been as light—the last being that of 1895. The sun shone on an average for 6¾ hours a day, which is half an hour a day longer than the June average. The wind was, as a rule, of about average strength. During the one windy week the mean velocity in the windiest hour reached 20 miles—direction S.W. For 429 hours, or eighteen days, the direction of the wind was some point between south and west. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 4 per cent.—the driest air in June for seven years. *E. M., Berkhamsted, July 9, 1913.*

DEBATING SOCIETIES.

BATH GARDENERS'. — At the meeting of the Society held on the 9th ult., a lecture was given on "Choice Flowering Shrubs," by Mr. J. D. Halliburton, superintendent of Bath Botanical Gardens. Mr. Halliburton said that as a general rule shrubs which flowered in the spring should be pruned immediately after their flowering; whilst shrubs which blossomed after June should be pruned in the autumn at any time from October to January.

SOUTHAMPTON AND DISTRICT GARDENERS'. —At the June meeting of this Society a lecture on "Roses" was delivered before a good attendance of members by Mr. S. Smith, of Cadland House Gardens. Mr. Smith's remarks were practical and interesting. He dealt with such subjects as soil, planting, pruning, budding and grafting, watering, pests, and exhibition work, and closed his lecture by naming the best varieties of all classes of Roses. A special exhibition of Roses was also held, the classes being well filled with flowers of excellent quality. Roses, Begonias, Carnations, etc., were exhibited, but not for competition.

DUNDEE HORTICULTURAL. — At the monthly meeting of this Society, held on the 6th ult., Mr. Alexander Duncan gave an account of the work accomplished at the Gardens of Mains (St. Andrew's Training College for Teachers) under his charge.

——The members of this Association enjoyed a very pleasant afternoon on the 12th inst., inspecting the woods and grounds of Murthly Castle. On arrival the party was met by Mr. James Lawrie, Gardener and Forester, and subsequently Mr. and Mrs. Fothringham joined the party. The picturesque landscape from the finely wooded slopes of historic Birnam Hill to the low-lying banks of the Tay (which often rolls in torrents through the grounds) contains so much of interest that a whole week could be profitably spent inspecting giant trees, natural beauty, and art treasures with historic associations. The hour of departure amid such surroundings came all too soon.

WATFORD HORTICULTURAL.—The usual monthly meeting of the above Society was held on the 13th ult. at St. Andrew's School Room, under the chairmanship of Councillor F. H. Gorle. Mr. W. G. Taylor, of Garston House Gardens, delivered a lecture on "Salads All the Year Round," which was much appreciated by the audience; and Mr. A. Clements dealt with "The Fertilization of Flowers," and gave a vivid description of the development of the flower from bud to seed, and illustrated his remarks by specimens of various flowers in different stages of their life. His description of the habits of different flowers was new to the majority of the members present. Mr. H. Newman displayed a fine collection of Iris, and Mr. Alwyn Harrison exhibited a new seedling Lælio-Cattleya, raised by himself.

CLEVEDON HORTICULTURAL.—At a recent meeting of this Society a lecture on Carnations was given by Mr. Franks, of Portishead. The date of the society's outing to King's Acre Nurseries, Hereford, has been altered from August 13 to August 20.

BRITISH GARDENERS' (Edinburgh Branch). —The monthly meeting of this branch of the B.G.A. was held on the 16th ult., Mr. W. H. Morland presiding. A paper was read by Mr. Thomas Waite, Royal Botanic Garden, on "Some Popular Wild Flowers." The lecturer divided the flowers as far as possible into four sections, representing the seasons of the year, and further into those found on moors, in woods, by streams, on rocks, on the seashore, and in cultivated fields and meadows.

COLCHESTER AND DISTRICT GARDENERS'.— On the 12th ult. the members of the above Association visited Lower Park, Dedham, the residence of the President, Mr. W. W. Hewitt. The party was received by Mr. Hewitt, who acted as guide in the tour of inspection, and afterwards entertained the visitors at luncheon.

STIRLING AND DISTRICT HORTICULTURAL.— On the 14th ult., the members of this association visited the gardens and pleasure grounds at Larbert House, near Larbert, the residence of Sir John Graham, Bart. The party was met by Sir John Graham, and, together with the gardener, Mr. Henderson, made a tour of inspection through the estate.

SCOTTISH HORTICULTURAL. — The monthly meeting of this Association was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on the 1st inst. Mr. King, the president, was in the chair, and there was an attendance of sixty members. The evening was devoted to the reading of short papers by juniors on subjects of their own selection, for which prizes were offered by the president. There were eleven entrants, and the judges, Dr. Smith and Messrs. Highgate and Pirie, awarded the prizes as follows:—1st, W. H. Allan, Edinburgh, subject—"Soil Sterilisation"; 2nd, E. G. Extence, Stoke Bishop, Bristol, subject—"Onions"; 3rd, John Smith, Castlemilk, Lockerbie, subject—"Begonia Gloire de Lorraine"; 4th, Peter Kerr, Mauldalie Castle, Carluke, subject—"Hardy Fruit Interest"; highly commended, C. T. Mackintosh, Quarter House, Stirlingshire, subject—"The Gardener—An Artist"; commended, F. G. Barrie, Gosford, East Lothian, subject—"Culture of Cyclamen in Pots." The first prize, a gold medal, was presented to the winner by Mrs. Whytock, and on the motion of Mr. C. Comfort a cordial vote of thanks was given to the president for providing the prizes, a similar vote being accorded to the judges. The papers were thereafter read to the meeting. The exhibits were: Crassula coccinea, from Mr. F. Fulford, Montgomerie Castle Gardens, Tarbolton, Ayrshire; Hydrangea, from Mr. John Whytock, Edinburgh; single white Pink, from Messrs. James Grieve and Sons, Edinburgh. At the meeting on August 5 a paper on "Villa Gardening from the Professional Gardener's Standpoint" will be read by Mr. John Highgate, Hopetoun Gardens, South Queensferry.

BROUGHTY FERRY HORTICULTURAL. — The annual excursion of this society took place on the 3rd inst., when Kinnaird Castle was visited. Mr. Robert Bell, the gardener, conducted the party through the beautiful grounds. Interest in the trees in the grounds was only surpassed by the pleasure shown in the beautiful hardy flower borders.

DUMFRIES AND GALLOWAY GARDENERS'.— The first excursion of this Association took place on July 12, when a large number of the members motored to Castlemilk, Lockerbie, the seat of Sir R. W. Buchanan-Jardine, Bart. Here they were met by Mr. James Jeffrey, the gardener, Mr. Campbell, the architect on the estates, and a few local gardeners. They were then conducted through the gardens by Mr. Jeffrey and Mr. Campbell. After a long and careful inspection, the beautifully kept and picturesque grounds were traversed on the way to the Castle, where the Rose garden was visited and other features of interest seen. Adjournment was made to the gymnasium, where tea had been generously provided by Sir Robert Buchanan-Jardine. Shortly afterwards the company returned to Dumfries, highly pleased with their first outing.

GARDENING APPOINTMENTS.

[*Correspondents are requested to* **write the names of persons and places as legibly as possible.** *No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

MR. W. D. SHILL, previously Foreman at Ashlyns Hall, Hollington House, The Lilies, Rolleston Hall, etc., as Gardener to Lieut.-Colonel SHIPWAY, V.D., J.P., Grove House, Chiswick, Middlesex. [Thanks for 1s. for R.G.O.F. box.—EDS.]

MR. FRANK BIBLE, as Gardener to Baron ALPHONSE DE ROTHSCHILD, Schillersdorf, Preuss, Oderberg, Germany.

MR. W. KNELLER, for the past sixteen months Gardener and Forester to EDITH COUNTESS OF WINCHELSEA, Haverholme Priory, Sleaford, Lincolnshire, as Gardener and Forester to the Right Hon. the EARL OF WINCHELSEA, at the same place.

MR. A. J. HARRIS, for 3½ years Foreman at Hilfield Park, near Watford, and previously at Canon'a Park, Edgware, as Gardener to RUTHVEN HALLIDAY, Esq., of Hillside House, King's Langley, Hertfordshire.

MR. E. STEVENS, for the past 4 years Gardener to W. NELSON-BILBROUGH, Esq., Adderbury Grange, Banbury, as Gardener to Major BENTHALL, Highfield Hall, Chesterfield.

MR. G. MARLOW, for the past 24 years Gardener to HERBERT E. REID, Esq., Walton Oaks, near Epsom, Surrey, as Gardener to HENRY BAKER, Esq., Weston Acres, Woodmansterne, Surrey.

MR. GEO. RIMMER, for the past six years Gardener to the Hon. Lord ROCHDALE, and formerly of Prestwold, Waddesdon, as Gardener to A. H. CROSFIELD, Esq., Parkfield, Highgate, London. [Thanks for 1s. for R.G.O.F. box.—EDS.]

MR. S. SHUTLER, for the past 9½ years Gardener to J. RUSHBROOKE, Esq., St. George's, Ampthill, Bedfordshire, as Gardener to the same gentleman at Bulmershe Court, Earley, near Reading. [Thanks for 1s. for R.G.O.F. box.—EDS.]

MR. A. DADSWELL, for the past 18 years Gardener to N. WATNEY, Esq., Valence, Westerham, Kent, as Gardener to LORD AVEBURY, High Elms, Orpington, Kent. [Thanks for 2s. for the R.G.O.F. box.—EDS.]

Mr. J. W. SEDEN, as Gardener to J. P. Hornung, Esq., West Grinstead Park, Horsham.

Mr. H. CAMERON, as Gardener and Overseer to Sir WILLIAM GOULDING, Bart., Millicent, Sallins, Co. Kildare.

Mr. H. WILKS, for the last 4½ years Foreman at Shugborough Hall, Staffordshire, as Gardener to H. C. MOFFAT, Esq., Hamptworth Lodge, near Salisbury.

Mr. JOHN TATE, for the last 8 months Foreman at Shavington Hall, Market Drayton, and previously for 2 years Foreman at Summerhill Gardens, Shandon, N.B., as Gardener to E. G. REDPATH, Esq., Hilfield Park, Watford.

Mr. WM. TURNER, previously Gardener to J. A. MORRISON, Esq., Basildon Park, Reading, as Gardener to D. C. GUTHRIE, Esq., East Haddon Hall, Northampton.

Mr. JAS. POWELL, previously as Gardener at East Haddon Hall, Northampton, as Gardener to his Grace the DUKE OF HAMILTON, Balcombe Place, Balcombe, Sussex.

Mr. WM. GAIGER, Gardener at Kendall Hall, Elstree, Hertfordshire, and previously for 6 years Hardy Fruit Foreman at Aldenham House Gardens, as Superintendent of the Outdoor Department, The College, Studley Castle, Warwickshire.

Mr. J. OSBORNE, jun., for 27 years in the Gardens at Wykehurst Park, Bolney, as Gardener to S. HANCOCK, Esq., Kennell Holt, Cranbrook, Kent.

Obituary.

NICHOLAS HOLTZE.—The Australian papers record the death of Mr. Nicholas Holtze, curator of the Experimental Garden, Darwin, Northern Territories. Deceased was the eldest son of Dr. Holtze, curator of the Adelaide Botanic Garden. About four months ago Mr. Nicholas proceeded on a botanical expedition to the Katherine River. He became ill on his way back to Darwin, and died on his return. He was born in 1868 in Russia, and when five years old went to Australia with his parents. He entered the public service in 1879, and when his father succeeded the late Mr. Schomburgh as Director of the Botanical Gardens at Adelaide, Mr. Nicholas Holtze was appointed to the control of the gardens in the Northern Territory.

Answers to Correspondents.

AQUILEGIA AND CAMPANULA : *I. S. E.* The doubling of the parts in the Aquilegia flower is due to fasciation. With regard to the Campanula, we regret that the specimen sent is insufficient to enable us to ascertain whether or not it is a hybrid between C. persicæfolia and C. pyramidalis.

BULBS FAILING TO FLOWER : *T. C.* There is no disease present. We are unable to account for the failure.

CARNATIONS : *G. M.* The injury has been caused by the punctures of insects. If green-fly is still present, apply an insecticide.—*L. T.* The best growers do not place their "Malmaison" Carnations out-of-doors even in the summer, the reason being that such treatment causes the leaves to become soft, and therefore susceptible to disease.

CUCUMBERS DISEASED : *G. R.* Your plants are attacked with the fungus which causes Cucumber leaf-blotch (Cercospora melonis). Spray them with sulphide of potassium (liver of sulphur) at the strength of one ounce in three gallons of water.

"DIPELTRA VENTRICOSA": *H. F. L.* We have no knowledge of a genus "Dipeltra." Perhaps you refer to the Chinese genus "Dipelta," but we do not know the specific name "ventricosa" in this connection. Can you not give us more in the way of information and description?

FIG BROWN TURKEY : *J. W.* It is not a parasitic disease that is injuring the tree, but the trouble is due to an excess of food or water when the fruit is maturing.

GRAPES DISEASED : *A. J. L.* Grape rot is present, caused by Gloeosporium ampelophagum. The only thing that can be done now is to remove the diseased berries. In the winter thoroughly drench every part of the vine with sulphate of iron—1 lb. in 25 gallons of water. Give two dressings at intervals of a month before the buds commence to swell.

HEUCHERA SANGUINEA.—*G. H. H. W.* This plant was introduced into cultivation in 1882, being then imported from Northern Mexico, where it is indigenous.

CELERY FLY OR MAGGOT : *E. F. G.* The best way to get rid of this pest (see fig. 29) is to pinch the maggots to be found in the leaves, and remove the leaves which are very badly attacked, burning them. Afterwards you can make the plants distasteful to the flies by syringing them with Quassia extract, thus preventing them laying their eggs on the leaves, or you may scatter soot, lime, etc., on the leaves whilst they are damp. Feed the plants liberally, and flood them with water or manure water during dry weather. When the crop has been lifted, trench the ground, and bury the top spit deeply so that the flies then in the pupal stage will be unable to get through the depth of soil. If the attack has been very bad apply a little fresh gas-lime to the soil, and fork this in to the depth of 4

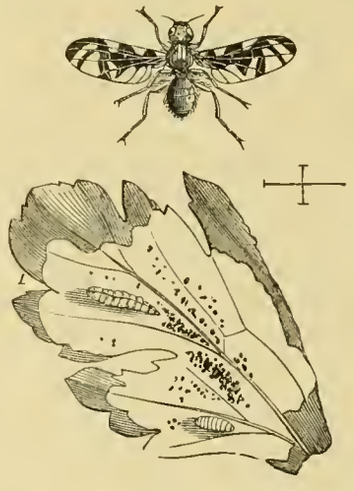

FIG. 29. — THE CELERY-LEAF FLY AND LARVÆ (MAGN.).

inches, taking care not to plant another crop upon the same ground until two months or more have elapsed.

LILIUM CANDIDUM : *A. S.* The soil is infected with the fungus Botrytis. No certain cure is known for this disease, but good results have been obtained from spraying the plants early in the spring with a weak solution of potassium sulphide. Some growers have lifted the bulbs and kept them in flowers of sulphur for the winter, with a view to destroying the fungus. If your plants are very badly affected, however, we would advise you to burn them, and procure fresh stock from an uncontaminated source, planting the bulbs in a fresh situation, as far from the old site as circumstances will allow.

"MALMAISON" CARNATION : *W. S. C.* We are unable to say why the plant is unhealthy. There is no disease present.

MELON SEEDS GERMINATING WITHIN THE FRUIT : *G. T., Oxon.* Intracarpellary germination is not unusual in Melons. It also often takes place in other plants, including Carica, Citrus, and Pernettya.

MELONS : *R. N.* There is no disease present on the plants. The roots are very much injured, probably by wire worm, as you suspect.

NAMES OF PLANTS : *Castell.* No. 1, Commelina sp.; 2, Lissochilus sp.; 3, this is probably a species of Scilla. They are an interesting lot, and should be grown well until they flower. We may then be able to name them with certainty.—*Correspondent (no name).* Roses : 1, L'Innocence; 2, Baron Gonella; 3, Lanrette Messimy.—*Constant Reader.* Roses : 1, La France de 89; 2, Lady Ursula; 3, Caroline Testout; 4, Château de Clos Vougeot; 5, Triomphe de Caen; 6, Admiral Dewey. *T. T. A.* 1, Mackaya bella; 2, Polygonum affine; 3, Chrysogonum virginicum; 4, Veronica exaltata. *C. H.* 1, Sempervivum Funckii. *Journeyman.* 1. Heuchera micrantha; 2, Heuchera sanguinea; 3, Linaria moroccana; 4, Lychnis coronaria; 5, Malva moschata alba; 6, Aconitum Lycoctonum. *G. Speller.* 1, Centranthus ruber; 2, Colutea arborescens; 3, Euphorbia amygdaloides; 4, Mertensia sibirica; 5, Spiræa Bumalda; 6, Achillea alpina.—*A. J. G., Calne.* Probably Village Maid.—*A. W., Newark.* Karatas fulgens, often called Nidularium fulgens and Guzmania picta in gardens. — *W. P.* Bignonia radicansa, hardy climber.—*F. T. A.* 1, Sophronitis cernua; 2, Gongora galeata; 3, Calanthe veratrifolia; 4, Phaius grandifolius; 5, Pteris longifolia; 6, Blechnum polypodioides.—*N. C.* 1, Adiantum concinnum latum; 2, Dracæna fragrans variegata; 3, Dracæna concinna; 4, Callicarpa tomentosa (cana); 5, Peperomia arifolia; 6, Sansevieria zeylanica.—*H. G., Bray.* 1, Dieffenbachia nobilis; 2, Begonia subpeltata; 3, Begonia metallica; 4, Pelargonium quercifolium; 5, Pelargonium variety; 6, Linaria genistifolia.—*Miss Pike.* Rose Coquina.

PEAS : *F. A. E.* The injury was caused earlier in the season by aphides.

PURPLE HELLEBORINE : *Mrs. B.* The Helleborine is identical with the etiolated, purple-tinted form on which Epipactis purpurata was originally based by Sir James Edward Smith. It occurs from time to time, but we believe the actual cause is not known, except that it is a condition of Epipactis or Helleborine media in which the chlorophyll is not normally developed. Observation of the plant might perhaps show whether the condition is constant.

STREPTOCARPUS : *J. H.* We do not know of a cross between the genera mentioned. Can you send us a specimen of the flower that we may examine it for evidence of crossing.

SWEET PEAS : *B. K.* Excessive watering of the Peas is the cause of injury in this instance. There is no disease present.

TOMATOS AND PEACHES : *M. M.* The Tomatos are attacked by the fungus Macrosporium, but the plants must not be sprayed whilst the fruit is ripening. Remove any diseased parts as they appear. The Peaches appear to have been too moist at the root.

TUBEROUS BEGONIA : *T. W.* The rusty appearance of the leaves is caused by a mite. Sponge them with a solution of soft soap and Quassia.

VICTORIA PLUM : *W. W.* You are quite right in assuming that the Plum tree is affected with the Silver-leaf disease. The silver appearance of the foliage is the only symptom of the presence of this disease

VIOLA AND STOCK : *Outside Foreman.* There is no disease present in either specimen, but the injury is caused by insects.

WEED-KILLER ON PASTURE : *J. G.* We are afraid we cannot give an opinion on the subject of the safety or otherwise of giving to sheep and cattle grass which has been treated with weed-killer, as the strength you mention would produce different effects in the case of the different makes. We should advise you to write to the manufacturers and ask their advice.

Communications Received.—F. A. E.—R. N.—F. A. (Transvaal). [Thanks for 2s. 6d. sent for R.G.O.F.]—G. B. G.—M. L. B.—A. W.—G. H. H. W.—T. H. R.—J. A. J. B.—F. R.—B. C.—H. Y.—W. E.—H. E. L.—R. G. (Brentwood)—Pelargonium—G. L.—N. C.—T. T.—W. B. (Winchmore Hill)—S. W. (Redhill)—Taxie—C. W.—Kuro—S. C. (Lincoln)—W. G. M.—M. C.—L. H. (Burgess Hill)—G. E.—A. A.—S. G. R. (Dublin)—T. S.—Cestrian—C. J. K. (Bradford)—R. A. M.—J. E. W. (Northants)—G. B. G.—C. H. C.—E. T. C. (Toronto)—R. T.—B. S.—Dr. S.—L. B. (New York)—W. H. P.—T. H.—R. M. S.—Dr. K.—G. F. T.—L. P. (Adelaide)—H. E. Molyneux.

NYMPHÆA "CONQUEROR" (MARLIAC 1910)

(A free-growing Hybrid Water-Lily. R.H.S. Award of Merit, July 1912.)

THE

Gardeners' Chronicle

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ILLUSTRATIONS.

THE HISTORY OF CULTIVATED FRUITS

AS TOLD IN THE LIVES OF GREAT POMOLOGISTS.

II.—Antoine Nicholas Duchesne.

THE name of Duchesne has been somewhat neglected by the historians of Horticulture, but his claims to remembrance are worthy of investigation. His chief work, *Histoire Naturelle des Fraisiers,* would be an achievement for any writer, but when we remember it was written when the author was only nineteen, and when it is viewed in the light of the current opinions of his day, it must be considered a very remarkable production.

The great botanists of the time, including Linnæus, gave but scant attention to horticulture. It betokens great independence of thought, in so young a man, that Duchesne gave to the study of garden varieties of Strawberries the minute and searching investigation which was hitherto reserved only for botanical species. In order to appreciate the originality of his work, it is necessary briefly to consider the state of botanical knowledge at the time his book was published.

The fact of the separation of the sexes in certain plants had, of course, been known from the earliest times. The mention by Theophrastus of the necessity of shaking the pollen of the male palm over the female flower is a well-known example. It is remarkable that from these days until the eighteenth century, so far as can be ascertained, it did not occur to gardeners that fruits and flowers might be cross fertilised as a means of raising new varieties. A notable and neglected passage in Bacon's *Natural*

Fig. 29.—Antoine Nicholas Duchesne.

History (1629), however, pointed out this possibility, and is worth quoting. In the fifth century, under heading "Experiments in Consort touching Compound fruits and flowers," occurs this passage: "The compounding or mixture of kinds in plants is not yet found out, which nevertheless, if it be possible, is more at command than that of living creatures (animals), for that their lust requireth a voluntary motion, wherefore it were one of the most noble experiments touching plants to find it out, for so you may have a great variety of new fruits and flowers yet unknown."

This hint, however, was not acted upon, and it was left to Bradley, Miller, and others in the eighteenth century to make experiments which proved the practicability of cross-fertilising plants. The honour of being the first to raise fruits by this method has been claimed for the Abbé Hardenpont, of Mons, Belgium (1705-1774), but there are no definite records.

In the case of Duchesne, however, he gives exact information of his experiments in this direction, and there is but little doubt that he may be considered one of the first to use this method of producing new fruits.

At the middle of the eighteenth century the botanical world was under the powerful sway of Linnæus, and the greatest botanist was he who could identify the largest number of plants. Never was the cult of the label in greater favour; the correct name once affixed, the plant was dismissed. The sexual system of Linnæus was a means to identification only, and natural relationships had to give way before the cast iron system. It has been said the botanical treatises of those days mostly resembled Latin dictionaries!

Linnæus himself, however, saw the necessity for a natural classification of plants, but it was unfortunate that his writings on this subject were overshadowed by the artificial system which was so widely associated with his name. In France, however, Bernard de Jussieu did much in the cause of the natural system, and had probably a considerable influence upon Duchesne.

Such, then, were the outstanding conditions of the botanical world in 1747, when Duchesne was born. His father having a Court appointment as Inspector of Buildings at Versailles, the vast resources of the stupendous gardens of the Palace were open to the young student. In the gardens of the Trianon especially were plants gathered from all countries. The influence of Rousseau had brought agriculture and horticulture into royal favour, and there might be seen royal and noble personages milking cows and indulging in other rural occupations, taking care, meanwhile, to get their share of the accustomed luxuries of Court life. The by-product, however, of this artificial enthusiasm was an accumulation of horticultural knowledge to which Duchesne himself was no mean contributor.

His early education was directed towards a career at the Bar, but natural science was more attractive, and soon claimed his exclusive attention. His unusual linguistic ability rendered him valuable service in after years in his correspondence with foreign botanists. His skill as a draughtsman was also remarkable, and his drawings for a projected, but never completed, work on Gourds exist to-day at the Museum of the Jardin des Plantes, Paris.

It was at the age of nineteen that he published his famous *Histoire des Fraisiers,* the classic work on the Strawberry, but two years earlier he had published his first work, entitled

Manuel de Botanique, and it was this work that first brought him into relationship with the principal botanists of the day.

The *Histoire des Fraisiers* is the first monograph of the fruit, and it contains a genealogical table in which the descent and relationship of species and varieties are displayed. A fact which attracted Duchesne's attention to the Strawberry was the royal favour which it received at Versailles. By systems of retarding and forcing, ripe Strawberries were available for nearly the whole year, and the Royal gardens contained all the varieties existing at that day. The book itself deals with the species of Fragaria then known, practically the same number as that of to-day, and gives the most minute descriptions of the plants and their culture and includes a valuable review of the references in the older authors. Duchesne had a keen eye for detail, and his observations of the botanical characters of the plant were very acute. His greatest contribution to cultural knowledge was his observation of the cause of the sterility of the "capiton" or Hautbois Strawberry. The opinion held by Quintinye and gardeners generally was that this fruit was degenerating, but Duchesne showed that the sexes in this variety are separate. The male plant, being fruitless, was gradually weeded out from the gardens, with the result that the female plants had no pollenizers, and in their turn became sterile. The fact that the female plants possessed stamens no doubt misled gardeners as to the true cause of the failure to get fruit; but the keen eye of Duchesne saw that these stamens produced no pollen, just as in the male plant the ovaries, though present, were incapable of being fertilised. When raised from seed it was found that the numbers of the sexes were equal, an interesting fact in the light of recent research on this subject.

Another remarkable experience of the author was the raising from seed of the Wood Strawberry, the curious Fraisier de Versailles, or Fragaria monophylla, in which the three leaflets usually present are united into one. This curious variety has appeared more than once. Linnæus found it in his travels in Lapland, and it is portrayed in a picture of Holbein's (1495-1543) now at Munich. Duchesne saw that this plant might be regarded as a chance variation, and therefore raised seedlings from it in large numbers, all of which came true.

The greatest event in the history of the Strawberry was, without doubt, the importation in 1716 of the Chili variety (Fragaria chiloensis) by M. Frezier. It happened, however, that these plants were all females, and for many years no fruit was produced. Many botanists and gardeners had endeavoured to fertilise this variety with pollen of the Wood Strawberry without effect, and it was not until Duchesne used the pollen of the Hautbois that the fine fruit of the Chili plant was seen. But even here his extreme care was shown. In his own words: "Enchanted as I was by this discovery, but knowing well that a just conclusion could not be formed from one experiment . . ." preparations were made for a large-scale test the following year, with confirmatory results.

The Wood Strawberry had been cultivated in gardens from the earliest times, and had produced varieties such as the "gaillon," which is deprived of runners, the white fruited form, the double flowered, the sterile or "Coucou," and the curious malformation known as the Plymouth Strawberry (F. muricata) in which the stamens and petals are leaf-like, and the achenes resemble buds. When the striking differences of these types are considered, it is remarkable that Duchesne rightly classed them as varieties of F. vesca and not as distinct species.

In regard to the perpetual fruiting variety of F. vesca, the Fraisier des Mois, Duchesne considered this as the original species from which the ordinary Wood Strawberry had been derived. A probable reason of this is that he had a very clear idea of the production of new varieties by loss of a character—defective varieties, as he termed them. The Wood Strawberry was therefore produced by loss of the autumn fruiting powers of the Fraisier des Mois. Though this opinion is now known to be false, as the perpetual fruiting variety is not found wild, and is known to have originated under culture, nevertheless, his conception of defective varieties is of special interest in the light of recent research. That he had some idea of the conception of descent with modification seems evident from a remark he makes upon classification: "The genealogical order is the only one which satisfies; but before one can be certain it is necessary to test if each sort comes true from seed."

In 1776 Duchesne journeyed to England, in company with the Abbé Nollin, director of the Versailles Royal Nurseries, and the principal gardens of this country were visited. On his return he published a book *Sur la Formation des Jardins*, being largely the results of his observation in England.

At this time he was appointed assistant to his father, and in 1779 he married. The storm clouds of the Revolution were now gathering, but notwithstanding the terrible events of the last years of the century, Duchesne published many works on various subjects, those of interest from the horticultural standpoint being *Le Jardinier Prévoyant*, 1770-1781, an almanack of gardening operations; *Considérations sur Jardinage*, 1779, and other papers were contributed to Scientific Societies on kindred matters.

His closing days were spent in comparative poverty, and at the age of eighty he died. Had circumstances placed him differently, it is easy to imagine that his horticultural work might have been greater in volume, but his *Histoire des Fraisiers* ensures for him a worthy place among the great Pomologists. *E. A. Bunyard.*

NOTES FROM MONREITH.

The Gardens of Sir Herbert Maxwell, at Monreith, Wigtownshire, grow in attraction year by year, especially to the lover of hardy flowers and shrubs. Most of the rock plants are cultivated in the wall garden on the garden front of the mansion, and in a series of rock beds of low elevation. The wall garden is composed of several terrace walls, which support the higher sloping ground. The stones are laid without mortar, and are generally in such a fashion that the rains find their way to the roots of the plants. Such Androsaces as A. lanuginosa do well in the wall, and the large tufts of silky leaves and the pretty flowers of this species are surprisingly effective. Dianthuses are favourites, and D. alpinus is exceedingly happy and floriferous, covering itself with large and handsome rose-coloured flowers. The lovely D. neglectus of even greater refinement thrives admirably, and other species include D. zonatus, D. petræus, D. sylvestris, and D. deltoides. Of Campanulas, a number of good species are grown, though the slugs are troublesome in the mild and rather humid climate. C. pulloides, C. pulla, C. G. F. Wilson, C. Profusion, C. Hohenackeri, C. garganica, C. Portenschlagiana and C. pusilla were observed, mostly in the pink of condition. Onosma albo-roseum makes large masses on the wall, and was flowering very freely this season; though equally large specimens of the more common O. tauricum were not affording their usual bloom. Lithospermum graminifolium was also flowering very shyly, but L. prostratum and its variety Heavenly Blue were both floriferous; while Moltkia petræa was full of flower. Helianthemums give countless blooms in a sunny position, and some of the Cisti, although injured by frosts during last winter, were flowering. I observed Cistus formosus, C. salviæflorus, and the one named in gardens S. corbariensis. Erinus alpinus spreads very quickly, and has to be kept within strict bounds; the variety carmineus is the brightest and best. The charming Linaria alpina, difficult to grow elsewhere in S.W. Scotland, thrives in the wall garden, and the charming variety rosens is most attractive. Antirrhinum species are represented by A. Asarina and A. glutinosum, both of which do well on a sunny part of the wall. Of the various sections of Saxifrages, it was interesting to observe the fine tufts of S. burseriana; S. longifolia has taken an unusual spurt of flowering, and several of the plants at Monreith have given glorious spikes of bloom. Ramondias are excellently grown in the shadier parts, and some of the best of the Arenarias, Aubrietias, Acantholimons, Achilleas, and Æthionemas are cultivated with the greatest success. Asperula Gussonii was a mass of flower, and a grand group of Coronilla iberica and another of Hieracium villosum afforded sheets of glowing yellow. Hypericum reptans is thoroughly at home, and H. fragile and others give their charming golden flowers in profusion. The best of the Alyssums are cultivated, but none is finer than the big mass of A. spinosum, charming as seen at Monreith.

The Primulas would alone form an interesting study. P. Forrestii is apparently happy in the wall garden, though it has not yet flowered; P. nivalis, of gardens, grows well there also, with a number of the other Primulas of the saxatile class. Curiously, P. pulverulenta and P. Cockburniana have both died, but the effective P. Poissonii, usually considered more tender than these, has thriven in the border and is giving handsome spikes of its purplish flowers. P. Bulleyana and P. Beesiana are glorious, and thoroughly hardy. P. Veitchii makes big plants in the border, and P. Littoniana has survived the past winter in the Lily bed.

This Lily bed is worth more than a passing notice. It was furnished with water-pipes for the supply of underground moisture, but this season it has not been found necessary to supply the Lilies with water in this way. Lilium giganteum,

L. auratum, L. pomponium, L. Szovitzianum, L. Humboldtii, and many other species are grown either in this bed or in other parts of the garden. L. Szovitzianum is especially fine. The border flowers would require an article to themselves; for planted in winding beds backed by shrubs and trees, an abundant variety of good plants show to great advantage. I may mention grand specimens of Cypripedium spectabile, several species of Meconopsis, Geraniums and Erodiums, Cimicifugas, Asters, Delphiniums and Phloxes.

Fig. 30.—Lilium martagon album in Dr. Bretland Farmer's garden.

Rhododendrons, both species and hybrids, are in hundreds—R. cinnabarinum having been exceedingly good this year—Azaleas, Spiræas of many kinds, Andromedas and allied plants, Roses in great numbers, Leptospermum scoparium, L. Nichollsii, Carpentaria californica, Tamarix, and a large and choice collection of other trees and shrubs might be mentioned. The woods are also most interesting with their wealth of uncommon coniferous and other subjects. It may be added that plant lovers wishing to visit Monreith may always obtain permission from Sir Herbert Maxwell. *S. Arnott.*

LILIUM MARTAGON ALBUM.

This beautiful Lily is apt to be somewhat capricious, and often fails to flourish in a border, even where every effort is made to satisfy its needs. The secret of success would seem to lie in providing a tolerably dry, light soil for the bulb and a good and damp substratum for the roots. But although seldom thriving as a border plant, it will often respond at once to the conditions provided by the rockery. Nevertheless, success is not secure, even in this habitat, but where water is moving through the soil a couple of feet or more below the surface I have always found the bulbs to rapidly increase both in size and number, whilst the trusses of flowers exhibit a corresponding luxuriance. The two flowering heads shown in the illustration (fig. 30) afford an example of this. The plants are growing in a peaty soil overlying a mound of burnt clay, and the surplus water from an adjacent pool percolates the soil at a depth of about 3 feet. These plants, one of which had 42, the other 38, perfectly formed flowers in the raceme, were in marked contrast to others growing on other parts of the same mound, and under precisely similar conditions save for the water leaking out of the pool. I have had very much the same experience with plants in another position, and in each instance the same factors appear to account for the luxuriant habit. But, so far as my own experience goes, the plants always do better when the bulbs are in dry soil, and only the roots below are exposed to conditions of moisture. It seems also to be important that the water shall be moving through the soil and not in any way stagnant.

This lily is so beautiful when well known that it well repays all the trouble which its somewhat exigent demands impose on the gardener. It would be interesting to learn from the experience of others who have grown it, for I am far from supposing that successful treatment is only to be found in the method which in my own garden has answered well. *J. B. F., Gerrard's Cross.*

THE TIMBER OF WESTMINSTER HALL.

For long it has been a disputed point whether the timber of the roof of Westminster Hall is of oak or chestnut. Originally, the wood was described as Irish Oak, but about the end of the thirteenth century, when extensive structural alterations and repairs were undertaken, it was stated to be of Spanish Chestnut. This caused great confusion and controversial correspondence.

The date when the roof was erected and other interesting particulars will be found in the note reproduced from the *Times* on p. 69. That a quantity of chestnut timber was used in connection with certain of the buildings at Westminster is well known, and this fact has given rise to the erroneous statement that the roof of the famous hall is also of that wood. In order, if possible, to settle this vexed question, a thorough examination of the roof has been made during the repairs at present being carried out, with the result that all the timber was found to be of oak. Not only was the timber of the roof examined *in situ*, but portions of the decaying wood which it was found necessary to remove during repairs were subjected to a careful scrutiny and comparison with other timber of a similar kind, the examination leaving no doubt as to the particular wood of which the roof was constructed.

To those who are unacquainted with the botany of timber it may be stated that oak and chestnut can be readily distinguished by the peculiarities of their medullary rays, which are lines radiating from the centre to the circumference, and presenting a starlike appearance. To the carpenter these lines are known as felt or silver grain, but to the botanist as medullary rays. In oak, there are two sizes of medullary rays, a few being broad and numerous very narrow, all, however, distinctly visible. Chestnut, on the contrary, is readily distinguished by having no broad rays, while the narrow can only be detected by means of a magnifying glass. In the accompanying illustrations, (fig. 31) oak from the roof of Westminster Hall, (fig. 32) brown oak from Welbeck Abbey, and (fig. 33) old Spanish chestnut from Greenwich Park, the peculiarities of graining in the different woods are readily detected, and will leave no doubt that the roof of the hall was constructed of prime British oak. Figures 31 and 32 of the oak show distinctly the medullary rays in that timber, while in the chestnut, figure 33, not a trace of these can be detected.

But not only is there a diversity of opinion as to whether the roof of Westminster Hall is oak or chestnut, but the place from which the timber was obtained has been variously stated, some writers declaring it to be of English origin, while others contend that it is of Irish growth and was brought from either Dublin or Wicklow. Certainly at one time the claim that the far-famed Shillelagh Oaks furnished the timber

seemed well supported, but the following letter which I have received from the Rev. G. H. Vaughan, Rector of St. Michan's Church, Dublin, leaves no doubt that the original roof of Westminster Hall, one of the glories of timber architecture, was constructed of Irish Oak :--

"In reply to your inquiry regarding the timber used for the roof of Westminster Hall in 1098, I send you an extract taken from 'Memorials of St. Michan's.'

"'Stanihurst findeth that Anno 1095 there came certain Easterlings to the north side of Dublin adjoining to the Liffey and settled themselves there, so that of them to this day it is called Ostmontown and corruptly Oxmantown, in the parish of St. Michan of one Michanus, Dean and Bishop, who founded the church unto whom Murchard or Murrough, King of Leicester, gave that parcel of land to that use. The freeground or common now called Oxmantown Green was all wood. He that diggeth at this day to any depth shall find the ground full of great roots. From them Anno 1098 King William Rufus, by licence of Murchard, had that frame of wood which made all the roof of Westminster Hall, where no cobweb or spider breadeth to this day.'"

Assuming that the oak trees from which the roof of 1399 was reconstructed were at least 200 years old when felled, and it is very unlikely that younger trees would be chosen for so important a purpose, the timber would thus be over 700 years old. Generally speaking the timbered roof is in a fair state of preservation, some of the wood being as sound as when placed in position at least seven centuries ago. Insect attack with its usual accompaniments is, however, to be noticed in some of the logs. Though varying in appearance, much of the timber is of a rich, dark-brown colour, in some cases cinnamon brown, and some of the beams measure about two feet square. Judging from the appearance of the timber in various parts of the roof, I am strongly of opinion that during the alterations and repairs of 1397 the best of the original Irish oak was retained and, in conjunction with other timber of the same kind, used in the present roof. That the original timber was of Irish origin is certainly surprising when we consider the vast forests of Oak that were at that time to be found in many parts of England, but particularly in the counties of Kent, Sussex and Surrey, and within easy reach of the metropolis. *A. D. Webster.*

Fig. 31.—Oak from Westminster Hall.

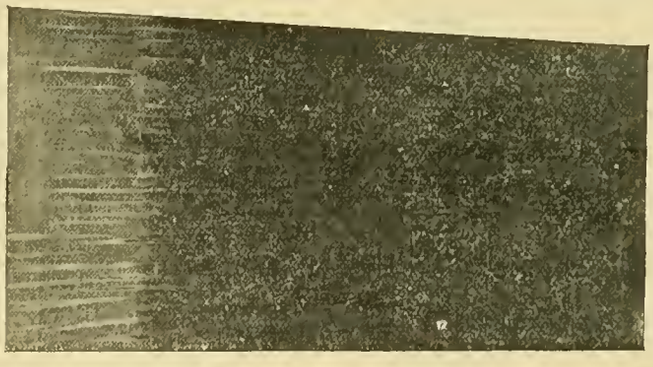


Fig. 32.—Brown oak from Welbeck Abbey.

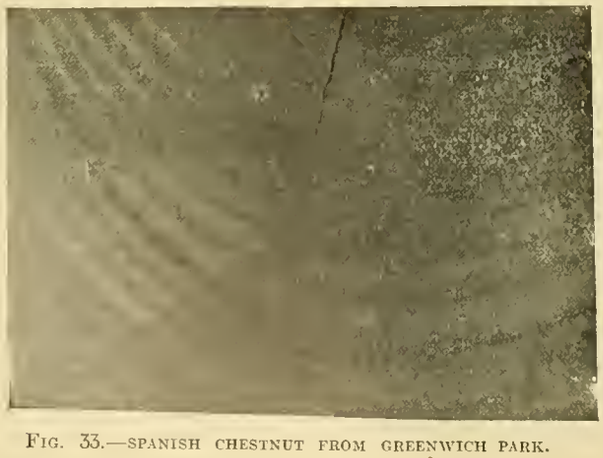


Fig. 33.—Spanish chestnut from Greenwich Park.

THE DEVELOPMENT OF THE RED HYBRID TEA ROSE.

A REVIEW OF RED ROSES.

(Continued from page 42.)

The year 1900 produced three Roses, two of them of climbing habit, François Crousse and Noëlla Nabonnand, and the dwarf Liberty. François Crousse (H.T.) is perhaps best on a low wall, in which position it is bright and attractive, flowering very early. The flowers are bright crimson, brilliant, glowing, and handsome. Tied to a pillar it does not seem so satisfactory, and is apt to become bare at the base. Noëlla Nabonnand, another climber, is often called a Noisette, but must be very near the H.T.s. It makes stronger growth than the last-mentioned Rose, the flowers are larger and looser, and darker in colour, being a purple-crimson, with dark shading. It is handsome when at its best, but the later flowers are apt to become dingy in the autumn rains.

Liberty (H.T), obtained by crossing the varieties Mrs. W. J. Grant with Général Jacqueminot, was a great advance on anything that had preceded it as a garden and decorative Rose. The flowers, though not very large, are a fine crimson colour, with a slight purplish bloom, which is very effective, and of a beautiful shape. It produces several crops of flowers in the season, and is useful alike in the garden, for cutting, or under glass.

1901 produced a handsome single Rose, Turner's Crimson Damask, a fine plant for an isolated position, but it flowers early and only once in the season; and Lady Battersea, an H.T. of fairly dwarf habit, producing long-pointed buds of cherry-crimson, carried erect on long stems. It is said to be a cross between the varieties Mme. Abel Chatenay and Liberty.

In 1902 Ards Pillar was introduced. This is an H.T. of semi-climbing habit, the flowers of brighter colour than that of Ards Rover, and somewhat better shape, but it has not, so far as my experiences goes, proved so good a garden plant.

Morgenroth came in 1903. This is an H.T. of climbing habit, single, or nearly so, after the type of Paul's Carmine Pillar, but not so brilliant in colour. It has, however, the advantage of being perpetual, and makes a very fine, large isolated bush, or may be used for the pergola, or as a pillar Rose.

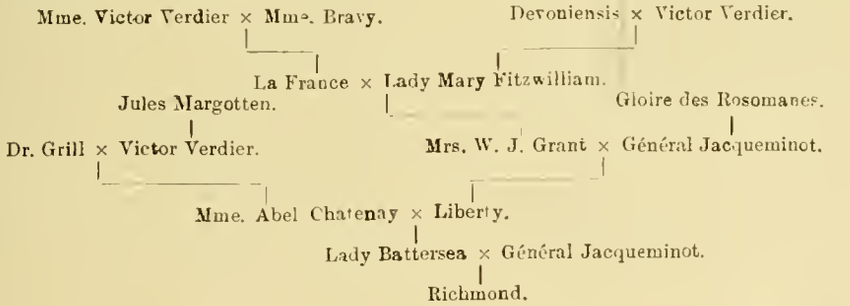
The most notable rose of 1904 is, curiously enough, one which has proved a complete failure in this country, Etoile de France. The flower is a fine, very dark crimson colour, of good pointed shape, and composed of a mass of tightly-packed petals, which requires hot weather to induce it to open. It came from France with a great reputation, but is here only of service for pot culture under glass. Two other H.T. Roses of this year are a dark crimson, the Rev. D. R. Williamson, which, perhaps, has not become so well known as it deserves; and George Laing Paul, a well-shaped and useful Rose, with a bright carmine crimson flower of fair size; though not a great Rose, it is one which always provides a high proportion of good-shaped flowers. Hugh Dickson I have already mentioned, while Maharajah, which also belongs to this year, is a fine, deep-crimson, single-flowered H.P.

The year 1905 was a great year in the development of the Red Hybrid Tea. C. J. Graham is a Rose of an exceedingly bright crimson colour, not very full, but often good enough for exhibition. It is, however, so near the H.P. section that it might have been included therein without raising controversy. General McArthur is

another bright crimson Rose, with good foliage and habit of growth. It has a delightful fragrance, and the true decorative type of flower, with not too many petals to prevent it opening well in wet weather. The form of the flower, however, is only good while quite young, and it seems to require a somewhat heavy, retentive soil to be free in flowering. J. B. Clark is a Rose of very big habit of growth, making thick, erect shoots of 10 feet in length on pegged down plants. The flowers are large, often good enough for exhibition, and of a rather light, plum-crimson, but they are apt to be coarse. Putting it on a standard has a dwarfing effect, but it makes a big head, and as it is free and continuous in flowering, it looks well and cheerful in the distance. Rather curiously, this Rose has the same parentage as Hugh Dickson, namely Lord Bacon × Gruss an Teplitz. The Dandy is a seedling from Bardou Job, and produces rather small flowers of a good crimson colour, suitable for buttonholes.

The Rose of this year, however, is Richmond. With a fine shape and rich crimson colour, this beautiful Rose has a glorious perfume, and seems to me in the first rank as a garden plant. It flowers continuously from June to December; and in addition to its value in the garden, it is, perhaps, the best Red Rose for forcing under glass.

When it first came out I was inclined to think it rather short-lived. It seemed as if it flowered itself to death, but it appears to be improving in constitution. At least, it is only the early plants I had of it that I have had to replace. It does, however, require good cultivation, and proper drainage is essential, so perhaps it is better on a slightly porous than on a very retentive soil. Down to the present this Rose seems to me unsurpassed among Red Roses for garden purposes. It is interesting to recall its pedigree, which is unusually long, and will be admitted to include some good Roses :—



It will be seen that Général Jacqueminot and Victor Verdier have both entered twice in its ancestry, and that, with the possible exception of Dr. Grill and Gloire des Rosomanes, all the forbears of Richmond have been celebrated for beauty of form. A characteristic which should not pass unnoticed is the pretty coral pink colouring of the young leaves produced in early spring.

The year 1906 need not detain us. The only Rose I will describe is Warrior, obtained from Marie Van Houtte × Princess Bonnie. Its principal feature is the fine blood-red colour of its young flowers, which are only semi-double, and though freely produced, are wanting in form. Souvenir de Maria de Zayas and Lady Rossmore also belong to this year.

1907, however, is more interesting. We have seen a gradual improvement in form, accompanied by freedom and constancy of flowering, culminate in Richmond. An even more lovely form of flower is found in Avoca, a fact attested by the numerous medals for the "best Rose in the show" awarded to this variety; but though the form is lovely and the crimson colour excellent, this Rose has certain drawbacks as a garden plant. Its growth is very unmanageable when treated as a dwarf and severely pruned, and its flowering, though free in summer, at least on pegged-down plants, is not followed by a second crop till autumn, and that crop is not usually large. It is, in fact, in this respect rather a return to the H.P. type, and its habit of growth may be compared with that of Hugh Dickson or even J. B. Clark. Like these two Roses it is much more prolific in bloom when pegged down or grown as a standard, the latter method producing a decided dwarfing of the otherwise too vigorous growth.

A Rose of very different character is Ecarlate, obtained by crossing Camoens and Crimson China. This Rose has run to the other extreme. It is obviously very near the Chinas, both in derivation and habit, but is even more continuously in flower than this floriferous group. It is of a brilliant colour, almost approaching its eponymous scarlet, but is sadly wanting in form; nevertheless, it is an extremely useful bedding Rose, and very bright and cheerful in the garden.

Laurent Carle, in habit of flowering, is somewhere between the two last named. It is hardy and of good habit, and but for a taint of claret colour in the crimson would be a fine garden Rose. It is not usually large enough or of good enough shape for exhibition, though it sometimes appears in an exhibition box. Sarah Bernhardt is more of the habit of Avoca, a semi-climber, but much more free and continuous, a good decided crimson, but of somewhat ragged form. Two other Red Roses of this year are Friedrichsruh and W. E. Lippiatt.

With one exception the best Red Roses of 1908 were either Chinas or varieties nearly allied to this group. Charlotte Klemm, a cross between Alfred Colomb and Cramoisie Supérieure, is a brilliant scarlet crimson, the flowers large for a China, and somewhat floppy, like the type of this class. It is constantly in flower, and specially good in autumn. The variety is, therefore, valuable as a bedding Rose, but not of much use for picking, the flowers when put in vases being disappointing.

Chateau de Clos Vougeot, called H.T., but very near the Chinas, is of unique colour—a very deep scarlet-crimson, with velvety-black shading—attractive everywhere when shown, but not very free for this class. It has an ugly habit in autumn of pushing out its flowering branches at right angles to its stems, which gives a row of this variety quite a weird appearance. It is delightfully scented. Leuchtfeuer, raised by crossing Gruss an Teplitz with Cramoisie Supérieure, is another China Rose of wonderfully fine colouring. It is said to be synonymous with Spitfire and President Taft; whether this is so or not I do not yet know, but this year I am growing them together for comparison. However this may be, I think I am justified in calling the colour a distinct fiery crimson. It seems nearly, but not quite so continuously in flower as the majority of the Chinas, and though of better shape than these, it has little to recommend it in this respect. Its glory lies in its colour, which is excellent. *White Rose.*

(To be continued.)

RAILWAY AND CANAL COMMISSION.

INCREASED RAILWAY RATES FOR GARDEN PRODUCE.

The application of the South-Eastern and Chatham Railway Companies' Managing Committee for leave to raise the rates for a portion of their traffic came before the Railway Commissioners, Mr. Justice Bankes, the Hon. A. E. Gathorne Hardy, and Sir James Woodhouse, last week.

Sir Alfred Cripps, K.C., Mr. Lynden Macassey, K.C., Mr. Bremner, and Mr. Cleveland-Stevens appeared for the Committee; Mr. F. G. Thomas for the Corporation of Reigate; Messrs. Elders and Fyffes, Limited, appeared in person by their Traffic Manager (Mr. R. W. Pinder); and Mr. Morgan Veitch appeared for the Horticultural Trades Association of Great Britain and Ireland.

Sir A. Cripps, in opening the case on behalf of the Railway Companies, explained that the application was limited to certain specific rates, namely :—

1. Rates for the carriage of traffic by merchandise train between certain competitive stations.
2. Rates for parcels not exceeding 3 cwts. by passenger train; and
3. Rates for merchandise traffic by passenger train at owner's risk.

He withdrew the claim of the railway companies as to that part of the application which asked leave to raise rates on the ground of increase in wages of its staff or of capital expenditure amounting to nearly £6,000,000.

Mr. Dent (general-manager of the railway company) put in certain tables comparing the years of 1898 and 1912 respectively, and claimed that these showed an increase in the ratio of expenditure to receipts.

Cross-examined by Mr. Pinder, witness stated that the companies were not applying to raise class rates. As regards through rates, they contended that the leave of the Court was not required.

Cross-examined by Mr. Veitch, witness stated that if the Order were made he was willing to undertake it should not be used for the purpose of justifying any increase in through rates. Witness further stated that he had not got out any figures for any other years except 1898 and 1912; he could not say within his own knowledge whether the companies undertook not to increase their rates when they applied for leave to amalgamate in the year 1899, as he was not with the company at that time. He could not say what further income the company would be raising by the increase of through rates, but it would not be much.

Case for the Traders.

Mr. Pinder, on behalf of Messrs. Elders and Fyffes, Limited, gave evidence to the effect that the companies were in a better position now than they were in 1898, and put in evidence an elaborate set of tables showing an analysis of the companies' accounts for each year from 1892 to 1911, the latter being the last year in respect of which details of the companies' accounts could yet be obtained.

Cross-examined by Sir A. Cripps, witness stated that certain items of working expenditure had been apportioned between passenger goods and mineral traffic according to their respective total receipts as the companies' accounts lumped these together.

Mr. Veitch stated that, as Sir A. Cripps had withdrawn the new Act of 1913 as an element of justification, he would not go into the cost of working horticultural traffic as distinct from other traffics, but reserved his rights on that point for some future occasion. He, therefore, called no witnesses, and accordingly claimed the right to have the last word in reply, which was granted.

Mr. Pinder, on behalf of Messrs. Elders and Fyffes, Limited, stated that he was quite willing to have all his tables submitted to the Board of Trade for analysis and report, as he was quite satisfied as to their accuracy, and they in fact checked themselves.

Sir A. Cripps replied on behalf of the railway companies, and pointed out that he was asking for only a very small Order, the total estimated

increase being some £5,000 to £6,000 per annum.

Mr. Veitch, on behalf of the Horticultural Trades Association of Great Britain and Ireland, said :—

"I cannot help thinking that if I had come into this Court as a stranger, and had wondered who the Applicant was in this case, and who was the Objector, I should have thought that Mr. Pinder was the Applicant, and that the railway companies were the Objectors, if I had judged by the amount of information placed at the disposal of the Court. Under the Act of 1899 the burden of proof is on the railway company to show why this Court should remove what has been called a 'clog' on the raising of the rates. I do not quite see why the word 'clog' should be used in any derogatory sense, because I assume that it was placed there by the wisdom of Parliament for a special purpose—not to be waived aside as if it were rather an incubus or an unfairness to the railway company the moment it comes into operation; but, on the contrary to enable this Court to inquire into such a position as arises in the case before it to-day. At first sight this application appears to be a very trivial one, and my learned opponent skated over the thin ice in his opening speech with his usual skill. I submit, however, that there is more in this application than meets the eye. I think one might feel perfectly certain that if the Order is made to-day on the application of the railway companies, that Order will be constantly quoted in support of other matters which come up for hearing in this Court from time to time.

"My next comment is on the very small amount of information which the railway companies have placed at the disposal of the learned Commissioners. When I was putting a few questions to Mr. Dent I was surprised how often he said 'he did not know.' He had 'taken no steps to ascertain.' The railway companies did not even put into the box anyone who could be cross-examined out of his own knowledge as to what the position of matters was at the time when the Act of 1899 was passed: whether the railway companies had given an assurance then that they would not seek to do what they are trying to do to-day, namely, to take advantage of the elimination of competition to come to the Court and ask to raise their rates. There has been no one placed before the Court who can throw any light on that point at all. Secondly, Mr. Dent very kindly offered to get some information for me by to-morrow morning, but this case may not perhaps last so long, and, therefore, again the information I ask for is not at the disposal of the Court.

"My third point is the very remarkable coincidence which we find when we come to look at the years which the railway companies themselves have taken, and, on the strength of which they ask your Lordship to make the Order in this case. They take two years—1898 and 1912. Those are single years. They do not give the Court the benefit of any triennial or quinquennial calculation, but they take single years. There may be unusual circumstances in those years. We know in one year there were, at all events, and, of course, in the absence of time to apply for particulars in this case, there has been nothing to show the Objectors that the railway companies were going to take the year 1898 as the one year on which their application was based. It is fair that I should admit that in the printed application it does say that the rates were too low at the time of the amalgamation, but, at the same time, I confess I am staggered to find that that is the only year that is placed by the railway companies at the disposal of the Court. Then, at the other end of the scale, they take the year 1912. It is unfortunate, again, from the public point of view, that that is the very year about which the traders cannot yet get information from the Board of Trade, and there again the trader is placed at a disadvantage. There is the further point of view that in taking these two years the railway companies are not comparing 'like with like'; they take one year at the time *before* the companies amalgamated, and they ask you to compare that with another year fifteen years *afterwards* when the companies have amalgamated, and they say that because there are certain deductions which they draw from those figures, therefore, they are entitled to ask this Court to make the Order without any further information at all. I would have expected that, at all events, as some guidance to the Court, some intermediate year between 1898 and 1912 would have been taken, but again the railway companies are absolutely silent so far as that is concerned, and any information which may be at the disposal of the learned Commissioners in this case we have to thank Mr. Pinder for, and not the railway companies at all. Some attempt has been made to question these figures. I am anxious to take full advantage of those figures on my clients' behalf, and I equally agree, if it were feasible, that Mr. Pinder's figures should be sent to the Board of Trade for checking of calculations and report to your Lordship. Then, again, the railway companies, in taking the years 1898 and 1912, have taken two years which are fifteen years apart, and there is no need for me to remind this Court that it is not desirable to take years which are too far separated. We know that in the case of 'Smith and Forrest' the Court pointed out that twenty years was a most unfair period to allow to elapse in taking two different years. I do not know precisely where one can draw the line, but, at all events, the railway companies' fifteen years' interval is dangerously near the twenty years' interval, much more so than the period of years which Mr. Pinder has taken in his tables, when, in fact, every single year, one following the other, can be taken.

"Then the railway companies themselves in their figures are forced to make certain estimates. I think they said that columns 6, 7, 8, 9, on their part were estimates, and I think also they said that about two-thirds of this expenditure could be allocated with accuracy, which left the remaining one-third to be a matter of estimate on their part also. And, my Lord, even if there had been an error in Mr. Pinder's figures, I submit it would be right to say that if he has made an error of apportionment by taking the receipts from different traffics, that error would be constant each year if the proportion of those different traffics to each other remains the same. Therefore, I take it that the result would be largely the same so long as the proportion of traffics one to the other continues. Then the railway companies say that it is not always easy to distinguish between goods traffic, minerals as distinguished from other goods, and so on, but the Court will remember that in Black v. the Caledonian Railway Company it was pointed out that if the railway companies do not choose to keep proper and sufficient accounts, it is their fault, and you cannot blame Objectors because the information is not forthcoming. It is for the railway companies to keep such accounts as will enable them to give the Court the fullest information and assistance when they come to the Court for help.

"My Lord, I do not think I need keep the Court any longer on that particular point, except that I would ask to be pardoned if I refer to a case of which probably every word is well known; but I might just remind the Court of one paragraph in the case of 'Smith v. Forrest,' in the year 1900, where Mr. Justice Wright said this: 'I desire to add that, although in my opinion the railway companies are entitled to succeed to the extent which I have indicated, on one view of the presumption which it may be proper to make I think that they rested their case on a wrong basis. They strenuously contended that it was enough for them to show an increase in the ratio of cost to receipts to an extent equalling or exceeding that of the advance in the rates. Such an increase may, as Mr. Justice Collins observed in the cases cited, and in the South Yorkshire Case, be evidence to show that an increase of rates is reasonable, and may be sufficient evidence where no disturbing elements exist. But an increase in that ratio cannot of itself either absolutely justify an increase of rates, or be of itself the measure of the justifiable increase. Nor can I find anything in the judgment of Mr. Justice Collins to support that contention. To hold that, would in effect be to guarantee the existing dividends of the railway companies so far as an increase of rates could be made without defeating its own object. That, of course, is not the intention of the Railway Acts. The real security of investors for the maintenance of existing rates of dividend, so far as any such security exists, is the absence of any power to compel the railway companies to reduce their charges below the level of 1892, coupled with the right to raise them on proof that the increase is reasonable. The rates as they existed at the end of 1892 being presumed to have been not excessive, I think the proper test may be stated as follows: If it is shown, after all elements of cost and economy' (I pause to say I do not think the evidence of economy laid before your Lordship by the railway companies in this case has been very large) 'have been taken into consideration, that the necessary cost per ton carried will, under uniform conditions, be increased by 1s. or any other sum without any compensating circumstance, then it is *prima facie* reasonable to increase the charge by the same sum.' Then on that basis I make use of Mr. Pinder's Table No. 12.

"I submit that the burden of the proof being on the railway company, the railway company has entirely failed to discharge that burden in such a way as to enable it to ask the Court to make an order without any further information whatever than what is before it; but in the event of your Lordships considering that an Order for any amount should be made, I suggest that there is nothing to show whether 4 per cent. would not be grossly excessive, especially if we take up considerations of income and economy and increased profit from raising through rates which are not before the Court—there is nothing to show whether 1 per cent. would not be much nearer the mark than 4 per cent., even if any increase were allowed at all. Then, secondly, I would ask that the Court should declare that this case is not to be treated as a precedent—at all events, to the prejudice of traders who come here on the question of through rates. Mr. Dent agreed that he would not contend that it should be treated as a precedent to their detriment, if they come here under the Act of 1894; if I might have that embodied in any order that the court might make, that would be of assistance to the traders. The third point would be, if I might, in any Order that was made, have it made clear that this case had not been fought on the cost of working the railway as affecting the particular traffic of those clients whom I represent, as distinguished from the general point in this case. That is all I have to say, and I leave the matter in the hands of the Court accordingly."

Mr. F. G. Thomas, on behalf of the Reigate Corporation, explained the modified form of Order which he had agreed to accept.

JUDGMENT.

The Court held that a *prima facie* case had been made out for the limited form of Order desired by the Applicants, but that the Objectors ought not to be prejudiced in respect of the points which they had pressed on their own behalf, and accordingly directed that no question of principle should be deemed to be laid down, and that nothing in the judgment should influence any future application or should be used as a precedent in any way.

The Registrar was specially directed to make it plain in the Order that it was not to be effective necessarily for all time, but that it should be open to anybody at any time, upon proper materials, to challenge the increases, and it was suggested that the best course to take with this object would be to make the Order with "liberty to apply."

SELLING HONEY.—Apiarists should not forget that well ripened honey will always command a good price, so why hasten to sell it when the market is glutted? When Christmas is nearer there will be a good demand, which cannot be met by the supply. The sections must be thoroughly cleansed of propolis, which operation can be easily performed with a sharp penknife, or with the edge of a piece of broken glass. In this manner all stains ought to be erased from the wood, so that it presents the same cleanly appearance as it does when received from the appliance makers. Attending to small points like this helps to secure good prices, because food ought to be placed before people in a cleanly and appetising form. The sections can be placed in cheap cardboard cartons, or glazed and laced with paper edging, but this latter is rather expensive since the price of glass has been advanced. *Chloris.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Cool House.—Plants of Odontoglossum crispum, O. Pescatorei, O. triumphans, and O. luteopurpureum sections that have passed their flowering season should be watered just often enough to keep the compost moist. This particularly applies to large specimens that are planted in 7-inch or 8-inch, or even larger pots, for if they are kept in a saturated condition the old roots will decay, and the new growths be soft and weak. Those plants which flowered early in the spring, and now have their growths well advanced, will be making roots, and, having got near to the edge of the pot, may need re-potting. This may be done at the present time if care is taken not to disturb the old roots, merely turning the plant out of one pot and transferring it to a larger one. As a rule, these cool Orchids that are shaken out of their soil and re-potted during the summer shrivel a great deal, and are long in recovering. Therefore, unless it be absolutely necessary to repot a plant at this season, it is better to wait until the cooler days of autumn. This house should be freely ventilated whenever the external air is cool and moist, the cool evening and night air being especially beneficial. On hot, dry, sunny days we keep all the top ventilators closed and open the bottom ones wide; but when the sun ceases to shine on the glass all the roof ventilators on the lee side (the house being span-roofed) are opened. If the air outside is moist, and there is no wind to cause a draught, the doors are opened also; but at times, when there are warm, drying winds, it is best to dispense with top ventilation altogether. When the top ventilators are not used during the day it is not advisable to keep damping down the house to maintain a saturated atmosphere; if the house is kept moderately moist this will be sufficient, but towards evening, when the top lights are open, a good damping down is to be recommended. It is to be hoped that no fire heat will be necessary in this house for some time to come, as the less artificial heat these plants have the better. Strong sunshine should not be allowed to reach the plants direct, and on hot, sunny days all that is possible should be done to keep the temperature inside several degrees below that of the outer air. Small, yellow thrips often cause great disfigurement to the young growths of Odontoglossums at this time of the year. Therefore, before any damage is done, and whether these insects are present or not, it is advisable to periodically fumigate the house with some safe vaporising compound. Those plants that produced strong flower spikes early in the season, and now have their young growths well advanced, with flower spikes just showing, should be given a rest by having their spikes removed immediately they appear in the young growths; for if they are allowed to bloom too frequently the plants will sooner or later deteriorate. After such a rest they will break all the stronger next time.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Gypsophila elegans.—Seeds may now be sown for raising plants to flower in autumn in 5 and 6-inch pots. The compost should consist of good loam, leaf-mould and sand, and the surface requires to be covered with finely-sifted soil; similar soil will be needed for covering the seeds. Place them in a cold frame after well soaking the soil with water, and shade until the seedlings appear. Gradually expose the seedlings to both light and air, but shade them for a couple of hours during the hottest part of the day. As the plants advance in growth feed the roots with manure-water; when the flowering stage arrives remove them into the greenhouse or conservatory.

Chrysanthemums.—The side-growths should be carefully removed from large-flowering Chrysanthemums, and those left should be examined for green fly and other pests. A little soot-water will now be beneficial, but great care must be taken not to administer manure at too early a stage.

Winter-flowering Pelargoniums will require regular feeding from now on as the pots become filled with roots; soot-water is very helpful, and Clay's fertiliser may be applied once a week.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Summer Bedding Plants.—Most summer-flowering plants have had to be watered on frequent occasions and such waterings are apt to impoverish the soil. Hardy, herbaceous plants require water as often as any, and they will derive much benefit from a little artificial fertiliser dusted between the plants or a sprinkling of well-seasoned soot. Watering should be done as far as is possible early in the morning or late in the afternoon or evening. Recently-laid turf must be watered if it is feeling the effects of drought. It is necessary to mow lawns periodically, even when the grass appears dry, but in these circumstances the grass-box should be removed from the machine, thus allowing the cut grass to be scattered over the surface of the lawn.

Sweet Peas.—Plants which are cultivated for supplying cut flowers will be all the better if the flowers are kept constantly cut. In the absence of rain the roots must be supplied with water, or they will quickly show signs of distress. A sprinkling of artificial manure previous to watering will also be of benefit. Keep the hoe in use between the rows as often as time will permit. Sweet Peas in tubs must be watered liberally and fed with stimulants. Such plants should be examined daily for dead flowers.

Violets.—Carefully disturb the soil between the rows with the Dutch hoe on frequent occasions and apply light dustings of soot. The plants are now growing freely and will need to be examined occasionally and all runners and dead leaves removed. Give the roots a thorough watering at least once a week during dry weather and syringe the foliage every evening. Keep a sharp look out for attacks of red spider, and take immediate steps to destroy them on their first appearance.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Melons.—In the case of Melon plants developing heavy crops of fruit, it may be necessary to apply a top-dressing consisting of rich, retentive soil, covering this with a mulch of short manure. The plants require more water at the present time than earlier in the season when the sun was less powerful; at each watering give a thorough soaking, using occasionally some liquid manure or chemical stimulant. The plants should be examined weekly, removing all lateral growths, and the foliage syringed lightly on fine afternoons. Close the house early with plenty of atmospheric moisture and considerable sun heat. Later, when the fruits commence to ripen, the application of manures should be discontinued, and the atmosphere of the house kept dry, admitting more air and exposing the fruits to the sun as much as possible. In the Melon house, where fruits are now ripening, sufficient heat should be provided by means of hot water or the sun's rays to allow for a circulation of air. The atmosphere should be moderately dry, but whilst withholding manures, do not neglect to apply sufficient clear water to prevent excessive dryness.

Succession Melons.—Plants should now be put out into beds for fruiting in late autumn. Assuming the bed has a pavement over a bottom heat chamber, put a layer of 4 to 6 inches of broken stone at the bottom, and on this at least 12 inches of soil, using loam of an adhesive texture; if the soil is of a light nature it will be well to mix with it some artificial manure. After the plants get established employ thorough ventilation whenever the weather conditions are favourable. Seeds of quick ripening Melons may be sown to produce the latest fruits. These plants should be grown in pots, and they are only likely to be successful in cases where they are cultivated in houses provided with plenty of atmospheric and bottom heat.

Melons in Frames.—At the present season Melons may be cultivated successfully in frames, but the fruits should be kept up as much as possible, raising them so that they become exposed to the light and warmth; cut out all lateral growths. Sufficient soil with fermenting material should be given them at the first, but manure water may be applied now in place of clear water, provided it is kept away from the stems of the plants. Syringe the foliage early in the evening, and close the frames while the sun's rays are warm.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Winter Onions.—This crop should be lifted before the bulbs begin to make fresh roots, and the bulbs allowed to remain in the open until they are quite hard; after which, they may be removed whilst quite dry to a loft until required for use. The bulbs should be frequently turned in the loft, removing any which show signs of decay.

Mint.—If plantations of this herb were made from cuttings in April last, some of the plants may be cut close to the ground in order to promote the growth of healthy green Mint for use in autumn. The remainder of the plantation may be allowed to remain for a time until the growth becomes brown, when the plants should be cut over and the roots lifted about the end of October for forcing on a gentle hotbed in November. By this means large quantities of green Mint may be obtained during the winter.

Parsley.—Seeds may yet be sown for the supply of winter Parsley. This is a deep-rooting crop, and requires well-prepared ground. The situation should be one sheltered from the north and east. Sow the seeds in shallow drills drawn at 1 foot apart, and thin the seedlings to 3 inches apart. If a cold frame is available some of the seedlings may be transplanted into it for use during rough weather. Parsley sown early in the season should not be allowed to become overgrown, but should be cut close to the ground before the season is too far advanced in order to promote the growth of fresh, green leaves.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Peaches and Nectarines.—Peach and Nectarine trees will now require frequent attention. The growths should be tied into position and the laterals pinched. I am not in favour of using a piece of wood to prop up the fruit from the wall, as is frequently done in the case of Peaches cultivated in glasshouses, because the fruits are more liable to get damaged by heavy rain storms. If the shoots are tied well back in the best manner to expose the fruits this will be all that is necessary in order to ensure the development of sufficient colour. Peach and Nectarine crops are very thin this year, and but little thinning will be necessary; but if it is desirable to remove any fruits the work should be done without delay. In ordinary seasons the cultivator is guided by the condition of each tree in determining the crop it should be permitted to ripen; and in a season of scarcity, like the present, isolated trees that are bearing freely should not be permitted to ripen a more liberal crop than its condition justifies, as overcropping is never satisfactory in any circumstances. Regular syringings may now be discontinued, but a thorough syringing may be given occasionally in the evenings of warm days for the purpose of destroying red spider. Rain water is best for this purpose, more especially in districts where the tap water is charged with lime or chalk, otherwise the fruit may be marked by deposits. As soon as the fruits have passed the stoning period the trees may be given applications of manure water, unless the weather at the time is on the wet side, and the borders are found to be already over-moist. In the latter circumstance it would be better to rake back the mulch and top-dress with artificial manure, forking this into the surface soil and watering it in with water from a rose can. The mulch should then be well shaken out, and again applied to the border.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—62.6°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, July* 23 (6 p.m.); Max. 59°, Min. 52°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Thursday*, July 24 (10 a.m.); Bar. 29.7. Temp. 62°.

PROVINCES.—*Wednesday, July* 23, Max., 59° Bradford; Min., Shields, 53°.
Weather—Sunshine.

APPOINTMENTS FOR AUGUST.

SATURDAY, AUGUST 2—
Soc. Française d'Hort. de Londres meet.

MONDAY, AUGUST 4—
Sandiway Fl. Sh. Bletchley and Fenny Stratford Hort. Soc. Sh. in Bletchley Park. Old Sherborne Hort. Soc. Annual Sh. in the Old Castle, Sherborne.

TUESDAY, AUGUST 5—
Leicester Fl. Sh. in Abbey Park (2 days). Aberdare Fl. Sh. Scottish Hort. Assoc. meet. Nat. Amateur Gard. Assoc. meet.

THURSDAY, AUGUST 7—
Perthshire Sweet Pea Sh. (2 days).

SATURDAY, AUGUST 9—
Cercle Horticole Van Houtte, Ledeberg, Gand, International Exhibition in the Palais d'Horticulture, Gand (10 days). Crewe Memorial Cottage Hospital Fête Rose and Sweet Pea Sh.

MONDAY, AUGUST 11—
United Hort. Ben. and Prov. Soc. meet.

TUESDAY, AUGUST 12—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m by Mr. Frederick Enoch, on "Fairy Flies and Their Hosts.")

WEDNESDAY, AUGUST 13—
Carlisle and Cumberland Hort. Assoc Sh. (2 days).

THURSDAY, AUGUST 14—
Taunton Deane Hort. Exhibition.

MONDAY, AUGUST 18—
Pitsmoor (Sheffield) Hort. Soc.'s Sh., in conjunction with Artindale's Sweet Pea Sh.

TUESDAY, AUGUST 19—
Brighton and Sussex Hort. Soc. summer sh. (2 days).

WEDNESDAY, AUGUST 20—
Shropshire Hort. Soc. Summer Sh. at Shrewsbury (2 days). Wallingford Fl. Sh.

THURSDAY, AUGUST 21—
Aberdeen Hort. Soc. Sh. (3 days).

SATURDAY, AUGUST 23—
Hawick Hort. Soc. Summer Sh. in Town Hall.

TUESDAY, AUGUST 26—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Messrs. Blackmore and Langdon on "Begonias.") Roy. Hort. Soc. of Ireland Autumn Sh.

FRIDAY, AUGUST 29—
Dunfermline Fl. Sh. (2 days). Dundee Hort. Exh. (2 days). Dumfries and District Hort. Sh. (2 days).

Soil-Temperature.

So many of the books which discourse on scientific horticulture confine themselves to the repetition of old-established and not always relevant facts that it is a particular pleasure to meet with one which treats of horticultural science at first hand. Such a book is M. A. Petit's *Notes d'Horticulture Experimentale.**

It is true that M. Petit's book makes no attempt to cover the whole subject of horticulture. That, however, is a merit, and not a defect. For what it treats of is dealt with in a thoroughgoing way, with the result that an attentive reader gets a rich reward for his pains.

Among the subjects discussed in this volume are the influence of cultural operations on the nocturnal cooling of plants and on the formation of hoar-frost, the effects of organic manures on the physical condition of the soil, and the uses of certain artificial manures and of various stimulators such as sulphur.

As the title indicates, the book is the outcome of experiment, and herein lies its value. The author's records of soil-temperatures provide a sound basis for his recommendations as to the means to be taken to prevent the formation of frost in cultivated plants.

If means of covering the plants are lacking all that the cultivator can do to prevent excessive cooling of his plants is to so cultivate his soil that at the time frosts are to be feared it will have a large store of heat available for the replacement of that which is radiated from the surface. For if heat be radiated from the surface of the soil it will help to raise the temperature of the plants and hence help to compensate for the loss of heat by radiation from the surface of the plants. Watering the soil is one of the most efficacious means of effecting this end—how effective may be seen from the facts set forth in the following table:—

TEMPERATURES AT HALF INCH FROM SURFACE.

			In dry soil.	In saturated soil.
April 23	... 4	p.m.	29.7° C.	21.1° C.
"	... 7.15	"	18.5	16.1
" 24	... 5.20	a.m.	3.9	6.5

Whence it follows that a means of protecting them from frost is to give plants a copious watering, it being understood, of course, that the water must not be too cold.

From similar soil-temperature measurements M. Petit shows that a soil merely dug with the earth left in lumps cools distinctly more quickly than one which has been dug and hoed to form a fine surface, and further that the cooling is checked still more if the surface is well rammed down (*plombé*) by heavy rolling or other means.

A heavily manured soil cools more rapidly than one which contains little organic matter. For the same reason, namely, the low conductivity of organic matter, hoar-frosts are more frequent in peaty soils than in soils poorer in humus, and it is the practice in some parts of Europe to protect such soils by a covering of five to six inches of sand.

It might be thought that no effect on soil temperatures would be produced by leaving a mulch of straw on a strawberry plot or by strewing the mulch early in the year. Yet, as M. Petit shows, owing to the poor conductivity of the straw the plant immediately above it will be on cold nights the colder for its presence.

The clue to an understanding of this effect lies in a recognition of the fact that the plant cools quicker than the soil, and therefore unless the soil be radiating heat and thereby helping to warm the plant the latter is apt to suffer. It follows from what has been said that a weedy soil loses heat more quickly than a clean soil, and that therefore a crop grown on a soil which has been allowed to bear weeds during the winter may be appreciably later than one which has been kept clean.

In regard to the application of mulches, as, for instance, a mulch upon a strawberry bed, the practical gardener will determine whether it is most essential to protect the roots or the growth above ground from frost. If his purpose is to protect the roots then mulches of short litter are amongst the best means to be employed for the purpose.

* *Notes d'Horticulture Experimentale.* By A. Petit. (Published by Librairie Agricole de la Maison Rustique, Paris. 3fr. 50.)

Coloured Supplement.—The subject of the coloured plate to be published with the next issue is Strelitzia Reginæ.

Supplementary Illustration.—The supplementary illustration affords two views of the Gardens at Eaton, near Chester, the seat of the DUKE OF WESTMINSTER, G.C.V.O. The uppermost picture is a view of the Hall, as seen from the wild garden, with the lake in the foreground. The view is of the south-east front, where the principal flower garden is situated. When the design of this parterre was printed in these columns, January 7, 1871, each half of the flower-garden described the letter W., with embellishments around. But two years ago this design was swept away entirely, new stairways, terraces and a lily pond have been added, and either side has been divided into three parterres, outlined by more than 2,000 English yews, which in time will form a perfect enclosure for each partition, giving variety and privacy to each. The clock tower shown on one side of the general building is 200 feet high, and contains 28 bells that have the Westminster chimes, and chime the hour and the half-hours; the bells are worked by machinery. The other picture represents a hardy plant border, originally the "ribbon border." Roses and various Creepers form a pleasing background and a foil to the wall, and the border is gay in spring with Darwin Tulips, then Pæonies, and in autumn Michaelmas Daisies. Eaton is one of the finest and most complete country seats in the kingdom, and everything is done by its noble owner to maintain the highest efficiency throughout the estate. The hall and gardens are open during most of the summer months to the public on payment of a small sum, which, at the end of the year, is given to various local charities. Thousands take advantage of this privilege, and being near Liverpool a great number of Americans make Eaton their first call. The control of the gardens has been in the hands of Mr. N. F. BARNES for many years past, and he is to be congratulated not only upon the excellent appearance of every department, but also upon the splendid quality of the fruit that frequently represents Eaton at the competitive exhibitions.

ROYAL HORTICULTURAL SOCIETY. — The next meeting of the committees of this society

will take place on Tuesday, the 29th inst., in the Society's hall, Vincent Square. At 3 p.m. Prof. R. H. Biffen, M.A., will deliver a Masters Memorial Lecture, the subject being "Some Factors in the Prevention of Disease in Plants."

Visit of R.H.S. Scientific Committee to the John Innes Horticultural Institution.—On the 18th inst. some of the members of the R.H.S. Scientific Committee visited the John Innes Horticultural Institution at Merton, on the invitation of the director, Mr. W. Bateson, F.R.S. The main aim of the institution is investigation into the laws of inheritance, but there are also experiments in progress on certain plant diseases, especially those of Peas, and on silver-leaf in Plums. The latter clearly corroborate the findings of other experimenters with regard to the fungus Stereum purpureum being the cause of the trouble. Perhaps the chief interest at present attaches to the series of investigations into the inheritance of sex, especially in Tropæolum, Reseda, and other plants. But fruit trees (self-fertility and self-sterility); Peas, Potatos, Gooseberries, Primulas, Calceolarias, Begonias, Capsicums, Campanulas, and various other plants are contributing to the investigations.

South-Eastern Agricultural College, Wye.—A meeting of the Governors of the Wye Agricultural College was held on the 19th inst., Lord Ashcombe presiding. The principal (Mr. M. J. R. Dunstan) reported that 149 students were in residence, the total number of students for the session being 187. An anonymous donor has given £500 to the College for the extension of the research department, and the Development Commission are recommending a grant of £6,000 for the completion of the new college buildings. The Governors also decided upon the erection of the buildings at the Fruit Research Station at Malling, the land for which (22 acres) has been purchased by the Kent County Council. The election of Mr. C. W. Mason to a Carnegie Research Scholarship was also reported.

Church Army "City Gardens."—In Stillington Street, Westminster, not very far from the Royal Horticultural Society's Hall, the Church Army has established two gardens on waste building sites, for the benefit of married workmen with families. The gardens comprise 23 plots, which are loaned free to the workmen. The gardens are now in their best condition, and the crops include a good collection of early vegetables, such as Artichokes, Marrows, dwarf Beans, Mushrooms and Tomatos. One ingenious cultivator has utilised an old piano-case as a greenhouse for cultivating his Tomatos. Flowers are also grown; some of the most popular sorts are Evening Primroses, Pansies, Hollyhocks, Dahlias, Carnations and Stocks. Most of the produce has been raised from seed.

Roof of Westminster Hall.—In further reference to the subject of Mr. Webster's article on p. 63, it may be pointed out that the *Times* for July 11 gave an interesting survey of the noble hammer-beam roof of Westminster Hall, which has recently been examined by experts with a view to its repair and strengthening. The timberwork dates from 1399, and is the finest example extant of the Gothic open timber roof. In order to give greater height in the centre, says the *Times*, the ordinary tie-beam is cut through, and the portions remaining, known as hammer-beams, are supported by wall-posts and curved struts or braces, both resting upon stone corbels projecting from the wall. Upon the extremity of the hammer-beam rests the hammer-post, supporting the main collar-beam. The principal rafter is 60ft. long from the ridge of the roof to the wall. The span of Westminster Hall is 68ft. 4in.; and the opening between the ends of the hammer-beams is 25ft. 6in. The height from the paving of the hall to the hammer-beams is 40ft., to the under-side of the main collar-beam 63ft. 6in., and to the apex of the roof 92ft. There is a tradition that the roof was constructed of a particular kind of Irish Oak in which spiders cannot live, or at all events which they avoid, and the cleaners declare that they have never found a spider or a web in the roof. The rich golden-brown colour which the timber has assumed has latterly given rise to doubt whether it is Oak or Chestnut, for Oak when it ages usually assumes a greyish-white colour. Mr. Baines, the architect of the Ancient Monuments and Historical Buildings Department, has made a careful examination of sections of the timber, and has established beyond doubt that the wood is Oak. The two principal forms of decay found in the timber are caused by beetle and dry-rot. The former is the more serious, as it has attacked the most vital parts of the structure, such as the juncture of one member with another, and in the joint between two beams laid side by side, as in the case of the collar-beams. It is the larva of the beetle, commonly called worm, which attacks the wood; but few traces of the insect have been found. Several dead beetles were discovered amongst the dust and one worm, white in colour. Dry-rot has been found chiefly where the timbers have been subjected to dampness. It has attacked the wall-posts, particularly those at the northern end of the hall, where they are embedded in the wall and packed round with soft rubble. The timber of the arched ribs is on the whole in good condition. Each rib consists of three separate timbers, two outer ribs and one central rib. Originally the outer ribs were secured to the central ribs by means of Oak pins. The struts are also generally in good condition, there being only slight decay caused by sap-wood. The bases of the principal rafters are found to be affected by decay, some of them seriously; and a similar condition has been found to exist in the hammer-beams, upon which the stability of the roof largely depends. The hammer-beams have been badly mutilated at different periods when repairs have been done. In one instance the wood has been so cut away at its junction with the arched rib that the whole beam can be shaken by hand pressure. The hammer-posts bear a heavy load transmitted from the collar-beams and the purlins, and fractures have appeared in the timber, much of which is worm-eaten. The collar-beams are also decayed in places, and some of them have been repaired with Oak and iron plates.

Fig. 34.—Rose Mrs. Godfrey Brown: flesh-coloured on the inner side of the petal and pink on the reverse.

(Received R.H.S. Award of Merit at the Holland House Show, July 1, 1913.)

(See page 17, *Ante.*)

Fruit and Vegetable Crops in Holland.—The Board of Agriculture and Fisheries have received from His Majesty's Consul at Rotterdam reports giving the prospects of fruit and vegetables, as published by the Dutch Ministry of Agriculture, from which the following are extracts:—On the whole the condition of the smaller fruits, such as Red, White and Black Currants, Gooseberries and Raspberries, is very good. Only in Oud-Beyerland is the condition of Apples very good; elsewhere the

condition is moderate to good. Pears are moderate to good all over the country, but Plums, although moderate to good in most districts, are considered a failure in others, and in general are unsatisfactory. Grapes under glass are reported to be fairly good in the West-land and good in other districts. Grapes grown in the open will be disappointing. Nuts are everywhere moderate to good. On July 12 the condition of Onions was fairly good throughout the country. Beans and Peas have suffered from unfavourable weather and have a bad appearance. During the last few weeks edible Potatos have made but little progress; otherwise, however, they are satisfactory, there being little disease as yet. Factory Potatos are less satisfactory, and it is expected that only half or two-thirds of last year's yield will be obtained. The crop of 1912, however, was exceptionally large. The area under Onions this year is 6,541 acres, compared with 7,289 acres in 1912; under edible Potatos, 357,755 acres, compared with 351,333 acres; under factory Potatos, 77,44 acres, compared with 74,357 acres; and under Beans and Peas, 126,420 acres, compared with 122,082 acres last year.

Gloucester Rose Show.—Mr. Elisha J. Hicks, Twyford, informs us that he was the winner of one first, one second, and one third prize respectively in the Rose classes at this show.

The Hon. Martin Burrell, Canadian Minister of Agriculture, will shortly visit England. Born at Faringdon, Berkshire, in 1858, Mr. Burrell in 1886 married a daughter of the late Joseph Armstrong, General Superintendent of the Great Western Railway. He took up farming in the Niagara Peninsula, but since 1900 he has been engaged in fruit growing in British Columbia. Whilst in Europe he will visit the Ghent Exhibition and consult Colonel Hutchison (the Dominion Exhibition Commissioner) with regard to the Panama Exhibition in 1915. In view of the effects of Canadian commerce of the opening of the new waterway, it is felt that the Dominion should be specially well represented at the projected San Francisco Exhibition.

Potato Disease in Lancashire.—The Board of Agriculture and Fisheries desire to inform Potato-growers that cases of wart disease of Potatos (Synchitrium endobioticum, Percival) have occurred in Lancashire, and to remind them that they are required to report the presence of this disease to the police or other officers appointed for the purpose, under penalty of a fine. Notifications may be sent to the Board. A leaflet on the subject of the disease can be obtained from the Secretary, Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W., gratis and post free. Letters need not be stamped.

Research Scholarships in Agricultural Science.—The Board of Agriculture and Fisheries have awarded Research Scholarships in Agricultural Science, of the annual value of £150, tenable for three years, to the following candidates, viz.:—E. W. Barton, B.A. (Wales), Economics of Agriculture; W. Brown, M.A., B.Sc. (Edinburgh), Plant Pathology; Miss E. C. V. Cornish, M.Sc. (Bristol), Dairying; F. L. Engledow, B.Sc. (London), B.A., University Diploma, Agriculture (Cambridge), Genetics; E. J. Holmyard, B.A. (Cambridge), F.C.S., Plant Nutrition and Soil Problems; R. C. Knight, B.Sc. (London and Bristol), Plant Physiology; F. J. Meggitt, B.Sc. (Birmingham), Agricultural Zoology; H. Raistrick, B.Sc. (Leeds), A.I.C., Animal Nutrition; G. O. Sherrard, A.R.C.S. (Dublin), Genetics; T. Trought, B.A. (Cambridge), Genetics; G. Williams, B.Sc. (Wales), Animal Nutrition; S. P. Wiltshire, B.Sc. (Bristol), Plant Pathology. They have also awarded Miss T. Redman, B.Sc. (London), a scholarship in Dairying, tenable for 2½ years, to fill a vacancy caused by the resignation of a former scholar. The scholarships have been established in connection with the scheme for the promotion of scientific research in agriculture, for the purposes of which the Treasury have sanctioned a grant to the Board from the Development Fund, and they are designed to provide for the training of promising students under suitable supervision, with a view to enable them to contribute to the development of agricultural science.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

The Ladies' Classes at the Recent N.R.S. Show.—It is so seldom that one can catch the *Chronicle* "tripping" that I may be forgiven for correcting a curious error in your reporter's account of these classes at this Show. After commenting on the alteration in the schedule introducing for the first time separate classes for tables for the single Roses—an improvement appreciated alike by judge, exhibitor, and visitor—he refers to Irish Elegance, seeming to regret its general use by the exhibitors. But one can hardly blame them for using the most beautiful single Rose in commerce, and when one of them has the necessary enterprise to obtain something different, his only comment is to draw attention to the variability of Irish Elegance. He may perhaps be forgiven for not knowing the name of the Roses that secured the 1st Prize for Mrs. E. M. Burnett, as "Irish Fireflame" is not yet in commerce, and the high speed at which a reporter works is no doubt his excuse, but the two Roses have nothing in common except their form—his comment that the buds as well as the outer [*sic*] petals were of an unusually reddish tint, might have helped him to form some conclusion other than the one he arrived at. Irish Fireflame is destined to share, if not to displace, Irish Elegance from its pedestal, but there is ample room for both, and it is good news to know that the raisers, Messrs. Alex. Dickson and Sons, of Newtownards, hope to distribute it this autumn. I also rather regretted to read the somewhat scathing comments on the general effect of the Decorative Classes, and, if you will permit me to say so, I think they were not justified. The general effect of the tent was excellent, and has certainly never been excelled at any previous exhibition. Further, I think that the exhibitors chose "the wiser part" in not putting three or four different varieties in one vase, as your reporter suggests they should have done. One bed one variety is sound as applied to the garden, and it is equally true of vases and bowls, and "mixed" vases and bowls are best avoided, and are indeed only to be forgiven when one's supply of flowers is inadequate, and this should not be the case at a National Show. If there was any fault to find with this section of the Show it was not with the flowers or their arrangement, but with the floor, the boarding being very uncomfortable to walk on, and almost dangerous in some places—for which I presume the unlevel site was answerable. *Herbert E. Molyneux, Brantwood, Southampton.*

[Mr. Herbert Molyneux shows my error, and then very kindly makes an excuse for my ignorance; but the misnaming of Irish Fireflame (I am assuming that Mr. Molyneux is right and myself wrong) was partly the result of the overwhelming popularity of the National Rose Society's Show; for, although I visited the "Decorative" Tent three times during the afternoon, it was each time so crowded that I was unable to obtain such a leisurely inspection as was apparently made by my critic. As the two varieties concerned are alike in form, and Irish Fireflame is not in commerce, my error was an excusable one. The difference in colour was duly observed; but, as so many Roses vary considerably in this respect, according to the conditions under which they are grown, and individual blooms change their tints almost from hour to hour, I concluded that it was an interesting colour variation of Irish Elegance. The rest of Mr Molyneux's complaint is a matter of opinion and not of facts. I still hold that the decorative classes would have been more attractive had some of the competitors been courageous enough to arrange their exhibits with three or more distinct varieties. I have myself used thousands of Roses for decoration as cut blooms, and found no difficulty in harmoniously blending different varieties in one bowl. The "one variety one bed" dictum is debatable, and is not so universally held as Mr. Molyneux would have us believe. In the decorative classes at the Regent's Park Show most of the individual blooms were charming; but their arrangement indicated mathematical, rather than artistic, minds. It was the regularity of arrangement which I found monotonous, although at first sight the effect of the tent was very attractive. *Your Reporter.*]

The Future of the N.E.H.S.—Allow me, as a private individual, to intimate to the gardening fraternity in general, and northern horticulturists in particular, the opportunities that exist at present for development. The cards have been dealt and the call for trumps has been given. Has it been noticed, and will the response be forthcoming? There are two grand openings lying right in front of the N.E.H.S., and it would appear that too much caution may prevent an advance through these open doors. (1) Without going into details, which are being thoroughly overhauled by legal and other interested persons, there is undoubtedly a crying need for a Northern School of Horticulture. The general idea is a Government Garden Institute with the N.E.H.S. co-operating, with the object of training horticulturists capable of developing the economic resources of the soil at home or in the Colonies. (2) There is another clear call—the establishment of a N.E.H.S. rock garden. Such a Mecca for lovers of rock gardens would be popular and useful. To me one thing is certain—when at a general meeting, to be called shortly, the music is faced, the tune will be played, for it is preposterous to think that the many enthusiasts who have sacrificed, gladly and willingly, their time and money, will allow this Northern movement to end in failure. It is not as if cash was not forthcoming. All that is required is a strong lead, and similar enthusiasm such as was displayed over the new R.H.S. Hall and the R.H.S. Gardens. Notwithstanding deaths and withdrawals, the N.E.H.S. still increases its membership. Several Fellows and members have proved by their withdrawal their ignorance of elementary forces in nature. A seedling cannot be forced without harm being done. Also all progress comes through and by suffering. It is disappointing, too, to note that three Northern Societies outside Yorkshire have accepted from the N.E.H.S., which has tried to be true to name, free judging, costly medals, or other practical support, and then given nothing, or practically nothing, in return. *J. Bernard Hall, Rawdon, Leeds.*

A Hybrid Foxglove.—At the back of a wide border in the flower garden here a quantity of the common red and white Foxgloves have sown themselves. In front of the border is a strong plant of the perennial yellow Foxglove, Digitalis ambigua. This species also sows itself freely, and there has sprung up in this border a hybrid intermediate in stature between the new species. The foliage closely resembles that of D. ambigua, while the flowers partake of the character of both kinds, being yellow inside, marbled with maroon and flesh-coloured outside. It is a very ornamental plant, being quite devoid of the taint of magenta, which is the only defect in our native species. It will be interesting to see whether the hybrid will prove biennial like one parent or perennial like the other. The crossing of these two species, if taken in hand by skilful cultivators, might result in a new and decorative race of hybrids. *Herbert Maxwell, Monreith.*

Strawberry "President."—In reply to Mr. Engleheart (p. 53), Strawberry "President" was raised at Highcross, near Ware, Hertfordshire, by Mr. Charles Green, a builder and estate carpenter, at Youngsbury. I was at that time serving my apprenticeship in the gardens under Mr. Terry. I think it was early in the 'fifties. I cannot remember the pedigree, but the old favourite Keene's Seedling was one of the parents. Mr. Green was an amateur gardener and raised seedling Dahlias, including the variety Green's Admiration. I cannot remember others, as my memory fails me, for I am in my 79th year. *Thomas Godfrey, 53, Broomwood Road, Clapham Junction.*

——— In reply to Mr. Engleheart (see p. 53) I am able to give some particulars of the raising of Strawberry "President." About

60 years ago I knew quite well two brothers, Charles Green and Sam Green, village carpenters, both enthusiastic gardeners. They were estate carpenters at Youngsbury, Hertfordshire, an estate which belonged to the late Lady Louisa Giles Puller. The Greens lived at High Cross, close to the estate, and were always in touch with the steward and gardener of the estate, Mr. Terry, a noted rosarian. Three men more devoted to gardening I have never since known. The Strawberry was dedicated to the Very Rev. Dr. Weather, who was then President of the Roman Catholic College of St. Edmund's, Old Hall Green, and who was a frequent visitor at the house of the Greens. Who really put the Strawberry into commerce I do not know, but Mr. Terry had a son, who is still farming on the estate at Collier's End, Hertfordshire. He may perhaps have heard his father talk about it and be able to give more information. But President Strawberry was raised by the brothers Green. *Thos. Houchin, Supt. St. Mary's Cemetery, Harrow Road, College Park, N.W.*

Edraianthus Pumilio and E. dalmaticus (see fig. 20, p. 31).—These two Edraianthuses (or as they are sometimes called Wahlenbergias) form particularly attractive subjects for the moraine, and in the early summer make brilliant purple splashes as they mantle the cool-looking, stone chips. The Dalmatian Hare-Bell (E. dalmaticus) is less silvery in appearance than its relative E. Pumilio, while its blossoms are borne in dense clusters at the end of decumbent stalks thrown out to some distance from the parent crown. My experience leads me to believe that the best results are obtained by raising these plants from seed, and planting them out while they are still in a small state—so that their roots may wander deep into the grit—which in my moraine is copiously supplied with fresh water (running over an impervious bottom) during the growing season, while through the winter months the supply of moisture is cut off and a sheet of glass placed above the plants to intercept overhead wet and dirt—which latter in my district descends in extraordinary quantities. It will be remembered that last year, when writing in the *Gardeners' Chronicle* (May 11, p. 323), I referred to three seedling plants of Edraianthus which I had pricked out into the moraine the previous summer, from seed sown in February, 1911. The tuft formed by these three plants produced 30 flowers in June, 1912, and the illustration cited above of E. Pumilio shows how it has progressed since that time. It has given me this season over 200 glorious blossoms, set close upon its silvery foliage. Not only do the plants appear perfectly happy in my moraine conditions, but they steadily and rapidly increase, both in size, quantity of flowers produced, and amount of seed ripened, which seed by the way germinates rapidly and produces vigorous progeny. *Reginald A. Malby.*

Lychnis Arkwrightii.—In your report of the R.H.S. summer show at Holland House (p. 15) you state that an exhibit of Lychnis Arkwrightii "appeared to be a rather good strain of L. Haageana." This suggests that your reporter assumed that the plants I showed were L. Haageana pure and simple, and I should be glad if you would allow me to state through your columns that they were the results of a cross made by me some years ago between L. Chalcedonica and L. Haageana, to which the R.H.S. Scientific Committee awarded a Botanical Certificate last year. *John S. Arkwright, Kinsham Court, Presteign, Radnorshire.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

July 15.—*Present*: E. A. Bowles, Esq. (in the chair); Sir J. T. D. Llewellyn, Dr. Bateson, Messrs. Fraser, Fawcett, Hales, Bennett-Poë, Cuthbertson, Sutton and Chittenden (hon. sec.).

Proliferation in Rose.—Mr. Bennett-Poe showed a Rose having a fasciated and branched shoot bearing several buds developed from its centre. The branch bearing the flower showed no sign of fasciation.

Lithiasis in Pear.—Mr. W. A. Voss sent a small Pear (Doyenné Boussoch) from a tree of about 25 years of age showing peculiar developments of "stone-cells" breaking through the epidermis here and there. Only one or two fruits on the tree, which was bearing a heavy crop, were affected, and these were from the end of a branch. The trouble is one not commonly met with in England, and has been attributed by German investigators to insufficient water-supply.

Alder Diseased.—Mr. J. O'Brien sent fruits of Alnus glutinosa, gathered near Le Touquet from a tree bearing many similar ones, in which some of the carpels had grown out in a peculiar fashion, becoming fleshy and somewhat curled, standing out like leafy projections from the cones. The development of these peculiar growths is due to the attack of the fungus Ascomyces alnitorquus.

Poplar Diseased.—The Ven. Archdeacon Meredith sent leaves of a Poplar with large golden-yellow areas upon them, occupying in some cases half the leaf surface—Ascomyces aureus, a fungus nearly allied to the one producing leaf-curl in Peaches. One or two of the leaves showed on their upper surfaces the silvery appearance characteristic of the attack of Stereum purpureum as seen in Plums.

Liparis lacerata.—Mr. J. O'Brien showed an inflorescence of Liparis lacerata (Ridley, *Journ. Linn. Soc.*, XXII., 1886, p. 284. Malay Peninsula, Perak, etc., Dist. Tenasserim, Borneo). A small example is represented in Burbidge's drawings of Borneo plants in the Natural History Museum. The species was little known until it flowered with the Hon. N. Charles Rothschild, and was noted in *Gardeners' Chronicle*, February 15. 1913, p. 99, from a plant sent to him by a collector in Borneo. The present specimen flowering with Sir Marcus Samuel was obtained from the same source. Some of the flowers had dropped, but the spike was about 9 inches in length.

Robinia Pseudacacia monophylla.—Mr. E. A. Powles showed flowers of the variety of Robinia Pseudacacia called monophylla, obtained in a garden in Italy. It is characterised by the very large terminal leaflet and pair of small ones below it. All the flowers he had examined had two or three carpels, but seed was being produced.

Progeny of Green Wallflower.—Mr. Chittenden referred to the Wallflower cross, the F_1 generation of which was shown to the committee last season. The original cross was between a "green-flowered" form and the normal form, and in the first generation all the flowers produced in many plants were normal. The self-fertilised seedlings from these plants had in some cases flowered this season, but in insufficient numbers to give any reliable statistics. The results, so far, showed, however, that segregation was occurring, several of the plants producing the "green" abortive flowers, and others the normal flowers. The plants are being grown on.

Fruit and Vegetable Committee.

July 7.—The Fruit and Vegetable Committee of the Royal Horticultural Society met at Wisley on the 7th inst. and made the following recommendations for Awards, which were confirmed by the Council at their meeting on July 15.

First-class Certificate.

Strawberry British Queen, from R.H.S. Gardens, Wisley.

Awards of Merit.

Strawberries Cropper, Progress and Rival, all from Messrs. Laxton Bros., Bedford.

Peas.—Favourite, from Messrs. J. Veitch, Chelsea; Masterpiece, from Messrs. Sutton, Reading; Sir Arthur Bignold, from Mr. Holmes, Tain; and Warriston Wonder, from Messrs. Bell & Bieberstedt, Leith.

The following varieties of Peas were highly commended:—Battleship, from Messrs. Carter, Raynes Park; Best of All, from Messrs. Wheeler, Gloucester; Discovery, from Messrs. Alex. Dicksay, Newtownards; Marquis of Stafford, from Mr. Holmes, Tain; The Clipper, from Robert Sydenham, Ltd., Birmingham; Up to Date, from Messrs. Sutton, Reading; and Orwell, from Mr. Staward, Panshanger, Hertford.

NATIONAL SWEET PEA.

July 17.—The thirteenth annual show of this society was held in the Royal Horticultural Hall on the above date. Exhibits were so numerous that the entire hall, including the annexes, was filled with Sweet Peas—no other flower was present, the only "foreign" vegetation being the graceful Palms, of just the right size, which were effectively placed along the tables, and the few trails of Selaginella and of Asparagus used in the dinner table decorations. When viewed from the slight elevation of the floors of the annexes the show presented a charming appearance. Nearly all the principal trade growers had arranged imposing stands of their best and newest varieties all around the hall, the dinner table exhibits (13 of them) occupied the centre, and the remainder of the competitive classes were arranged on the customary tabling; even the balcony was adorned with an ample selection of Sweet Peas. The smooth working of the show and the ease which the classes and each exhibit could be distinguished indicated forethought on the part of the hon. secretary and his willing assistants. In nearly all the classes the entries were very gratifying, the highest number being 33 in Class 11. The exhibits reached a high standard of excellence.

General Division.

The trade growers were excluded from competition in the first six classes.

Twenty-one bunches of Sweet Peas, distinct.—In this class the varieties must be selected from a published list, of which, with three exceptions, all the flowers have waved standards. The 1st prize, which included the Sutton Challenge Cup and the Society's Gold Medal, was won by Sir Randolf Baker, Bart., M.P., Randston, Blandford (gr. Mr. A. E. Usher), with 21 bunches of fresh, large flowered spikes of very even quality, the finest being Thos. Stevenson (orange-scarlet), Mrs. Cuthbertson (rose pink), Agricola (white ground flushed with heliotrope), Elsie Herbert (white, edged with rose), Rosabelle (rose), Barbara (salmon-orange), Edrom Beauty (orange-salmon) and Florence Nightingale (soft lavender, lightly tinted rose-pink); 2nd, Mrs. W. Jarratt Thorpe, Gransmoor, Hucclecote, whose best spikes were of Mrs. C. W. Breadmore (creamy buff edged with rose), Mrs. R. Hallam (salmon-pink), Edna Unwin (orange-scarlet), Etta Dyke (white), Rosabelle and Clara Curtis (primrose yellow); 3rd, A. W. Stirling, Esq., Holme Lea, Goring, Oxon (gr. Mr. A. Morning).

Eighteen bunches of Sweet Peas, distinct.—The object of this class was to indicate the varieties most suitable for garden decoration, and these were selected from a list specially compiled by the Society. Sir Randolf Baker was the only exhibitor, and was awarded the 2nd prize for a collection which included Mrs. H Dickson, Etta Dyke, Eric Harvey and Queen of Norway.

Twelve bunches of Sweet Peas, distinct.—The Henry Eckford class was responsible for the finest exhibit in the show. The Challenge Cup and Gold Medal were won by Mrs. F. E. Hall, Cumberland Cottage, Redbourn, Herts (gr. Mr. F. Peacock), with a splendid set of flowers, which were characterised by tall stems, evenly furnished with large, fresh blooms of clear colours and good substance. All the varieties were worthy of mention, but special mention must be made of R. F. Felton (lavender), Melba (salmon-orange), King Manoel (maroon), and White Queen; 2nd, Lord North, Wroxton Abbey, Banbury (gr. Mr. E. R. Janes), whose praiseworthy exhibit was overshadowed; but it included splendid vases of Barbara, Lady E. Eyre, and Mrs. C. W. Breadmore; 3rd, E. J. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. T. Stevenson).

Twelve bunches of Sweet Peas, distinct.—The 1st prize, offered for 3 vases each of cream-pink, lavender, orange and scarlet varieties, was won by Sir Randolf Baker, whose exhibit was so good that the only other competitor was awarded the 3rd prize. The winning varieties were, *Cream-pink:* Anglian Pink, Lady Miller, Doris Usher; *Orange:* Thos Stevenson, Anglian Orange, Edrom Beauty; *Lavender:* True Lavender, R. F. Felton, Lavender Geo. Herbert; *Scarlet:* Dobbies Scarlet, Premier and Red Star.

Six bunches of new Sweet Peas, distinct.—The exhibits were to be of varieties first put into commerce during or since the autumn of 1912. Mr. THOS. JONES, Bryn, Penylan, Ruabon, won the 1st prize with bunches of Lavender George Herbert, Agricola (white flushed with heliotrope), Thos. Stevenson (orange-scarlet), Mrs. E. Cowdy (maroon), Marks Tey (rosy maroon and mauve) and Birdbrook; 2nd, Mr. EDWARD COWDY, Green Hall, Southgall, Co. Armagh, who showed excellent spikes of Agricola, Florence Wright and Thos. Stevenson; 3rd, Mr. T. STEVENSON, Woburn Place Gardens, Addlestone.

Three bunches of waved Sweet Peas, distinct.—In this class, for pink or cream-pink varieties, Sir R. BAKER won the 1st prize with excellent bunches of Hercules, Doris Usher and Lady Miller; 2nd, B. PEYMAN, Esq., Sandford Manor, Sherbourne (gr. Mr. W. Preedy).

OPEN CLASSES.

Classification Class: 24 vorieties of Sweet Peas.—Not more than one variety of any colour was to be shown, the object being to bring into prominence the finest varieties of the several colours. The competition was not so strong as might have been wished, but Mr. H. D. DIGWELL, Harrow View, Greenford, Middlesex, won the 1st prize with a very interesting collection. The unavoidable prominence of what we may term the dull colours detracted from its spectacular appearance, but the exhibit was a really good one; the finest flowers being of Melba, Nora Unwin, Dobbie's Cream and Mrs. Cuthbertson; 2nd, Mr. J. STEVENSON, Wimborne.

Twelve Bunches of Sweet Peas, distinct.—The competition in this class was very strong, and nearly all the exhibits were of a high order of merit. The 1st prize was awarded to Sir G. O. TREVELYAN, Bt., Wallington, Cambro, Morpeth (gr. Mr. E. Keith), who showed splendid examples of Edith Taylor, Thos. Stevenson, Rosabelle, R. F. Felton, and Agricola. Lord NORTH won the 2nd prize, showing Hercules, Elsie Herbert, Moneymaker, and Mrs. Routzahn in excellent condition.

Three Bunches of Seedling Sweet Peas.—This class, for distinct varieties not yet in commerce, was very disappointing, only two varieties being of any great merit. The 1st prize was won by Mr. R. BOLTON, Warton, Carnforth, who had in "Steeton"—which may be described as being a Melba with a line of deeper colour in the centre of the petals—a distinct variety; 2nd, Mr. R. WRIGHT, Formby, Liverpool, who showed a delightful vase of Royal purple. The flowers were borne on long, gracefully arched stems, which were not so disproportionately stout and stiff as is the case with many of the standard varieties.

The G. W. King Challenge Cup, offered for twelve bunches of waved Sweet Peas, induced a very strong competition, and was won by Capt. GEOFFREY LUBBOCK, Greenhill, Warminster, Wilts (gr. Mr. J. B. Lowe).

Display of Sweet Peas.—The Burpee Cup was offered for the best display of waved varieties arranged in a space of 8 feet by 6 feet, and was responsible for several attractive exhibits. The Cup and Gold Medal were awarded to F. A. WELLESLEY, Esq., J.P., Westfield, Woking (gr. Mr. W. Hopkins); 2nd and Silver Medal, W. E. ALSEN, Esq., Denmead, Hants.

Mr. THOS. JONES won the 1st prize in the class for six bunches, and MARSHALL GREEN, Esq., The Lodge, Eynsford (gr. Mr. W. White), was similarly successful in the class for three bunches of the Helen Pierce type, waved or grandiflora varieties.

DISTRICT CLASSES.

Prizes were offered for exhibits of Sweet Peas from nine "districts" of the British Isles. The best exhibit was found in the Northern Counties class, where the Right Hon. Sir G. O. TREVELYAN won the 1st prize with a splendid display.

In the Scottish class the 1st prize was awarded to Mr. JAMES KERR, Westmount, Stewarton, Ayrshire; 2nd, Mr. J. A. GRIGOR. The prizes in the Irish class were won by Mr. EDWARD COWDY and Mr. M. W. SHULDHAM, Ounavarra, Gorey, in the order named. The Welsh prize went to Mr. THOS. JONES; 2nd, Mr. L. WEBB, Welshpool. Mr. B. PEYMAN was the most successful competitor in the Western Counties class; 2nd, Mr. A. P. BROAD, St. Austell. In the Eastern Counties class Mr. H. TYSOE, The Gardens, The Lodge, Bedford, was placed 1st, and Mr. A. W. RALPH, Kempston, Beds, 2nd. Lord NORTH won the premier prize in the Midland Counties class, and Mrs. KENSINGTON, Haverbrack, Uckfield (gr. Mr. F. C. Beale), was similarly placed in the class for the Southern Counties.

The Breadmore Challenge Cup, restricted to competition amongst exhibitors who employ only one gardener, was won by Dr. PHILIPS, Malpas, Cheshire (gr. Mr. W. Davies).

AMATEURS' CLASSES.

The Hawlmark Challenge Cup was won by Mr. THOS. JONES, who showed twelve bunches of excellent Sweet Peas, rivalling those of Mrs. HALL in class 3. Mr. A. T. STEADMAN, Glanford, Cley, Norfolk, won the 1st prizes in the classes for six bunches and for three bunches of Sweet Peas.

The Horace Wright Cup was awarded to Mr. W. H. HOLLOWAY, Percyville, Shrewsbury, and the Walter Voss Cup to Mr. W. T. JAMES, Kempston, Hoo, Bedford. The best six bunches with waved standards were shown by Mr. W. SEABROOK, Harpenden, and the finest three bunches by Mr. GEO. PAIN, Hornsey.

FLORAL DECORATIONS.

There were thirteen dinner tables decorated with Sweet Peas and appropriate foliage. The 1st prize was awarded to Miss BEATRICE ARMSTRONG, Fishpond Road, Hitchin, for a light and graceful arrangement, but the colour combination of pale cream-pink and lavender did not favourably impress us; 2nd, Mrs. W. FULCHER, jun., Moulsham Street, Chelmsford.

In the class for an epergne of Sweet Peas Mrs. D. RUFF, Sharnbrook, Beds, who utilised pale lavender and creamy-buff flowers, was awarded the 1st prize; 2nd, Mrs. C. A. BROWN, Brooke's Lodge, Reigate, whose arrangement was very dainty and attractive. The vase of Sweet Peas exhibited by Mrs. RUMBLE, Addlestone, was quite the best in the class.

The sprays and buttonholes were not very attractive; the former were mostly too narrow, and nearly all the buttonholes were unduly large. The 1st prize for "two buttonholes and one lady's spray of Sweet Peas" was won by Mrs. RUMBLE.

NON-COMPETITIVE EXHIBITS.

Displays of Sweet Peas were contributed by Messrs. DOBBIE AND CO., Edinburgh (Gold Medal), Mr. ROBERT BOLTON, Warton, Carnforth (Gold Medal); Messrs. E. W. KING AND CO., Coggeshall; S. BIDE AND SONS, Farnham; R. H. BATH LTD., Wisbech; Messrs. CARTER AND CO., Raynes Park; Messrs. A. JARMAN AND CO., Chard; and Mr. W. J. UNWIN, Histon (Silver-Gilt Medals); Mr. JAMES BOX, Haywards Heath; Messrs. R. SYDENHAM, LTD., Birmingham; JONES AND SONS, Shrewsbury; G. STARK AND SON, Norfolk; and Mr. J. STEVENSON, Wimborne (Silver Medals); W. VOSS AND CO., Millwall; ALDENSEY AND JONES, Kingsbridge; JOHN K. KING, Coggeshall; J. D. WEBSTER, Chichester; and B. W. DEAL, Kelveden, Essex (Bronze Medals).

THE ANNUAL DINNER.

The customary dinner took place at the Hotel Windsor, Mr. Herbert Smith presiding. He was supported by Messrs. Robt. Sydenham, W. Cuthbertson, E. Cowdy, J. S. Brunton, A. Malcolm, and Dr. Philips. Reference was made by the various speakers to the continued success of the society and its wide ramifications—members were mentioned as residing in such diverse places as Japan, New Zealand, Canada, and the United States of America. The "Streak" disease and the necessity for obtaining a remedy was referred to. In responding to the toast of the Hon. Secretary, Mr. C. H. Curtis spoke of the valuable spade work done by his predecessors, the late Mr. Richard Dean and Mr. Horace Wright, and urged those present to use their endeavours to obtain more new members.

NATIONAL CARNATION AND PICOTEE. (Southern Section.)

JULY 18.—The annual show of the florists' Carnation and Picotee, which was held in the Royal Horticultural Hall on this date, was one of the best held during recent years in London. The entries were more numerous than usual, the quality of the blooms higher, and there was a gratifying attendance. The outstanding feature of the show was the great success of Mr. JAMES DOUGLAS, who excelled in a large number of the classes.

FIRST DIVISION.

FLOWERS SHOWN ON CARDS.

Twelve Carnation Blooms, Bizarres and Flakes.—Mr. JAMES DOUGLAS, Great Bookham, won the 1st prize in this class with a stand of fresh, well-formed blooms of Recorder (scarlet flake), Master Fred (very fine crimson bizarre), J. S. Hedderley (crimson bizarre), Torchlight (scarlet flake), Meteor (rose flake), Tom Tit, George Melville, Kobe (scarlet flake), Supreme (scarlet bizarre), Gordon Lewis (purple flake), Sarah Payne, and a splendid flower of Robt. Houlgrave (scarlet bizarre); 2nd, Mr. C. BLICK, Hayes, whose best blooms were Portia, King Olaf, and Beggar Maid; 3rd, Messrs. A. R. BROWN, LTD., Birmingham.

Twelve Carnation Blooms, Selfs.—1st, Mr. JAMES DOUGLAS, with a beautiful collection, the very best blooms being Bookham White (see *Gardeners' Chronicle*, July 19, 1913, page 54), Elizabeth Shiffner (rich orange), Cardinal Basuto (crimson), and May Day; 2nd, Mr. H. MATHIAS, Medstead, who showed excellent blooms of Daffodil, Eva and a crimson seedling; 3rd, Messrs. A. R. BROWN, LTD.

Twelve Carnation Blooms, Fancies.—In this class, Mr. C. BLICK won the 1st prize with a noteworthy collection, which included Lord Steyne (red and crimson on yellow ground), Linkman (scarlet on yellow ground), Thomas à Becket and Bombardier; 2nd, Mr. H. MATHIAS, who showed two fine blooms of Lord Steyne.

Twelve Picotees, White Ground.—In this class, Mr. J. DOUGLAS recovered the first place, showing a beautiful collection: the outstanding varieties were Harry Kenyon (light-edge purple), Favourite, John Smith (heavy-edge red), and Fair Maiden (light-edge rose); Mr. C. BLICK was a very good second, his stand contained the Premier Picotee, Melita, Quaker Girl, and Euphrosine, in very fine specimens.

Twelve Picotees, Yellow Ground.—The order was reversed in this class, where Mr. BLICK won the 1st prize, Mr. DOUGLAS being 2nd. The winning stand was especially grand, the very best blooms were the Premier Her Majesty (heavy-edge purple), Daisy Boston, Miss Winifred and Onward (light-edge purple); the 2nd prize stand included very good blooms of Mrs. J. J. Keen (heavy-edge rose), John Ruskin (light-edge rose), and Agnes (medium-edge purple).

FLOWERS SHOWN AS GROWN.

The following five classes, which required three blooms of each variety to be shown in vases with Carnation foliage, illustrated their decorative value, and were very attractive. In most instances the quality was exceedingly good.

Four Carnations, Selfs.—Mr. DOUGLAS was an easy winner in this class; his best varieties were Daffodil and Miss Willmott; 2nd, Mr. C. BLICK.

Four Carnations, Fancies.—Mr. DOUGLAS was again 1st; in this class he showed splendid vases of Lord Steyne and Queen Eleanor (scarlet markings and edgings on buff ground); 2nd, Mr. R. MATHIAS.

Four Carnations, White Ground Fancies.—One vase of flowers in Mr. DOUGLAS's 1st prize collection had been removed, but the best of the remaining three was that of Montrose; 2nd, Mr. BLICK, with a good vase of Octavia.

Four Picotees, Yellow Ground.—In this class Mr. DOUGLAS, who won the 1st prize, showed splendid examples of Togo (heavy crimson edge), and Mrs. J. J. Keen; 2nd, Mr. C. BLICK with a vase of splendid J. W. Goodfellow (heavy rose edge).

Nine varieties, Selfs, Fancies, and Yellow Ground Picotees.—This was an excellent class, and the exhibits were a very attractive display: 1st, Mr. DOUGLAS (Basuto, Fujiyama, a glowing red self, and Pasquin, a splendid fancy, were the best flowers); 2nd, Mr. H. MATHIAS, whose outstanding vases were of Sunproof Scarlet and Linkman.

SECOND DIVISION.

FLOWERS SHOWN ON CARDS.

Six Carnation Blooms, Selfs.—Mr. H. R. TAYLOR, Oakleigh, Cheam, was placed 1st with a very creditable exhibit; the varieties Capt. Scott

and Caruso were especially good; 2nd, Mr. C. A. LINZEE, Alresford, whose stand contained the Premier Self, Mrs. George Marshall.

Six Carnations, Bizarres and Flakes.—1st, Mr. H. R. TAYLOR; in this class his outstanding blooms were Bedouin, Gordon Lewis, and Zebra; 2nd, Mr. J. FAIRLIE, Acton, who had a splendid bloom of Gordon Lewis (Premier Flake).

Six Carnations, Fancies.—Mr. H. R. TAYLOR was also 1st in this class, where he showed large and excellent blooms of Nobleman and Queen Eleanor; 2nd, Mr. J. A. FORT, Winchester, who had an excellent bloom of Rhea.

Six Picotees, White Ground.—The 1st prize stand of Mr. J. J. KEEN, Southampton, contained in John Smith, the premier heavy-edge bloom; 2nd, Mr. H. R. TAYLOR, whose best flower was Favourite.

Six Picotees, Yellow Ground.—Mr. TAYLOR was a comparatively easy 1st. On his stand of clearly-marked blooms was Maid Marion and Eclipse (premier light-edge yellow) in excellent condition; 2nd, Mr. W. H. PARTON, Moseley.

FLOWERS SHOWN AS GROWN.

The best collection of three blooms of one variety of pink or Rose Self Carnation were shown by Mr. W. H. PARTON; 2nd, Miss SHIFFNER. The best 3 blooms of White Self Carnations were those of Farthest North, shown by Mr. J. FAIRLIE; 2nd, Mrs. MORTON, who showed good blooms of Mrs. Eric Hambro. Mr. C. A. LINZEE, showing W. H. PARTON, won the 1st prize for dark-red or maroon selfs; 2nd, Mr. W. H. PARTON, with John Knox.

In the class for yellow selfs nearly all the 11 competitors showed Daffodil; Miss SHIFFNER and Mr. TAYLOR won the prizes in the order named. Mr. MORTON won the 1st prizes for red self Carnations and for yellow ground Picotees. In the class for any other colour self Mr. H. W. FROSTICK won the 1st place, and Mr. FORT was similarly successful with yellow ground fancies.

Mr. PARTON won the 1st prize for six distinct varieties of Carnations and Picotees, with an especially good collection; 2nd, Mr. MORTON.

Martin Smith Memorial Cup.—Of the four exhibits of 12 selfs, fancies and yellow-ground Picotees in competition for the Smith Memorial Cup, the best was that by Mr. R. MORTON, Woodside Park. His best blooms were of Donald McDonald, Skirmisher and Miss Willmott; 2nd, Mr. PARTON; 3rd, Mr. J. FAIRLIE.

OPEN CLASSES.

FLOWERS SHOWN AS GROWN

Mr. DOUGLAS won the 1st prizes for 9 blooms of a white self (Bookham White), dark-red or maroon self (Mrs. Geo. Marshall), red or scarlet self (Fujiyama), any other variety (Purple Emperor), yellow-ground Picotees (John Ruskin), yellow or buff-ground fancy (an excellent Edenside), any other fancy (Daisy Walker), and yellow self (Daffodil). Mr. PARTON won the 1st prize for 9 pink or rose selfs (Rosy Morn), and Mr. H. LAKEMAN for 9 buff or terracotta shades (Elizabeth Shiffner).

The Seedling classes did not contain any blooms of superlative merit; the best were Mrs. R. Percy Smith, a self-coloured flower shown by Mr. R. MATHIAS; J. J. Keen, a fancy, also by Mr. MATHIAS; and Aureus, a yellow-ground Picotee, by Mr. TAYLOR. In the class for a vase of seedlings Mr. E. CHARRINGTON, Limpsfield, showed a very good collection; 2nd, Mr. C. BLICK.

Dinner Table Decorations.—The first prize was awarded to Mr. F. PRICE, Bournville, for a rather high arrangement of blush coloured Carnations which was very bright and attractive; 2nd, Mr. C. BLICK, Hayes, who used pink blooms; and 3rd, Mrs. A. BIDE, Farnham. The sprays and buttonhole flowers were generally very tasteful, although in a few instances the buttonhole flowers were arranged with too much foliage. The prizes were awarded to Mr. L. HART, Hertford, and Mr. W. PITCHER, Maidenhead, for sprays, and to Mr. C. H. LINZEE and Mr. W. H. PARTON for buttonhole flowers, in the order named.

PREMIER BLOOMS.

FLOWERS ON CARDS.

Bizarre.—Robert Houlgrave, by Mr. J. DOUGLAS.

Fancy.—Linkman, by Mr. J. DOUGLAS.

Self.—Mrs. George Marshall, by Mr. C. A. LINZEE.

Flake.—Gordon Lewis, by Mr. J. FAIRLIE.

Picotee (heavy-edged white ground).—John Smith, by Mr. J. J. KEEN.

Picotee (light-edged white ground).—Melita, by Mr. C. BLICK.

Picotee (heavy-edged yellow ground).—Her Majesty, by Mr. C. BLICK.

FLOWERS AS GROWN.

Fancy.—Linkman, by Mr. H. R. TAYLOR.

Self.—Mrs. Geo. Marshall, by Mr. J. DOUGLAS.

Fancy White Ground.—Daisy Walker, by Mr. J. DOUGLAS.

Picotee (light-edged yellow ground).—Eclipse, by Mr. TAYLOR.

NON-COMPETITIVE.

Exhibits of Carnations were made by Messrs. WM. CUTBUSH AND SONS, Highgate; PHILIPS AND TAYLOR, Bracknell, Berks; H. LAKEMAN, Thornton Heath; and Mr. JAMES DOUGLAS, Bookham. Messrs. F. CANT AND CO. showed Roses, and Mr. M. PRICHARD hardy flowers.

BIRMINGHAM HORTICULTURAL.

DEPUTATION FROM ROYAL HORTICULTURAL SOCIETY.

JULY 18 and 19.—The annual show of the Birmingham (formerly Handsworth) Horticultural Society, held in Handsworth Park on the above dates, was a pronounced success. The number of exhibitors was a record one—205 against 161 a year ago, and the entries 1,083—127 in excess of last year, which is very gratifying to the committee. Additional interest was given to this year's show by reason of the visit of a deputation from the Council of the Royal Horticultural Society. The deputation were so pleased with the general high quality of the exhibits that they made 29 awards, including silver cups, gold, silver and bronze medals—in addition to those made by the judges—to exhibits of superior merit. The awards gave general satisfaction, and they will greatly encourage local horticulturists. Awards were also made on behalf of the National Hardy Plant Society to exhibits of Alpine plants and hardy cut flowers.

PLANTS (OPEN).

The leading class was for a group of plants arranged for effect with double straight fronts in a space of 300 square feet. There were three exhibits, and each one had a rustic arch or bridge over the centre on which handsome Palms and choice plants were displayed. The 1st prize of twenty guineas and a Silver Challege Cup, value ten guineas, the latter to be won three times before becoming the absolute property of the winner, was won by Messrs. JAMES CYPHER AND SONS, Cheltenham, whose brightly coloured foliage and flowering plants were skilfully arranged. Codiæums, which were extensively employed, were largely of the yellow and reddish-leaved varieties. Tall plants of Humea elegans reared their graceful plumes over a host of choice plants such as Cattleyas, Odontoglossums, Oncidiums, Liliums, Begonias, Francoas, Aralias, Dracænas and Ferns. Sir GEORGE H. KENRICK, Edgbaston (gr. Mr. J. V. Macdonald), who secured the 2nd prize, had a splendid group in which well-coloured plants of Nandina domestica were associated with Cattleyas, Oncidiums, Odontoglossums, Begonias, Selaginellas, Codiæums, and Dracænas; 3rd, Mr. W. R. MANNING, Dudley.

Messrs. JAMES CYPHER AND SONS were again placed first in a class for 12 stove or greenhouse plants, distinct, in which 6 were to be in bloom. The winning collection contained excellent specimens of Statice intermedia, Bougainvillea Sanderiana, Clerodendron Balfouri, Stephanotis floribunda, Ixora Williamsii, and Codiæum Countess. 2nd, JOHN ARTHUR KENRICK, Esq., Edgbaston (gr. Mr. A. Cryer). The last-named exhibitor was awarded 1st prizes in classes for (1) 6 Coleus; (2) 6 Fuchsias; and (3) 6 Caladiums.

There were two contestants in a class for rock and water gardens, and both exhibits were much admired. The space allotted was 30 feet by 30 feet in "The Dell," some distance from the show tents. The 1st prize of £10, together with a Silver Challenge Cup, value 20 guineas, was won by Messrs. T. R. HAYES AND SONS, Keswick, whose design was very natural and well carried out. Clumps of Ericas, Irises, Sedums, Sempervivums and a number of choice species looked as though they had occupied the same position for a long time. 2nd, Messrs. GUNN AND SONS, Olton.

CUT FLOWERS (ROSES).

The class provided for a display of Roses on a table space of 20 feet by 5 feet was a good one. Three exhibits were placed before the judges, who awarded the 1st prize, consisting of a Silver Challenge Cup, a Gold Medal, and £10 to Messrs. GUNN AND SONS, Olton, for a magnificent display, arranged in vases, stands and pillars, over which arches decorated with small flowered varieties of good quality and variety created a charming effect. 2nd, Mr. J. MATTOCK, Oxford; 3rd, Messrs. W. AND J. BROWN, Stamford.

Mr. J. MATTOCK beat Mr. W. T. MATTOCK in the next class, for 12 bunches of garden Roses, distinct.

Mr. J. MATTOCK took the lead in a class for 48 Roses, distinct. He showed extra good specimens of Alfred Colomb, Mrs. W. J. Grant, A. K. Williams, Gustave Piganeau, Lady Ashtown, Lady Ursula, Captain Hayward, Avoca and Ulrich Brunner. 2nd, Messrs. PERKINS AND SONS, Coventry, whose best blooms were of Madame Victor Verdier, Lieutenant Chaure, Countess of Shaftesbury and the Lyon Rose.

The same two exhibitors were placed as named in the next class, which was for 24 Roses, distinct. In the 1st prize stand the following blooms were beautifully clean, fresh and of good size, including Gustave Piganeau, Avoca, Suzanne Marie Rodocanachi, J. B. Clarke, Mrs. Herbert Stevens and Mildred Grant.

The best exhibit of 18 Roses, distinct, came from Mr. W. T. MATTOCK, Headington, whose blooms of Hugh Dickson, Earl of Warwick, Mrs. W. J. Grant, Gloire Chédane Guinoisseau, Dupuy Jamain, Dean Hole and Duke of Wellington were noteworthy. 2nd, Messrs. PERKINS AND SONS, who had shapely blooms of Madame Victor Verdier, St. Helena, George C. Waud and Leslie Holland.

The best of four exhibits in a class for 12 Tea Roses (not fewer than 6 varieties) also came from Mr. W. T. MATTOCK, whose best flowers were Empress of Russia, Mrs. Edward Mawley, Maman Cochet and White Maman Cochet.

CARNATIONS, SWEET PEAS, ETC.

The winning exhibit of 12 vases of Carnations or Picotees, 3 blooms of each, came from Mr. C. WALL, Bath, who had superb blooms of Scarlet Glow, R. F. Felton, Mrs. C. Knoff and Mrs. G. Marshall. 2nd, Messrs. A. R. BROWN AND CO., King's Norton, whose best specimens were Linkman (extra good), Mrs. Robert Gordon and Margaret Thurston. 3rd, Mr. W. H. PARTON, Moseley.

Mr. R. G. RUDD, King's Heath, beat Messrs. A. R. BROWN AND CO. in the next class, which was for 12 border Carnations or Picotees, distinct, shown in vases as grown. In the 1st prize stand we noted shapely blooms of Hercules, Sam Weller, Lord Steyne, Alice Stewart and Mrs. Robert Gordon.

There was spirited competition in the class for 12 bunches of Violas, distinct, in which Mr. H. ALLEN, Handsworth, won the 1st prize. His flowers were large, richly coloured, and effectively staged. 2nd, Mr. H. MILNER, Handsworth.

The 1st prize in a class for a decorative arrangement of Pansies and Violas on a space of 6 feet by 3 feet was well won by Messrs. PEMBERTON AND SON, Bloxwich. In a class for a display of Sweet Peas in a space of 20 feet by 4 feet, a Silver Challenge Cup, value 20 guineas, and a Gold Medal, value £5, were offered as the 1st prize. These were won by Messrs. E. W. KING AND CO., Coggeshall, Essex, whose large strong-stemmed flowers were very handsome. Mr. W. E. ALSON, Denmead, Hants.

Messrs. T. B. GROVE AND SON, Sutton Coldfield, were the only competitors in a class for 24 bunches of hardy border flowers in not fewer than 18 varieties (annuals and shrubs excluded), and they were deservedly awarded the 1st prize.

Messrs. PERKINS AND SONS, Coventry, excelled in a class for three bouquets.

TABLES DECORATED WITH FLOWERS AND FRUIT.

Ten tables, each 8 feet by 4 feet, decorated with flowers (Orchids excluded) made a very pretty feature. The 1st prize of 3 guineas was awarded to Miss F. JENKS, Codsall, who used

yellow Roses. 2nd, Miss D. Cope, Balsall Heath.

There were four contestants in a class for dinner tables 8 feet by 4 feet decorated with fruit and flowers and laid for dessert. The 1st prize was awarded to Mr. C. Crooks, Droitwich, whose specimens of Muscat of Alexandria and Black Hamburgh Grapes, Melons, Dymond Peaches and Humboldt Nectarines were very fine. The flowers consisted of Schizanthus and Selaginellas. 2nd, Captain W. H. Starkey, Leamington (gr. Mr. G. L. Blackburn), whose Peaches, Nectarines and Strawberries were of good merit. Roses were used as decorations. 3rd, Mr. Stephen Sims, Borrowash.

In a class reserved for ladies Mrs. E. Winchester, Rubery, won the 1st prize with pale pink Carnations relieved with sprays of Selaginella and Asparagus. 2nd, Mrs. E. Reeve, Balsall Heath.

Special prizes were offered by Robert Sydenham, Ltd., for Sweet Peas displayed in rural decorations. 1st, Mrs. H. Reeve, Berkswell; 2nd, Mrs. E. Winchester, Rubery.

Plants (Open to Gentlemen's Gardeners and Amateurs).

The most important group class in this section occupied a ground space of 15 feet by 8 feet. The five exhibits were arranged down the centre of the tent, and were much admired by visitors. The 1st prize was awarded to J. A. Kenrick, Esq., Edgbaston (gr. Mr. A. Cryer), for a lightly-arranged group in which Codiæums, Dracænas, Begonias, Kalanchoes, Liliums, Humea elegans and tall Campanulas, Ferns and Palms were the principal plants employed. 2nd, Hume Pinsent, Esq., Harborne (gr. Mr. G. Corbett).

Mr. Cryer was also awarded 1st prizes for (1) 6 stove or greenhouse plants; (2) 6 exotic Ferns; (3) 3 Zonal Pelargoniums; and (4) 6 double-flowered Begonias. Mr. G. Corbett beat Mr. Cryer in another class for 6 single-flowered Begonias.

Fruit (Open).

The best of four collections of ten dishes of fruit, not fewer than 7 kinds, came from the Duke of Westminster, Eaton Hall, Chester (gr. Mr. N. F. Barnes), who showed well-coloured fruits of James Grieve Apple, Royal George and Crimson Galande Peaches, Pine Apple Nectarine, Clapp's Favourite and Williams' Bon Chrétien Pears, Eaton Seedling Melon and Madresfield Court and Muscat of Alexandria Grapes. 2nd, Hugh Andrews, Esq., Toddington Manor, Winchcombe (gr. Mr. J. R. Tooley), whose Brown Turkey Figs were particularly good. 3rd, Captain W. H. Starkey, Leamington (gr. Mr G. L. Blackburn). The Duke of Westminster (gr. Mr. N. F. Barnes) gained 1st prizes for (1) Two bunches of Black Grapes with large-berried, well-finished bunches of the variety Madresfield Court, and (2) Two bunches of White Grapes with Muscat of Alexandria.

Mr. C. Crooks, Droitwich, had the best scarlet-fleshed Melon. Sir Robert Graham, Bart., Carlisle (gr. Mr. G. F. Hallett) was second.

1st prizes were awarded to J. Boston, Esq., Handsworth (gr. Mr. T. Perks), for Black Currants; Captain W. H. Starkey (gr. Mr. G. L. Blackburn), for Red Currants; The Manor Fruit Farm, Knowle, for Gooseberries; Sir Francis Lloyd, Oswestry (gr. Mr. W. T. Staward), for Strawberries; and W. Sarsons, Esq., Moseley, for Loganberries.

Vegetables.

In a class for 9 distinct kinds Mr. E. Winchester, Rubery, was placed first with a well-set-up collection containing Tomatos, Cauliflowers, Peas, French Beans and Onions. 2nd, Hugh Andrews, Esq. (gr. Mr. J. R. Tooley).

Messrs. Webb and Sons offered prizes for collections of 8 kinds, and 4 competed. The 1st prize was won by the last-named exhibitor with a very handsome exhibit. Mr. E. Deakin, Hay Mills, secured 1st prize in classes provided by (1) Messrs. Sutton and Sons for 6 kinds; (2) Messrs. Dickson and Robinson, for 6 kinds; and by (3) Messrs. Yates and Son, Birmingham, for 6 kinds. The proprietors of the *Birmingham Daily Mail* offered a Silver Challenge Cup value 20 guineas for the best display of produce including flowering plants, cut flowers, fruit and vegetables on a space of 8 feet by 5 feet. Open only to amateurs not employing help more than one day per week on an average throughout the year. The coveted prize was awarded to Mr. A. T. Rainbow, Northfield, who was strong in vegetables, which were clean and well displayed. Some fruit and a few flowers were also included in this exhibit. The 2nd prize collection, which came from Mr. E. J. Keeling, Small Heath, was representative but rather overcrowded.

Non-Competitive Exhibits.

Messrs. Barr and Sons, Covent Garden, sent a collection of dwarf Japanese trees; also hardy cut flowers and Alpine plants; Messrs. Hewitt and Co., Solihull, had a large exhibit of hardy flowers and cut Roses; Messrs. R. J. Barnes and Son, Malvern, a small bank of Roses; Mr. H. J. Jones, Lewisham, a magnificent group of Phloxes in pots; Bowell's Alpine Garden, Cheltenham, a small and interesting collection of Alpine plants; Messrs. W. H. Simpson and Sons, Birmingham, Sweet Peas, annuals and perennials; Messrs. Webb and Sons, Stourbridge, a choice exhibit of flowers, fruit and vegetables; Messrs. Young and Co., Cheltenham, Carnations; Messrs. Piper, Bayswater, an extensive exhibit of hardy flowers and clipped Box trees; Messrs. Sutton and Sons Reading, a grand display of Sweet Peas, fruit and vegetables beautifully arranged. Messrs. Sutton and Sons were awarded a Gold Medal by the Society — a Gold Medal by the deputation of the Royal Horticultural Society, as well as a Silver Cup for the best exhibit in the show. Mr. John Barnet, King's Norton, Roses; Messrs. Seagrave and Co., Sheffield, Show Pelargoniums and Violas; Mr. Fred Smith, Woodbridge hardy flowers; Messrs. Holder Brothers, Erdington, Sweet Peas; Messrs. Ware and Co., Feltham, double-flowered tuberous-rooted Begonias; Mr. George Aitkens, Tarvin, Chester, Sweet Peas; Messrs. Ritch and Co., Bath, hardy flowers; Mr. F. Walton, Handsworth, an interesting collection of Cactaceous plants; Mr. A. F. Dutton, Iver, Carnations; Mr. H. Burnett, Guernsey; Mr. John E. Knight, Wolverhampton; Mr. C. Wall, Bath, and the Clury Nurseries, Langley, Bucks (all Carnations); Mr. H. N. Ellison, West Bromwich, a choice collection of Ferns.

SOUTHAMPTON ROYAL HORTICULTURAL.

July 15.—The summer exhibition of the above society was held on the 15th inst. in the County cricket ground. The entries were fewer than in past years, especially in the Carnation section, which represented what was formerly known as the Southern Counties Carnation Association. In the first three classes for Carnations in the open section for twelve vases of Selfs, Fancies, and yellow-ground Picotees, four vases of Selfs, and four vases of Fancies respectively, there was but one entry in each case. The exhibitor was Mr. Mathias, Medstead, and the 1st prize was awarded in each class. Outstanding varieties were Sunproof, Mrs. Leo. Hunter, Linkman, Margaret Thurston, and Leslie. Exhibits of dressed flowers on cards were slightly more numerous. For six Flakes or Bizarres, Mr. J. J. Keen, The Avenue, Southampton, was placed 1st with Curzon, Flamingo, Houlgrave, Premier Shamrock, and Cleopatra; 2nd, Mr. H. Mathias, whose best blooms were Ethel Macrae and Mrs. R. Lord. The former was selected as the premier bloom. Mr. Mathias showed the best of three exhibits in the class for six Fancy Carnations, staging good blooms of Lord Steyne, Donald McDonald, Bombardier, Hercules, and J. J. Keen (premier); 2nd, Mr. Keen. The best collection of six Carnation Selfs was shown by Mr. Mathias, who had Mrs. G. Marshall (premier), Mrs. R. Percy Smith, Helen and others; 2nd, Mr. H. M. Elford, Bournemouth.

Mr. Keen won the premier position for both yellow and white ground Picotees with Viola (premier yellow), Miss Goodfellow, John Smith (premier white), Mrs. Payne, Lavinia, and Radiant; Mr. Mathias was awarded the 2nd prize in both these classes.

There was not much competition in the classes for amateurs. In many cases there was but one exhibitor, Mr. J. A. Fort, The College, Winchester, who won several 1st prizes.

Perpetual-flowering varieties made a rather better show. For five vases of Tree or Americau varieties Sir R. S. Baker, Bart., Ranston, Blandford (gr. Mr. Usher), was placed 1st with Scarlet Glow, R. F. Felton, White Wonder and Mrs. T. W. Ward as his best varieties; 2nd, W. H. Myers, Esq., Swanmore House, Bishop's Waltham (gr. Mr. G. Ellwood). These two exhibitors reversed their positions in the class for three varieties; Mr. Myers exhibited Mrs. Dutton, Britannia, and President.

Three competed in the class for a dinner-table arrangement. Mrs. F. G. Bealing, Basset, Southampton, was placed 1st; 2nd, Mrs. E. Ladhams, Shirley, Southampton.

Sweet Peas.

Messrs. Sutton and Sons offered prizes for six bunches of Sweet Peas. Sir R. Baker had the best of three exhibits, showing good blooms of Barbara, King Manoel, Clara Curtis, and Princess Victoria; 2nd, Mr. F. G. Bealing, who staged Elfrida, R. F. Felton, and Helen Lewis well. For one bunch of the variety Sutton's Queen these two exhibitors occupied similar positions.

In Messrs. Toogood's class for nine bunches there were three entries; two exhibits were disqualified, and the 2nd prize was awarded to Mr. A. Maple, Aldermoor, Shirley. Mr. Bealing won Messrs. Webb and Sons' prize offered for eight bunches with Elsie Herbert, Mrs. H. Dickson, King Manoel, and Masterpiece, and he also excelled in Mr. Robert Sydenham's class for nine distinct varieties with Thos. Stevenson, Asta Ohn, Mrs. R. Hallam, Etta Dyke, and Maud Holmes; 2nd, Mr. Maple.

Fruit and Vegetables.

For a collection of four dishes, Ellen Lady Swaythling, South Stoneham House, Southampton (gr. Mr. T. Hall), was the only exhibitor. The Madresfield Court Grapes, Melons, Peaches and Nectarines were of splendid quality. The same exhibitor also won the 1st prize for Black Grapes with Madresfield Court, for two bunches of White Grapes with Muscat of Alexandria, and one dish of Peaches with the variety Dymond. The Locksheath Nursery Co. showed the best Nectarines, the variety being Humboldt. Vegetables were numerous and good. Mr. Myers won, with splendid produce, the 1st prizes in Messrs. Toogood's class for six varieties, Messrs. James Carter and Co.'s Challenge Cup for eight dishes, Messrs. Sutton and Sons' class for six kinds, and Messrs. Webb and Sons' class for six kinds. Admiral Sir John Hopkins, Greatbridge House, Romsey (gr. Mr. H. Mattingley), was placed 2nd in Messrs. Toogood's, Carter's, and Webb's classes.

Non-Competitive Exhibits.

The finest trade exhibit was shown by Messrs. Sutton and Sons, Reading, who had a display of Sweet Peas of the finest quality.

Messrs. Toogood and Sons, Southampton, showed Sweet Peas, Vegetables, Melons, and other produce grown from seeds.

Messrs. W. H. Rogers and Son, Southampton, showed Roses and hardy flowers.

Mr. Fred Longster staged Sweet Peas.

Mr. C. Fay, Testwood Nurseries, Totton, Southampton, exhibited Carnations.

Mr. A. F. Dutton, Iver, Bucks, also showed Carnations.

Messrs. Jarman and Co., Chard, showed Roses and other flowers.

Messrs. B. Ladhams and Son, Shirley, Southampton, showed hardy plants.

Mr. E. Wills, The Nurseries, Winchester Road, Southampton, had miscellaneous plants.

Messrs. E. Hillier and Son, Winchester, contributed hardy plants, etc.

Mr. W. F. Gullick, florist, Salisbury, had a large and attractive exhibit of Violas.

Publications Received.—***Unsere Freiland-Stauden,*** by Georg Arends, Goos & Koenemann, A. Purpus, Camillo Schneider, J. Veitch & Sons, and Franz Zeman. Edited by Ernst Graf Silva Tarouca. Second and enlarged edition. (Leipsig: G. Freytag.) Price M. 15.00.—***Prices and Supplies of Corn, Live Stock and Other Agricultural Produce in Great Britain.*** (London: Board of Agriculture and Fisheries.) Price 5d. —***Silver-Leaf Disease (II.),*** by F. T. Brooks, M.A. From the *Journal of Agricultural Science.* Vol. V., Part 3. June, 1913. (Cambridge: University Press.)

GARDENING APPOINTMENTS.

[*Correspondents are requested to* **write the names of persons and places as legibly as possible.** *No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. John E. Davis, for the past 10 years Gardener to Colonel E. R. Stewart Richardson, of Ballathie, Perthshire, as Gardener to Sir Felix Schuster, Bart., Virdley Place, Fernhurst, West Sussex.

Mr. W. Newman, for the past 2½ years Foreman at Marstham House, Merstham, Surrey, as Gardener to Lady Addy Grant, Melton Hall, Newdigate, Surrey.

Mr. G. Sears, for the past 2½ years Inside Foreman at Pellwall Gardens, Market Drayton, Salop, as Gardener to Samuel B. Bamford, Esq., Hawthornden Manor, Uttoxeter. [Thanks for 1s. for R.G.O.F. box. Eds.]

Mr. Jas. W. Robertson, lately Gardener at Seaforth House, Arbroath, as Gardener to Archibald Cochrane, Esq., Abbotshill, Galashiels, N.B.

Obituary.

Robert Sydenham.—It is with deep regret that we record the death of Mr. Robert Sydenham, of Tenby Street, Birmingham, which occurred with tragic suddenness on Saturday, the 19th inst. In the morning Mr. Sydenham left his home at Edgbaston apparently in his usual health and spirits, and upon reaching the office, about nine o'clock, he plunged at once into business. Only a couple of hours or so afterwards, at 11.30, a member of the staff found Mr. Sydenham lying on the floor in a state of collapse; a doctor was immediately summoned, but Mr. Sydenham was already beyond human aid. He never regained consciousness, and passed away a few minutes after the doctor's arrival.

Born at Salisbury in 1848, Robert Sydenham received his early education in the city of his birth, but later he attended a school at Christchurch, Hampshire. At 14 years of age he went to Birmingham, and became apprenticed to a firm of general merchants. After six years' service he was given the charge of the firm's shipping department, and was subsequently appointed their representative in the United States, where he spent a considerable time travelling about the country. Returning to Birmingham in 1872, he joined his elder brother George in a partnership offered to them by the firm by whom Robert Sydenham was employed, the condition being that they opened a jewellery department in connection with the same business. Robert Sydenham was always extremely fond of flowers, and soon began to grow bulbs, but in quite an amateurish way, without the slightest intention of developing his hobby on commercial lines. His first "bargain" was a dozen Hyacinth bulbs for which he paid 8s. in 1881. They did so well, and yielded so much pleasure for their small cost, that he procured three dozen bulbs the following year; and in 1884 he bought several hundreds at an auction sale. As this latter purchase involved the possession of more bulbs than he required for his own use, he distributed the surplus among his friends, a transaction which may be looked upon as his entrance into the seed and bulb industry. The business, once begun, increased with marvellous rapidity, and became one of the most successful of its kind in the country. Such extension of business necessitated the erection of a block of warehouses and offices, and the Tenby Street site was selected, the buildings being fitted with every modern convenience. By 1886 the annual sales amounted to about eight tons in weight. In the following year, we are informed, the quantity was almost doubled, and this process continued until in 1896 no fewer than 5,000 packages were sent out, containing upwards of a million and a half of bulbs. In the season of 1897-8 over 33,000 orders were executed, and during September and October, 1910, over 40,000 orders were dealt with, the average daily output being about four tons weight. During the last season, about 15,000 customers were supplied with bulbs or seeds.

Robert Sydenham was a man of wonderful energy, perseverance, and industry. No enterprise seemed too difficult for him to undertake, and he spared no pains to make successful any project which he took in hand. Thoroughness was his guiding principle, and he always paid the most minute attention to matters of detail. He was an early riser, and personally supervised every branch of his extensive business. Although he took no part in public or local affairs, he was ever generous in helping charitable institutions or individuals needing temporary assistance. He was a very good friend to the Birmingham Hurst Street Christian Mission and the Early Morning Adult School movement; and his gifts of bulbs to the City Parks of Birmingham were numerous.

Three flowers chiefly claimed his interest—the Daffodil, the Carnation, and the Sweet Pea. The Daffodil was by far his favourite, and he was one of the founders and chief supporters of the Midland Daffodil Society. No Society ever possessed a more energetic and loyal supporter; he was honorary treasurer of the Society, and it was his ambition to make and maintain it the premier society of its kind in the kingdom. Its present position is largely due to his untiring efforts, and the annual gatherings, in which the social side was always prominent, did a great deal to give the Society a character all its own. He also helped to form the Midland Carnation Society in 1891; he gave it his liberal support, and was Chairman of the Committee at the time of his death. He was attached to many other societies, and was, at one time, President of the National Sweet Pea Society. He was formerly a very successful exhibitor of Carnations, but in recent years his flowers were seldom seen on the tables of the shows.

Robert Sydenham was laid to rest in Lodge Hill Cemetery, Birmingham, on Tuesday, the 22nd inst. A service at Edgbaston Old Parish Church preceded the interment, many friends being present. The service was conducted by the Ven. Archdeacon Owen, Vicar, and the Rev. Joseph Jacob, Chairman of the Daffodil Society. Immediately after the funeral service a meeting of the Committee of the Midland Daffodil Society was held, and a resolution of condolence with Mrs. Sydenham and her family was adopted.

Mr. Sydenham was 65 years of age. He leaves a widow and two married daughters.

Appreciation by a Fellow-Seedsman.

"Uncle Robert" is gone, and one of the most interesting figures in contemporary horticulture is thus removed. He attended the Sweet Pea Show on Thursday (17th inst.), and the dinner on the same evening, but by Saturday he had entered into his rest. On Thursday night, when I asked him how he was, he answered: "My general health is better, but my increasing deafness is very trying." It must be twenty-five years or more since I made Mr. Sydenham's acquaintance. At that time the late Mr. William Dean was living at Solihull, near Birmingham, and it was chiefly owing to Mr. Dean that Mr. Sydenham and I became interested in Sweet Peas. Mr. Dean used always to insist that Sweet Peas were the flowers of the future, a prophecy which was fully justified. Mr. Sydenham subsequently became one of the largest dealers in Sweet Pea seed in the country; but formerly he used to devote a great deal of time to growing Carnations, Mr. Dean assisting him with the packing. It was, however, as a bulb importer that he made his great name. His interest in Daffodils, especially, was intense, and he knew Holland as few Englishmen can ever hope to know that country. Had he been a less strenuous worker he might have been with us now; but he was energetic by nature, and used invariably to rise early in order to put in several hours' work before breakfast. The loss of my friend is a serious one to me. We occasionally had slight differences—most of his friends found him hasty—but he never bore malice or cherished animosity. We therefore think of him as one who possessed "the heart of love that guides the helping hand." He was one of the most generous of men; no appeal on behalf of a deserving case was made in vain. He was beloved by his staff for his liberal appreciation of their efforts; his hearty commendation was the unfailing reward of a task well performed. *W. Cuthbertson.*

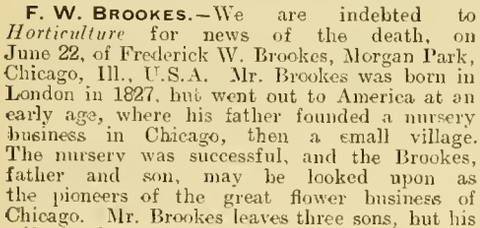
Fig. 35.—the late robert sydenham.

Henry Chilman.—We regret to record the death of Mr. Henry Chilman, which occurred on the 19th inst., at his residence, Cavendish Villa, Leatherhead, in his 87th year. Mr. Chilman was

a successful exhibitor of specimen stove and greenhouse plants at the leading London shows in the middle of last century, and he was a frequent contributor to the pages of the *Florist and Pomologist* in the early 'sixties. Though ripe in years, his intellect was unimpaired to the last. A few days before his death he was relating to a friend some of his experiences in the exhibition tent.

JULIUS ROEHRS.—By the death of Mr. Julius Roehrs, horticulture in America has lost one of its most enthusiastic pioneers in the development of the wholesale and retail seed business. Mr. Roehrs had been ill all the winter with a bad cough, and the doctors advised him to go to Capri. There he stayed three months, but, not getting better, he returned to New York from Naples on June 28, and arrived home on the 8th inst. and died on the 20th inst., in his seventy-third year. Born in Germany, where he received his early training, Mr. Roehrs, whilst still a young man, emigrated to the United States, entering private service in Jersey City, New Jersey, where he cultivated most successfully Orchids, stove and greenhouse plants, including some of the finest specimens of Phalænopsis Schilleriana and P. amabilis. The collection was eventually dispersed owing to the death of the owner, and Mr. Roehrs shortly afterwards commenced business on his own account at Rutherford, New Jersey. His energetic, vigorous constitution, amiable disposition, and strict business qualities enabled him to create an establishment unequalled in America. His keen judgment of plant novelties prompted him to devote whole houses to particular kinds, and he visited Europe almost every year in quest of them. Twenty-five years ago he commenced to cultivate Orchids, which were at that time almost unobtainable in New York flower shops. He began by suspending and growing them from the roofs of his Palm houses. Gradually the demand developed to such proportions that his nursery now contains many Orchid houses of great size and modern construction, and includes thousands of specimens of Cattleya gigas, C. Mossiæ, C. Mendellii, C. Trianæ, C. labiata, Oncidium varicosum, O. splendidum, Dendrobium formosum, and D. Phalænopsis, thousands of Vanda cœrulea, and many other useful varieties of Orchids, together with a collection of rare species and hybrids. His Palm and decorative plant business is also one of the largest in the country, especially in plants for use at Christmas and Easter. He leaves a widow, two daughters, and five sons. Three of the latter are in the business. Each has received a thorough horticultural training in this country, which, together with their home experience, should enable them to maintain and continue the excellent reputation of the "Roehrs' Establishment."

F. W. BROOKES.—We are indebted to *Horticulture* for news of the death, on June 22, of Frederick W. Brookes, Morgan Park, Chicago, Ill., U.S.A. Mr. Brookes was born in London in 1827, but went out to America at an early age, where his father founded a nursery business in Chicago, then a small village. The nursery was successful, and the Brookes, father and son, may be looked upon as the pioneers of the great flower business of Chicago. Mr. Brookes leaves three sons, but his wife pre-deceased him by many years.



BOARD OF AGRICULTURE LEAFLETS: *C. H.* The leaflets you mention may be obtained from the Board of Agriculture and Fisheries, 4, Whitehall Place, London. No charge is made for them, and it is not necessary to affix a stamp to your communication.

CHERRY TREES: *R. J.* The leaves are attacked by the Silver-leaf disease. This disease is caused by the fungus Stereum purpureum, but no certain method of combating it has been discovered. Stereum purpureum gains access to the plant through an injury to the superficial tissues, such injury being sometimes caused by cold winds. It has been claimed by New Zealand growers that sulphate of iron will check the disease. The spores of the fungus are developed on dead branches, therefore a vigilant watch should be kept on diseased trees, and their dead branches should be removed and burned.

DIPELTA: *H. F. L.* D. ventricosa was shown by Messrs. James Veitch and Sons at the R.H.S. exhibition at Chelsea last month. See note in *Gardeners' Chronicle*, June 14. p. 409.

FUNGUS ON TENNIS COURT: *T. S.* There is no parasite of any kind to be found. The sod consists almost entirely of moss, which has evidently killed the grass.

GRAPES SPLITTING: *E. J. A. L.* Your treatment of the vines is too exciting for the fruit during the final swelling. Those of Black Hamburghs suffer the most, because they are the more forward. You may expect the berries of the other varieties to crack in the same way later on if a similar treatment is followed. Discontinue the use of the concentrated manure and the afternoon damping, allowing the atmosphere to become somewhat drier before closing the vinery, and the temperature should not rise appreciably without ventilation either in the morning or afternoon.

GOOSEBERRY SHOOT: *S. W.* English Gooseberry mildew is present; the disease will do no great harm to the plants.

GRAPES DISEASED: *L. H.* The berries are affected with Grape rot, caused by Glœosporium ampelophagum. See reply to *A. J. L.* in last week's issue. Send the Grapes for naming when the berries are ripe.

MELON ROOTS: *H. W.* Eelworm is present in the roots. Water the plants with a solution of sulphate of potash, 1oz. in 1 gallon of water.

MELON PLANTS: *J. E.* We are unable to find any trace of disease due to fungi on the specimens submitted for examination. The trouble must be looked for in some error of cultivation.

NAMES OF PLANTS: *B. C.* 1, Stachys lanata; 2, Sedum grandiflorum; 3, Spiræa Douglasii. —*A. A.* Tacsonia exoniensis. — *Bumarkaig.* Probably Meum athamanticum.—*R. T.* 1, Alstrœmeria chilensis variety; 2, Leycesteria formosa; 3, Rhus Cotinus; 4, Cornus sibirica variegata; 5, Send in flower; 6, Alstrœmeria aurantiaca.—*Constant Reader.* 1, Magna Charta; 2, Florence Pemberton; 3, Mrs. Sharman Crawford; 4, Rev. A. Cheales; 5, Ulrich Brunner; 6, Cuphea.—*W. D. B.* 1, Cytisus scoparius var.; 2, Epilobium angustifolium album; 3, Geranium pratense (white variety); 4, Sidalcea candida; 5, Aconitum Lycoctonum; 6, Lonicera involucrata. — *S. C. H.* 2, Spiræa lobata; 3, Spiræa Douglasii; 4, Leycesteria formosa; 5, Potentilla fruticosa; 6, Hedysarum multijugum; 7, Flowers all gone.—*S. G. R.* Pentstemon campanulatus.—*T. T.* 1, Lotus corniculatus; 2, Vicia Cracca; 3, Avena flavescens; 4, Galium verum; 5, Avena flavescens; 6, Heracleum Sphondylium. All are common wild plants, none being of value as forage plants.—*G. W. W.* Matricaria Tchihatchewii.—*Cestrian.* 1, Carex brunnea variegata; 2, Sedum Middendorffianum; 3, Oxalis rosea; 4, Oxalis sp. (flowers gone, but probably O. brasiliensis); 5, Not recognised; 6, Rosa lucida; 7, Tuscany; 8, Thymus sp.; 9, Sedum album.—*Pelargonium.* The Pelargonium bloom was shattered; it is a variety of the show section. The seed-pod is Datura Stramonium (Thorn Apple).—*Hortus.* Lysimachia vulgaris.—*C. G. Assoc.* Inula dysenterica (Fleabane).—*A. K. T.* Lysimachia punctata.—*E. F.* 1, Lastrea æmula; 2, Athyrium Filix fœmina corymbifera; 3, Polystichum aculeatum; 4, Lastrea rigida.—*O. H.* 1, Liparis longipes; 2, Acriopsis javanica; 3, Seraphyta multiflora; 4, Epidendrum rigidum; 5, Cochlioda rosea.—*G. C.* Plantago Coronopus.—*Horsley.* 1, Phygelius capensis; 2, Dendrobium Dalhousieanum probably, but flower quite decayed; 3, Spiræa arifolia; 4, Galium Mollugo.—*Interested.* 1, Rosmarinus officinalis (Rosemary); 2, Santolina incana; 3, Campanula laciniata; 4, Stachys lanata; 5, Agathæa cœlestis; 6, Rose not recognised.—*Hortus.* 1, Rhus Cotinus; 2, Veronica salicifolia.— *E. A. L.* 1, Geranium pratense; 2, Piptanthus nepalensis; 3, Erigeron speciosus. —*R. A. H.* 1, Pteris tremula; 2, Pteris argyræa; 3, Pteris cretica; 4, Adiantum assimile.

PALM ROOTS INFESTED WITH WHITE INSECTS: *R. Green.* The pest is probably Ripersia terrestris. Remove the plants from the pots and spray the exposed roots and soil with carbon bisulphide, using a small glass spraying apparatus. Scald the pot and have it in readiness for replacing immediately after spraying. The process must be repeated, as this will not be sufficient to kill the eggs. The plants should be shaded from the sunshine for about a week after this treatment. Another plan is to bore holes in the soil with a stiff wire and pour one teaspoonful of the carbon bisulphide in each hole. It must be remembered that this material is highly inflammable.

PEACH AND PEAR TREES: *T. R.* Spray the Peach trees with liver of sulphur; the Bordeaux mixture must not be used. There is no disease on the Pears, the trouble is at the roots. It is not usual for Pear trees to throw double trusses of bloom.

PRIMULA AND AUBRIETIAS: *B. C.* The period immediately following the flowering stage and the latter part of September are the best times for dividing and re-planting the double forms of Primula acaulis. They require partial shade, rich soil and plenty of moisture. In the case of the Aubrietia, the plants may be cut back after flowering with the garden shears to about half their height. In a month or so the old stems—if the plants have been well watered meanwhile—will be seen studded with fresh shoots, and when these are an inch or two long, strip them off with a heel attached and insert them in sandy soil. Do not waste time "making" the cuttings, as thousands are spoiled in the process. Moreover, the cutting is perfectly suitable when merely detached from the parent plant. Do not water the cuttings too frequently.

ROSE LEAVES: *J. L.* There are several insect pests that cause the leaves to become rolled, and even green fly is often responsible for "leaf rolling." The best plan is to spray the trees with an insecticide early in the season, wetting the under as well as the upper surfaces of the leaves. Extract of Quassia may be employed, or one of the numerous preparations advertised for the purpose.

SWEET PEAS FAILING: *J. R.* We have examined the specimens of Sweet Peas, but fail to find definite traces of disease. In the circumstances it would appear that the trouble has arisen through the rather liberal use of chemical manures. In any case, we should advise you to discontinue applying them without delay, and afford the plants copious supplies of clear water, noting whether they appear to make better growth after such treatment.

VINE LEAVES UNHEALTHY: *W. B.* Water the leaves with a solution of sulphate of iron, 1oz. in gallon of water, at intervals of four days. Sprinkle a small quantity of sulphate of iron, in small lumps, in the soil.

VINES: *C. N.* No disease is present. The trouble is due to scalding. Attend carefully to the ventilation of the vinery, especially in the morning before the sun's rays become powerful.

WEED: *Taxie.* The name of the weed is Prunella vulgaris, a very difficult plant to get rid of, but since it is chiefly fond of poor soils, you might keep it under by constant feeding. For heavy soils use basic slag applied in the autumn, and on light soils superphosphate, applied in the spring.

Communications Received—J. M.—S. and G.—North Devon—H. N.—A. A., Devon—J. L.—H. C. M.—C. F. B.—Lucan—Mrs. M. A. McA.—T. P. E. and Bros., Australia—B.—B. M.—T. H.—Grower.—S. G. R.—C. H.—S. and Fils—W. W.—C. A. P. B.—Miss H. H.—E. T. C., Toronto—A. C. B.—R. A. M.—S. and Sons—A. G.—A. W. and Co.—R. V. and B.—Tarboy—W. R. D.—S. L. and Co.—W. T.—Col. D.—H. W.—Carnation—W. P.

Photographs by H. N. King.

EATON HALL, CHESTER,

THE RESIDENCE OF THE DUKE OF WESTMINSTER.

THE
Gardeners' Chronicle

No. 1,388—SATURDAY, AUGUST 2, 1913.

CONTENTS.

ILLUSTRATIONS.

INCREASED RAILWAY RATES.

IN these pages last week there appeared a report of the recent proceedings before the Railway and Canal Commissioners when the South-Eastern and Chatham Railway Companies Managing Committee applied for leave to raise certain of their rates to the amount of 4 per cent.

It should be explained that the position of the South-Eastern and Chatham Railway Company is different to that of any other railway company in England. In the case of all the other companies they can raise their rates at any time provided they do not exceed the maxima fixed by the Railway and Canal Traffic Acts; nevertheless, anyone who is affected by an increase can call upon the railway companies to prove to the satisfaction of the Railway Commissioners that such increase is justifiable. The South-Eastern and Chatham Railway Companies, however, in addition to coming under this rule, are also under the special necessity of obtaining leave from the Commissioners before they can raise their rates at all, this provision having been inserted by Parliament in the interests of the public when the two companies applied to amalgamate their concerns (with the consequent elimination of competition between them) in the year 1899.

At first sight it might seem a little hard upon the two companies in question that steps should be taken by traders to oppose the companies' application to be placed on the same footing as the other railway companies so far as the rates specified in their recent public notices are concerned. Closer examination of the subject, however, will show that it was of vital importance to the mercantile community either to oppose the application or, at all events, to make sure that only a limited form of Order was obtained, so as to prevent the Order from being made effective and binding for all time, and especially to prevent the railway companies from using the small Order asked for as a precedent to enable them to raise their other rates in any manner they chose.

Rates Affected.

It should be observed that the companies did not apply for leave to raise all their rates, their application being limited to the following, namely :—

1. The rates for the carriage of traffic (other than coal, coke and round timber) by merchandise train between certain specific stations on the South-Eastern and Chatham lines which were alleged to come into competition with other stations on lines of the London, Brighton and South Coast Railway, the South-Western Railway, and the Great Western Railway.

2. The rates for the carriage of merchandise traffic by passenger train for small parcels—*i.e.*, consignments not exceeding 3cwt., and

3. Rates for the carriage at owner's risk of merchandise traffic by passenger train.

It will be noticed that no leave was asked to raise through rates; the companies, in fact, contend that no sanction is required with respect to these, though there is serious doubt whether such a contention is well founded. It should also be noted that as soon as signs of opposition began to manifest themselves the railway companies announced that so far as Class Rates were concerned they did not intend to make use of any sanction obtained, and that they would increase only the Exceptional Rates.

In any event, however, the Order asked for was of great importance to dealers in perishable goods, as they naturally require to send a considerable portion of their traffic by passenger train at owner's risk.

Grounds of Application.

In their formal application lodged with the Court, the railway companies sought to justify their request by alleging :—

(*a*) That their ratio of expenditure to receipts had increased during recent years.

(*b*) That the cost of working the railways had already risen, or would shortly rise, by the sum of £40,000 per annum, owing to improvements made since the railway strike of 1911 in the conditions of employment of their labour and clerical staff, and

(*c*) That they had expended a sum of nearly £6,000,000 in enlarging and improving their stations, warehouses and plant and providing new and modern rolling stock.

When the case came before the Railway and Canal Commissioners, however, the railway companies did not seek to justify their application on grounds (*b*) and (*c*) above, but fell back on the plea that their working expenses had increased in their proportion to receipts.

It is instructive to observe, however, that the railway companies placed no figures before the Court in justification of their assertion, except certain accounts for the years 1898 and 1912 respectively. As to the accounts for 1898, they necessarily represented a combination of the accounts of the South-Eastern Company and the London, Chatham, and Dover Company before the amalgamation—*i.e.*, at a time when they were acting separately and in competition. This, of course, furnished hardly a fair basis of comparison with the accounts for the year 1912—*i.e.*, a date after the companies had become to all intents and purposes a single concern.

Curiously enough, the companies were not prepared to furnish the Court with any information as to what economies had been secured owing to the amalgamation between them, although these economies must have proved of considerable value, and, in fact, the saving of expense was a point on which the companies greatly relied when they were applying for leave to amalgamate in 1899.

Very little information was also forthcoming as to how much the companies were getting or could get by increase in passenger fares, apart from what they were asking to get from goods traffic, nor were they prepared to show how much of their increased cost of working arose from passenger traffic or mineral traffic or the cost of running hotels, as distinct from the traffic of those traders whose rates they were asking leave to increase.

It is satisfactory to find, therefore, that pending closer investigation of the subject, the railway companies failed to obtain such an Order as would enable them to claim that a precedent had been created. The Court decided that a *primâ facie* case had been made out by the railway companies, but at the same time it safeguarded the interests of the objectors by pointing out that in making a limited form of Order it was not desired to lay down any principle or to say anything which could be used as a precedent in any way. The right of the objectors to bring the matter again before the Court as they might think fit was expressly reserved, and it should be noted that the right of any member of the public to call upon the railway companies under the Act of 1894 to justify any increase in his rates admittedly remains unimpaired.

The Traders' Burden.

It is, of course, perfectly reasonable for the railway companies to wish to recoup themselves for increases in their wages bill if they can show that increased efficiency or other compensating advantages have not resulted. At the same time, traders on their part have to bear many increasing burdens in respect of rates, taxes, wages and foreign competition, and are often unable to recoup themselves from the general public. The traders feel, therefore, that before further burdens are placed upon them in the shape of increased merchandise rates, the railway companies should make further efforts to see whether their passenger fares cannot bear a fair proportion of any increased cost of working. In the present instance, also, there is good reason for stating that during the past ten years the expenditure of the South-Eastern and Chatham Railway Companies has considerably decreased in proportion to receipts, and it is encouraging, therefore, to find that pending the opportunity for closer investigation of the subject, traders have been able to preserve their right to go further into the matter and have been able to prevent the companies obtaining any Order which might have been used as a precedent for those further increases in rates which the traders apprehend. *Correspondent.*

NEW OR NOTEWORTHY PLANTS.

LILIUM SUTCHUENENSE.

Enough is known now of the characters and habits of this Lily to settle the question of its name and at the same time dispose of the several incorrect names which have been given it. The figure in the *Botanical Magazine*, t. 7,715, represents a poor example of L. sutchuenense. There is a much better one in the *Gardeners' Chronicle*, July 29, 1905 (Supplementary illustration), though that shows the pedicels shorter than they usually are and the flowers closer together. There is now flowering at Kew a batch of seedlings, raised from seeds ripened at Kew on a plant obtained from Messrs. J. Veitch and Sons, for whom Mr. Wilson collected a number of bulbs of this Lily, and these seedlings show that the species varies sufficiently to include the several forms to which names have been given, such as warleyense or Willmottiæ, pseudotigrinum and Thayeræ. Mr. Grove, following other authorities and the *Index Kewensis*, makes pseudotigrinum synonymous with L. Maximowiczii, but this is, I believe, a mistake, the last-named, as described by Regel and represented by dried specimens at Kew, being a form of L. Leichtlinii, figured in the *Botanical Magazine*, t. 5,673. This is very similar to L. sutchuenense, but it has wider leaves, shorter pedicels, and the flowers are straw-yellow with brown spots, those of L. sutchuenense being orange-red and dotted rather than spotted with dark brown. In Messrs. Veitch's nursery at Coombe Wood there was considerable variation in stature, degree of branching and size of flowers in the plants of L. sutchuenense raised from Mr. Wilson's bulbs. There is a tendency nowadays to overlook the fact that variation is common to all species—very markedly in some, less in others. Lilies are no exception in this respect, as may be seen in such species as L. umbellatum, L. pardalinum, L. speciosum, L. Martagon, L. auratum and others. To elevate to the rank of a species every slight deviation from what is termed the type is to ignore the evidence that both cultivated and wild plants are perpetually providing in support of the accepted definition of a species, namely, it "comprises all the individual plants which resemble each other sufficiently to make us conclude that they are all, or may have been all, descended from a common parent. These individuals may often differ from each other in many striking particulars, such as the colour of the flower, size of the leaf, etc., but these particulars are such as experience teaches us are liable to vary in the seedlings raised from one individual." *W. W.*

GLORIOSA ROTHSCHILDIANA CITRINA.

A very beautiful form of this handsome Liliaceous plant has flowered in Mrs. Myles Kennedy's collection at Stone Cross, Ulverston. In size it is equal to the best form of G. Rothschildiana, and the arrangement of the segments of the flowers is different in their various stages, the younger blooms having them reflexed and forming an oval outline, gradually inclining as they approach maturity to the horizontal plane. The flowers sent are six inches across when mature; in colour they are intermediate between the wholly ruby-red form and the variety citrina described in the *Gardeners' Chronicle*. The basal third of each segment is pale citron-yellow with a greenish tinge, the colour being continued up the margin, gradually becoming narrower towards the tips, the rest of the segment being light ruby-red with a mauve shade. Gloriosa Rothschildiana of the best form illustrated in the *Gardeners' Chronicle*, May 23, 1903, is the finest Gloriosa known. G. Rothschildiana citrina was illustrated in the *Gardeners' Chronicle*, September 16, 1905, p. 211, being a specimen that came in an importation from Uganda. In the *Gardeners' Chronicle*, August 20, 1904, p. 127, Gloriosa Carsonii is mentioned; collected at Fwambo, 50 miles south of Lake Tanganyika. It differs from G. Rothschildiana citrina mainly in having a claret-purple colour in the segments instead of ruby-crimson. The varieties mentioned are allied to G. virescens, though immeasurably superior for garden purposes. *J. O. B.*

Photograph by W. Irving.

Fig. 36.—Androsace pyrenaica : flowers white.

ANDROSACE PYRENAICA.

There are some dozen species which belong to the group of Androsaces known as Aretias. They are all of low, tufted growth, forming close cushions or hummocks of tightly-packed stems, covered in spring with white, pink, or yellow flowers. Perhaps the best known of the group is the beautiful A. glacialis from the high granitic Alps, with its pubescent foliage and abundance of pink flowers. With a tighter habit and closely-packed stems, another member of the set, A. helvetica, is found in the fissures of rocks exposed to full sunshine. The white flowers are produced so thickly as to quite obscure the plant. It does pretty well in this country planted in crevices where there is little soil, especially if so arranged that, while there is moisture within reach of the roots, no direct rain can fall on the plant. Similar in habit, but more compact still, is the species now illustrated [A. pyrenaica]. As its name implies, it comes from the Pyrenees, where it grows in the fissures of siliceous rocks. Although usually of small size, sometimes it forms large tufts of hemispherical shape covered in April and May in this country with white flowers.

For culture in pots in frames these charming little plants are more adapted than for growing outside, unless special places in vertical rocks can be made for them. Where there are no cracks a good plan is to bore a hole into or through the stones, and then wedge the plant into it. When grown in pots a very gritty compost should be used for potting, while thorough drainage is essential. During wet weather and throughout the winter the lights should be kept over the plants. *W. I.*

THE ROSARY.

CULTURAL HINTS FOR AUGUST.

Rambler Roses which blossomed early in June should now have a good deal of the old wood pruned away. This work is often postponed until the autumn for want of time, but it is much better to do it in August, as the ripening of the new wood is materially helped thereby. Roses of the Multiflora group (such as Crimson and Blush Ramblers) need much more thinning of old wood than the Wichuraianas. American Pillar and similar Roses should be assisted by placing poles on either side of the specimens to which one or more of the younger growths may be attached. Besides preventing overcrowding, such training adds to the effect. In Chalkwell Park, Westcliff-on-Sea, there is a plant of American Pillar which at first sight looks like three large specimens together, but is, in fact, only one. This appearance was obtained by the bending of a strong growth on each side of the main specimen, so low down that, its base being covered with soil, it produced fresh roots of its own. Weeping Roses should be examined, and some of the oldest growths cut out. Those which were pruned moderately in the spring should be further thinned now, and Moss Roses and other summer-flowering sorts will also benefit by the thinning of the older wood. Beds of decorative Roses should be examined daily and faded flowers removed. The soil, if flattened by frequent treading, should be lightly forked over, and a dusting of some quickly-acting fertiliser will considerably assist the plants to produce flowers in autumn. Standard Briars from the hedgerows should be budded without delay, as the sap is just now flowing freely on account of the recent rains. Good, plump buds should be selected. After a month has elapsed the buds should be untied and examined, after which they should be retied, but rather less tightly than before. Wool is better than raffia for this purpose. All growths should be removed which appear below those upon which the buds are in-

serted, but do not shorten the latter until next February. Dwarf stocks will also be ready for budding now. The Brier cutting stocks should be budded first, but the seedling Brier and Manetti will continue growing later, and may be budded up to the end of the month.

The seed pods should be removed from Penzance Briers if they are required to flower again in the autumn. Some varieties will yield quite a fair number of autumnal blooms if this be done at once.

It is a good plan to visit various gardens and nurseries to inspect the newer decorative Roses as a guide for autumn planting. More information can be gained in this way than by visiting an exhibition, where the flowers are necessarily shown under unnatural conditions.

Cuttings of Tea, Hybrid Tea and China Roses will strike freely if inserted at the present time in frames placed in the full sunshine, with the glass lightly painted as a protection from the glare. The bed should be composed of sandy loam with plenty of silver sand. The cuttings should be planted about 2 inches apart. Shoots which have just borne trusses of bloom make the best cuttings. Two eyes are enough for each cutting, but the top leaflet should be retained The cuttings should be sprinkled with clear water frequently on hot days, but no ventilation should be admitted for the first fortnight. Under this treatment the cuttings will quickly form callus. When growth begins air may gradually be admitted, and finally the lights can be removed. The plants should be allowed to remain in the frames for the winter, and be planted out in April in light, gritty soil.

Any Roses that have to be layered should be treated at once. The process is the same as that in the case of Carnations, except that the layer is inserted a little more deeply. Ripened wood of the current year is the best to layer. Plenty of gritty material should be spread around the layer, and the tongue should be kept open by the insertion of a piece of matchwood. The layers should be frequently watered. Any old Roses of which a few plants are desired can be layered, providing there are shoots of the current year's growth near the ground. Next April, if they are found to have rooted, they may be transplated to their permanent positions.

Roses for early forcing should be repotted in a compost consisting of two parts of good loam and one part well-rotted manure from a hot-bed. A little silver-sand should be added, and about a quart of bone-meal to a bushel of compost. Re-potting is unnecessary each year unless the old pots are filled with roots; but if it is not done a top-dressing should be applied in the autumn. This can be carried out by removing about 2 inches of the surface soil and scattering a little Clay's or other good fertiliser over the soil, then covering with good fibrous loam two parts and well-rotted manure one part. The pots and crocks for re-potting should be quite clean, and the potting should be done firmly. The plants may remain out of doors, standing them on a bed of ashes, and they should be watered occasionally.

Mildew and Black Spot fungus (especially the latter) are very prevalent. The treatment recommended by Dr. Waddell, in the National Rose Society's Annual for this year, has been found successful by many who have tried it. The recipe is as follows: One tablespoonful of commercial Formaldehyde of 40 per cent. to a gallon of soft water; spray frequently with this mixture, applying on a cool, calm evening, and previously moistening the soil if dry. Every part of the plant should be sprayed, and also the soil around it. The article in which this treatment is described is extremely interesting. It may be obtained from Mr. E. Mawley, Hon. Sec. of the National Rose Society, Rosebank, Berkhamsted. *Experience.*

SCOTLAND.

ACCIDENTAL DEATH OF A YOUNG GARDENER.

A young Edinburgh gardener, Mr. Adam Stenhouse, met with his death in a sad way recently. He drank from a bottle containing some acid and paraffin by mistake for lemonade. The shock of the discovery caused heart failure, although the mixture in itself was not of a poisonous character.

DAMAGE TO ABERDEEN GARDENS.

Wanton injury has been caused to several Aberdeen Gardens. One of those most injured is the garden of Lord Provost Maitland, where several fine plots of flowers have been seriously damaged, and a number of plants in other parts were raised and left out of the ground. In the gardens of Sir Alexander Lyon, and at other places, much damage has been done. In all cases there were left signs that the damage was the work of Suffragists, or of people posing as such.

HOUSING ACCOMMODATION FOR FRUIT PICKERS.

The question of the accommodation provided for fruit pickers and Potato gatherers in Scotland has been engaging the attention of the Royal Housing Commission, and a deputation from that body is investigating the subject by personal visits to the fruit-growing districts. They recently visited the Clydesdale district, and inspected the bothies and other buildings occupied by the pickers. *Correspondent.*

RANDIA MACULATA.

Randia maculata is a striking species when in full blossom. The plant is really a small, erect, sparsely branched tree, belonging to the Gardenia family (Rubiaceæ), and is a native of Tropical Africa. The curious, funnel-shaped flowers are from 7 to 9 inches or more in length; they are of a cream colour suffused with a reddish-chocolate, the throat and tube of the corolla being of a deeper brown tint. These peculiar flowers are equally striking in the undeveloped bud as when expanded, as for several weeks before opening the long, spikey buds look like small Indian clubs with the thick end upwards, and give the plant an uncommon effect. Owing to its showy and interesting character this plant is well worthy of a place in the plant stove. It is also known by the name Gardenia Stanleyana. *H. F. M., Peradeniya, Ceylon.*

Photograph by H. F. Macmillan.

Fig. 37.—Randia maculata in Peradeniya Botanic Gardens, Ceylon: flowers cream coloured, suffused with reddish-brown.

REPORT ON THE CONDITION OF THE OUT-DOOR FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP; AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

FULLER COMMENTS WILL BE GIVEN IN THE FOLLOWING NUMBERS. SEE ALSO LEADING ARTICLE ON PAGE 86.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND										
0, Scotland, N.										
ELGIN	Average; good	Average; good	Average; good	Average; good	Under; good	Under; good	Under; good	Average; good	.....	John Macpherson, Mayne Gardens, Elgin.
SUTHERLANDSHIRE	Under	Average	Average	Under	.....	.....	Over; very good	Over; very good	.....	John McIvor, Skibo Castle Gardens, Dornoch.
1, Scotland, E.										
ABERDEENSHIRE	Under; bad	Under; bad	Under; bad	Average; good	.....	.....	Average; very good	Average; good	.....	James Grant, Rothienorman Gardens.
	Average	Average	Average; good	Average	.....	.....	Over; very good	Over	.....	Simon Campbell, Fyvie Castle Gardens.
	Average	Under	Average	Average	.....	.....	Over; good	Over; good	.....	Wm. Henderson, Meldrum House Gardens.
	Over; very good	Average; good	Average; good	Under; good	Over; very good	Average; good	Over; very good	Over; very good	.....	John McKinnon, Haddo House Gardens.
BANFFSHIRE	Over; good	Under	Average	Average; good	.....	.....	Over; very good	Over; very good	.....	George Edwards, Ballindalloch Castle Gardens.
	Over; good	Under	Average; good	Under	Under	Under; good	Average	Average	.....	Chas. Webster, Gordon Castle Gardens, Fochabers.
	Average	Under	Under	Average	Average	Average	Average	Over	.....	George Ogg, Netherdale House Gardens, Turriff.
BERWICKSHIRE	Average; good	Under; bad	Average; good	Average; good	Average; good	Under; good	Over; very good	Over; very good	.....	Peter Smith, Duns Castle Gardens, Duns.
	Under	Average	Over	Average; good	.....	.....	Over; very good	Over; very good	.....	Robert Stuart, Thirlestane Castle Gardens, Lauder.
	Under; good	Under; good	Average; good	Average; good	Under; good	Under; bad	Over; very good	Over; very good	.....	Thomas Nelson, Milne Graden Gardens, Coldstream.
	Average; good	Under; good	Under; bad	Under; bad	.....	Under; bad	Average; good	Over; very good	.....	R. Henderson, Ayton Castle Gardens.
CLACKMANNANSHIRE	Under	Average	Average	Under	Under; bad	Under	Average	Over; very good	Under	Alexander Kirk, Alloa.
	Over; good	Under	Under	Under	.....	.....	Average; good	Over; very good	.....	James Small, Norwood Gardens, Alloa.
HADDINGTONSHIRE. (EAST LOTHIAN.)	Average; good	Average; good	Under; good	.....	Average; good	Average; good	Average; good	Average; good	.....	R. P. Brotherston, Tyninghame Gardens, Prestonkirk.
FIFESHIRE	Under	Under	Under	Average	.....	Under	Over; good	Over; good	.....	Chas. Simpson, Wemyss Castle Gardens, East Wemyss.
	Average; good	Under; good	Under	Under; good	Under; bad	Under; bad	Average; very good	Over; very good	.....	D. McLean, Raith Gardens, Kirkcaldy.
	Average	Under	Under	Under	.....	Under	Over; good	Average	.....	William Henderson, Balbirnie Gardens, Markinch.
FORFARSHIRE	Average	Under	Under	Under	.....	.....	Average; very good	Average; very good	.....	William Alison, Seaview Gardens, Monifieth.
	Average	Under	Under	Average; good	.....	.....	Over	Over; good	.....	Robert Bell, Kinnaird Castle Gardens, Brechin.
	Average; good	Average; good	Average; good	Under	.....	.....	Average; good	Over; very good	.....	Andrew McAudie, Ruthven House Gardens, Meigle.
KINCARDINESHIRE	Under	Under	Under	Average	.....	.....	Average	Over	.....	William Knight, Fasque Gardens, Laurencekirk.
KINROSS-SHIRE	Average	Under	Under	Under	.....	.....	Over; good	Over; good	.....	R. Fraser, Kinross House Gardens, Kinross.
MIDLOTHIAN	Over; good	Under; bad	Under; good	Under; bad	.....	Under; good	Over very good	Average; very good	.....	Benjamin B. Ness, Oxenfoord Castle Gardens, Ford.
	Average; good	Under	Under	Average; good	.....	Under	Over; very good	Over; very good	.....	D. Kidd, Carberry Tower Gardens, Musselburgh.
	Average	Under	Average	Average	Under	Under	Average	Over; good	.....	Wm. G. Pirie, Dalhousie Castle Gardens, Bonnyrigg.
	Average; good	Under; bad	Under; bad	Under; bad	Under	Under	Average; good	Average; good	Under	James Whytock, Dalkeith Gardens, Dalkeith.
PEEBLESSHIRE	Average	Under	Under	Under	.....	.....	Over; good	Over; good	.....	Wm. McDonald, Cardrona, Innerleithen.
PERTHSHIRE	Average; good	.....	Average; good	Average; good	.....	.....	Average; very good	Average; very good	.....	Thomas Lunt, Keir Gardens, Dunblane.
	Average	Under	Under; bad	Under	.....	.....	Over; very good	Over; very good	.....	John Robb, Milnab Terrace, Crieff.
6, Scotland, W.										
ARGYLLSHIRE	Average; good	Under; bad	Under; good	Average; good	Average; good	.....	Average; good	Over; very good	.....	D. S. Melville, Poltalloch Gardens, Lochgilphead.
	Under	Under	Under	Under	.....	.....	Over; good	Over; good	Under	Henry Scott, Torloisk Gardens, Isle of Mull.
AYRSHIRE	Average; good	Under	Average; good	Average	.....	.....	Over; good	Over; good	.....	William Priest, Eglinton Gardens, Kilwinning.
	Average; good	Under; good	Under; good	Average; good	Average; good	Under; bad	Under; good	Over; very good	Average; good	D. Buchanan, Bargany Gardens, Dailly.
	Under	Under	Under	Average; good	.....	.....	Over; good	Over; very good	.....	John McInnes, Kirkmichael House Gardens, by Maybole.
BUTESHIRE	Under	Under	Under	Under	.....	.....	Under	Under	.....	M. J. Heron, Mount Stuart Gardens, Rothesay.
	Under	Under	Under	Under	.....	.....	Over; good	Over; good	.....	David Halliday, Ascog, Bute.
DUMBARTONSHIRE	Under	Under	Under	Under; bad	.....	.....	Over; very good	Over; good	.....	D. Stewart, Knockderry Castle Gardens, Cove.
DUMFRIESSHIRE	Under; good	.....	Under	Under	.....	Under	Average; good	Average; good	.....	John Urquhart, Holdom Castle Gardens, Eccleſechan.
	Under; good	Under; bad	Under	Under	.....	.....	Average; good	Over; good	.....	James McDonald, Dryfeholm, Lockerbie.
KIRKCUDBRIGHTSHIRE	Under; good	Average; good	Average; very good	Under; good	.....	.....	Over; very good	Average; very good	.....	James Deuchars, Kenmure Castle Gardens, New Galloway.
LANARKSHIRE	Average	.....	Average	Average	.....	.....	Over; good	Average; good	.....	John Shiells, Carstairs Gardens, Carstairs Junction.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
6. Scotland, W.										
STIRLINGSHIRE.....	Over; very good	Average; good	Under; good	Average; good	Average; very good	Under	Over; very good	Over; very good	.....	John Middleton, Callendar House Gardens, Falkirk.
WIGTOWNSHIRE	Average; good	Under; good	Unde ; good	Under; bad	.....	.....	Average; good	Average; good	.....	John Bryden, Dunragit Gardens, Dunragit.
ENGLAND:										
2. gland, N.E.										
DURHAM	Under; good	Under; good	Under; bad	.....	.....	.....	Over; very good	Over; very good	Average; good	John Smith, The Shire Hall Durham.
NORTHUMBERLAND.	Under; good	Under	Over	.....	.....	.. ...	Average; over	Over; good	.....	C. W. Mayhew, Morpeth.
YORKSHIRE.....	Average; good	Under	Under	Average	Under	Under	Average; good	Over; good	Under	W. Jackson, Dalton Hall Gardens, Beverley.
	Under	Under	Under; bad	Under	Average	Average	Over; good	Average; good	.....	A. S. Galt, "Rutherglen," Roundhay, Leeds.
	Average; good	Under; good	Under; good	Average; ood	.....	Under	Over; very good	Over; very good	Average	Jas. E. Hathaway, Baldersby Park Gardens, Thirsk.
	Under; good	Under; bad	Under; bad	Under; bad	.....	.....	Over; very goo	Over; very good	Average	F. Jordan, Warter Priory Gardens, York.
	Average; good	Under; good	Under; good	Average; good	Under; good	Under; good	Over; goo	Average; good	.....	Alfred Gaut, The University, Leeds.
	Average	Under; bad	Average	Average	Under; bad	.....	Average; good	Average; good	Under	A. E. Sutton, Castle Howard Gardens, Welburn.
	Over; good	Average	Under	Under	.....	Under	Over; very good	Average	.....	J. G. Wilson, Chevet Park Gardens, Wakefield.
3. England, E.										
CAMBRIDGESHIRE ...	Over; good	Under; bad	Under; good	Under; bad	Average; very good	Under; bad	Average; good	Over; very good	Average; good	R. Alderman, Babraham Gardens, Cambridge.
	Average; bad	Under; bad	Under; good	Average; good	.....	.....	Over; very good	Average; good	Under	Thomas Spooner, Meldreth Court Gardens, Royston.
	Average; very good	Under; bad	Average; good	Under; good	Under; good	Under ;good	Average; good	Over; good	Under	Arthur Sewell, The Palace Gardens, Ely.
	Under	Under; bad	Under	.....	.....	.....	Over; very good	Over; good	.....	Stephen Castle, Walpole St. Andrews, Wisbech.
ESSEX	Average; good	Under	Average; good	Under	Under	Under	Average; good	Average; good	Under	Arthur Bullock, Copped Hall Gardens, Epping.
	Over; very good	Under; good	Under; bad	Average; good	Under; bad	Under; bad	Average; good	Over; very good	Average; good	C. Wakely, County Gardens, Chelmsford.
	Average	Under	Under	Under	Average	Under	Average	Over	Under	H. Lister, Easton Lodge Gardens, Dunmow.
	Average	Under	Under	Under	.....	.....	Average	Average	.....	H. W. Ward, Lime House, Rayleigh.
	Under; good	Average good.	Under; good	Under; very good	Under	Under	Average; very good	Over; good	Under	John Arthurton, Debden Hall Gardens, Saffron Walden.
	Average; good	Under; good	Under; bad	Under; bad	Under; bad	Under; bad	Average; good	Over; very good	Under; bad	W. Johnson, Stansted Hall Gardens, Stansted.
LINCOLNSHIRE	Average	Under	Average	Under	Under	Under	Over; good	Over; very good	.....	F. J. Foster, Grimsthorpe Castle Gardens, Bourne.
	Average	Under	Under	Unde	Under	Under	Average	Over	.....	H. Vinden, Harlaxton Manor Gardens, Grantham.
	Under; good	Under	Average	Average	Under; bad	Under; bad	Over; good	Over; very good	Under	Fredk. Barton, Hainton Hall Gardens, Lincoln.
	Over; bad	Under; bad	Under	Under; good	.....	Under	Under	Over; good	Under	Harry Louth, Boothby Hall Gardens, Grantham.
NORFOLK	Average	Under	Average	Under; bad	Under	Under	Average	Over; good	Average; good	J. Wynn, Sedgeford Hall Gardens, near King's Lynn.
	Average; good	Under; bad	Under; good	Average; good	Under; bad	Under; good	Average; very good	Average; very good	Under; bad	H. Goude, Myosotis, East Dereham.
	Over	Under	Under	Under	Under	Under	Average	Over; very good	Average	William Orr, Stow Hall Gardens, Downham.
	Average	Under	Under	Under	Under	Under	Average	Ove	....	W. Shingler, Melton Constable Park Gardens.
SUFFOLK	Average; good	Average; good	Average; good	Under; good	Under; good	Under	Over; very good	Over; very good	Average; good	Thos. Simpson, Henham Gardens, Wangford.
	Average; good	Under; good	Under; bad	Average; good	....	....	Over; good	Average; good	....	E. G. Creek, Shire Hall, Bury St. Edmunds.
	Under; good	Under; bad	Under; bad	Under; good	Under; bad	Under	Average; good	Average; good	Under	W. Messenger, Woolverstone Park Gardens, Ipswich.
	Average; good	Under; good	Under; good	Average; good	Under; good	Average; good	Over; very good	Average; good	Under; bad	Thomas Stiling, Livermere Park Gardens, Bury St. Edmunds.
	Over; good	Under; fair	Under; good	Average; good	Under	Under	Over; good	Over; good	....	H. Coster, Ickworth, Bury St. Edmunds.
	Under; good	Under; good	Under; good	Average; good	Under; good	Under; bad	Over; very good	Over; very good	Average; good	B. Goodacre, Moulton Paddocks Gardens, Newmarket.
	Over; very good	Average; good	Under; good	Under; good	Under; good	Under; good	Over; very good	Over; very good	Under; good	James Hilson, Flixton Hall Gardens, Bungay.
	Average; good	Under	Under; bad	Under	Under	Under	Average	Average; very good	Average	R. Evans, Gt. Barton, Bury St. Edmunds.
	Average	Under	Under	Over; very good	Under	Under	Average; very good	Average; very good	Under; bad	Alfred Andrews, High House Gardens, Campsea Ashe, Wickham Market.
	Average; good	Under; good	Under; good	Under; good	Average; good	Under; good	Over; very good	Over; very good	Under	A. K. Turner, Orwell Park Gardens, Ipswich.
	Over; very good	Average	Under	Average; very good	Under	....	Average	Over; very good	....	James A. Best, Easton Park Gardens, Wickham Market.
4. Midland Counties.										
BEDFORDSHIRE	Over; very good	Under; good	Under; bad	Average; good	Under; good	Under; good	Under; good	Average; good	Under; good	W. H. Neild, Woburn Experimental Fruit Farm, Ridgmont, Aspley Guise.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
4. Midland Counties.										
BEDFORDSHIRE (continued)	Over; very good	Average; good	Under	Average	Under; good	Under	Average; good	Over; very good	.....	C. J. Ellett, Chicksands Priory Gardens, Shefford.
	Under; good	Under; bad	Under; good	Under; good	Under; bad	Under; bad	Average; good	Average; very good	.....	H. W. Nutt, Ampthill Road, Flitwick.
	Average; good	Under; bad	Under	Under	Under; bad	Under; bad	Over; good	Over; good	Under; bad	Wm. F. Palmer, Froxfield Gardens, Woburn.
	Under	Under; bad	Under; bad	Under; bad	Under	Under	Over; good	Over; good	Average	Laxton Bros., Nurserymen, Bedford.
BUCKINGHAMSHIRE.	Under; bad	Under; bad	Under; bad	Under; good	Under; bad	Under; bad	Over; good	Over; good	Under; bad	James Wood, Hedsor Park, Bourne End.
	Under; good	Under; bad	Under; good	.....	.....	.....	Average; very good	Average; very good	Under; bad	James MacGregor, Mentmore Gardens, Leighton Buzzard.
	Under; good	Under; bad	Under; bad	Under; bad	Under; good	Under	Average; good	Average; very good	Under	W. Hedley Warren, Aston Clinton Gardens, Tring.
	Under	Under	Under	Under	Under	Under	Average;	Average; good	Under	Philip Mann, 1, Stoke Road Villas, Aylesbury.
CHESHIRE.....	Under	Under	Under	Under	.....	.....	Over	Average; good	.....	Peter Wilkinson, The Gardens, Walton Lea, near Warrington.
	Average; good	Under; bad	Average; good	Under	Under	Under	Over; very good	Over; very good	Average	Alfred N. Jones, Marbury Hall Gardens, Northwich.
DERBYSHIRE	Average; good	Under	Under	Under	.....	.....	Over; good	Average; very good	.....	Bailey Wadds, 181, Uttoxeter New Road, Derby.
	Average	Under	Average; good	Average; good	.....	Under; bad	Over; very good	Over; very good	.....	J. Maxfield, Darley Abbey Gardens, Derby.
	Average; good	Under	Under; bad	Under	.....	.....	Over; very good	Over; very good	.....	F. Jennings, Chatsworth Gardens, Chesterfield.
	Over; very good	Under; bad	Under; bad	Under; good	.....	Under; bad	Average; good	Over; good	.....	J. Tully, Osmaston Manor Gardens, Derby.
HERTFORDSHIRE.....	Over; good	Under	Under	Under; bad	Under; bad	Under; bad	Average	Average; good	Under	Thomas Nutting, Childwickbury Gardens, St. Albans.
	Average; good	Under	Under; bad	Average	.....	.....	Average; good	Average; good	.....	J. W. Bamber, 16, Briscoe Road, Hoddesdon.
	Average; good	Under; good	Under; very good	.....	.....	.....	Under; good	Over; very good	Average	Thos. Rivers & Son, Sawbridgeworth.
	Average; good	Under; good	Under; bad	Under; good	Under; bad	.....	Average; good	Over; very good	Under	H. Prime, Hatfield House Gardens.
	Over; good	Under	Under	Under	Average	Under	Average; good	Over; very good	Under	George Kelf, Danesbury Gardens, Welwyn.
	Average; good	Under; bad	Under	Average; good	Under; bad	Under	Average; very good	Average; good	Under	Edwin Beckett, Aldenham House Gardens, Elstree.
	Average; good	Under; good	Under	Under; good	Under; good	Under	Average; good	Over; very good	Under	J. G. Walker, The Gardens, Oak Hill Park, East Barnet.
	Average; good	Under; good	Under; bad	Under; good	Under; good	Under	Average; good	Average; very good	Under	E. F. Hazelton, North Mymms Gardens, Hatfield.
LEICESTERSHIRE.....	Average; good	Under; bad	Over; good	Under; good	Under; good	.....	Average; good	Under; bad	.....	Daniel Roberts, Prestwold Gardens, Loughborough.
	Under; good	Under; good	Under; good	Under	Under	Under	Average; good	Over; very good	Under	W. H. Divers, Belvoir Castle Gardens, Grantham.
	Under; good	Under; good	Under; good	Under	Under; good	Under	Average; good	Average; good	Under	F. Ibbotson, Rolleston Hall Gardens, Leicester.
	Average; good	Under	Under; good	Under; bad	.....	Under	Average; good	Average; good	Under	A. E. T. Rogers, Middlemeade Gardens, Leicester.
NORTHAMPTONSHIRE	Average; good	Under; good	Under; bad	Average; good	Average; good	Under; good	Average; good	Average; very good	Under	Robt. Johnston, Wakefield Lodge Gardens, Stony Stratford.
	Average	Under	Average; good	Average	Under; bad	Under; bad	Over	Over; very good	.....	Thos. Masters, Estate Office, Lower Shuckburgh, Daventry.
NOTTINGHAMSHIRE.	Average	Under	Under; bad	Over; very good	Under; bad	Under	Over; very good	Average; very good	.....	James B. Allan, Osberton Gardens, Worksop.
	Under	Under	Under	Under	Under	Under	Average	Average	Under	J. R. Pearson & Sons, Lowdham.
	Average	Average	Under	Average; good	.....	Under	Average; good	Average; good	.....	A. W. Culloch, Newstead Abbey Gardens, Nottingham.
OXFORDSHIRE	Under; good	Under	Average; good	Under	Under	Under	Average; good	Average; very good	Under	John A. Hall, Shiplake Court Gardens, Henley-on-Thames.
	Under	Under	Under	Average	Under	Under	Over; good	Over; good	Under	A. J. Long, Wyfold Court Gardens, Reading.
	Under	Under	Under	Under; good	Under	Under	Average; good	Average; good	.....	T. Cradduck, Middleton Park Gardens, Bicester.
	Average; good	Under	Average; good	Under; good	Under	Under	Average	Over; good	.....	C. E. Munday, Nuneham Park Gardens, Oxford.
	Under; good	Under; good	Under; bad	Under; bad	Under; bad	Under; bad	Average; good	Average; very good	Under	T. W. Whiting, Shotover Park Gardens, Wheatley.
SHROPSHIRE	Average; good	Under	Under	Under	Under	Under	Over; good	Over; very good	Under	Alex. Haggart, Moor Park Gardens, Ludlow.
	Under; good	Under; good	Under; bad	Under; good	.....	.....	Average; very good	Over; very good	Under	G. T. Malthouse, Harper-Adams Agricultural College, Newport.
	Under	Under; bad	Under	Average	Under; bad	Under; bad	Over; very good	Over; very good	Average	George Risebrow, Hatton Grange Gardens, Shifnal.
STAFFORDSHIRE	Average; good	Average; good	Average; good	Average; good	.....	.....	Average; good	Over; very good	.....	Edwin Gilman, Ingestre Gardens, Stafford.
	Under	Under	Under	Under	Average	.....	Over	Over	.....	A. Cheney, Shenstone Court Gardens, Lichfield.
	Average; good	Under; bad	Average; good	Average; bad	.....	Under; bad	Over; good	Over; very good	Under; bad	T. Bannerman, Blithfield Gardens, Rugeley.
	Average; very good	Under; good	Under; good	Under; good	Under	.....	Average; very good	Average; good	Average	H. Collier, Rolleston Hall Gardens, Burton-on-Trent.
	Under	Under	Under	Under	.....	Under	Over; good	Over; good	Under	W. Halliday, Patshull Gardens, Wolverhamptom.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
4, Midland Counties.										
WARWICKSHIRE	Average	Under; bad	Under	Under	Under; bad	Under; bad	Average; good	Average	Under; bad	Chas. Harding, Ragley Hall Gardens, Alcester.
	Over; good	Under; very good	Average; good	Average; good	Under; good	Under; good	Over; very good	Over; very good	Average; good	H. Dunkin, Mount Pleasant Gardens, Warwick.
	Average	Under	Under	Average	Under	Under	Over	Over	.....	Jno. Masterson, Weston House Gardens, Shipston-on-Stour.
	Average; good	Under; bad	Average; good	Average; good	Under; bad	Under; bad	Over; very good	Average; good	Under; bad	H. F. Smale, Warwick Castle Gardens, Warwick.
5, Southern Counties.										
BERKSHIRE	Over; very good	Under	Under	Average; good	Average	Under	Over; very good	Over; very good	Under	A. MacKellar, Royal Gardens' Windsor.
	Under	Under	Under	Under	Under	Under	Average; good	Over; good	Under	J. Howard, Benham Park Gardens, Newbury.
	Under	Under	Under	.....	.....	.....	Average	Average	Under	F. Freed, East Hendred House Gardens, Steventon.
	Average; good	Under	Under	Under	Under	Under	Average; good	Average; very good	Under	A. B. Wadds, Englefield Gardens, Reading.
DORSETSHIRE	Under	Under; bad	Under	Under	Under	Under	Average; very good	Over; very good	Under	T. Turton, Castle Gardens, Sherborne.
	Under; good	Under	Under	Under	.....	Under; good	Over; good	Average; good	Under	Thos. Denny, Down House Gardens, Blandford.
	Under; good	Under; good	Under	Under	Under; bad	Under	Over; very good	Average; good	.....	J. Jaques, Bryanston Gardens, Blandford.
	Average; good	Under; good	Under	Under	.....	Under	Average; good	Average; good	Under	A. Shakelton, Forde Abbey Gardens, Chard.
	Average; good	Under; bad	Under; good	Under; good	Under; good	.....	Average; good	Over; very good	.....	F. Olver, Minterne, Cerne Abbas.
	Under; good	Under	Under	Under; good	Under	Under	Average; good	Under; good	Under	E. C. Parslow, County Offices, Dorchester.
HAMPSHIRE	Average; good	Under	Under; good	Average; good	Under; bad	Under	Over; very good	Over; very good	Average; good	Lewis Smith, Cadland Park Gardens, Fawley, Southampton.
	Average; good	Under	Under	Under	.....	Under	Average; good	Over; good	Average	A. G. Nichols, Strathfieldsaye Gardens, Mortimer, R.S.O.
	Over; good	Under; bad	Under; bad	Average; good	Under; good	Under; bad	Over; very good	Over; very good	Under	A. Legge, Dogmersfield Park Gardens, Winchfield.
	Average; good	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Over; very good	Over; very good	Under; good	Henry Martin, Bartley Lodge Gardens, Cadnam, Southampton.
	Average; good	Under; bad	Under; good	Under; good	Under	Under	Average; very good	Over; very good	Under	A. W. Blake, Highclere Castle Gardens, Newbury.
	Under; good	Under; good	Under; good	Under; bad	Under; good	Under; bad	Average; good	Over; very good	Under; bad	Henry Tullett, Ashe Park Gardens, Overton.
	Over; very good	Under; bad	Under; bad	Average; good	Under; bad	.....	Over; very good	Over; very good	.....	E. Molyneux, Swanmore Park, Bishop's Waltham.
KENT	Under; good	Under	Under	Average; good	Under	.....	Average; good	Average; good	Average	G. Woodward, Barham Court, Maidstone.
	Average; good	Under	Under	Under; good	Under	Under	Average; good	Over; very good	Under	George Bunyard, Royal Nurseries, Maidstone.
	Under; good	Under; good	Under	Under	Under	.....	Average; good	Over; very good	Under	William Lewis, East Sutton Park, Maidstone.
	Average	Under	Under; bad	Under	.....	.....	Average	Average	Under	Geo. Fennell, "Bowden," Tonbridge.
	Under	Under	Under	Average	Under	.....	Under	Average	Under	Geo. Lockyer, Mereworth Gardens, Maidstone.
	Under	Under	Under	Average	Average	Under	Over	Over	Under	J. T. Shann, Bettshanger Park Gardens, Eastry.
	Average; good	Under	Under	.....	.....	.....	Over; good	Over; good	.....	Charles E. Shea, The Elms, Foots Cray.
	Under; good	Under	Under; bad	Under; bad	Under	Under	Average	Under	Under	H. Cannell and Sons, Eynsford.
	Average	Under	Under	Under; good	Under	Under	Over; good	Over; good	Under	J. G. Weston, Eastwell Park Gardens, Ashford.
	Average; good	Average; very good	Under; good	Over; very good	Under	Under	Average; very good	Under; good	Under	W. E. Humphreys, Blendon Hall Gardens, Bexley.
MIDDLESEX	Over; good	Under	Under	Average	Under	Under	Average; good	Over; good	Under	H. Markham, Wrotham Park Gardens, Barnet.
	Average	Under	Under	Under	Under	.....	Under	Over	.....	W. Pompart, Marsh Farm, Twickenham.
	Average	Under	Under	Under	Under	Under	Under	Average	.....	John Weathers, Talbot Villa, Isleworth.
	Average; good	Under	Under	Under	Under	.....	Average	Over; very good	Average	James Hawkes, Osterley Park Gardens, Isleworth.
	Average; good	Under; bad	Under; bad	Under	Under	Under	Under	Average; good	Under	W. Bates, Cross Deep Gardens, Twickenham.
SURREY	Under	Under	Under	.....	Under	.....	Over; good	Over; good	Average	S. J. Wright, R.H.S. Gardens, Wisley, Ripley.
	Over	Under	Under	Under	Under	Under	Over	Over	Under	Geo. Kent, Norbury Park Gardens, Dorking.
	Under; bad	Under; bad	Under; bad	.....	.....	.....	Under; good	Average; good	.....	Geo. Halsey, Riddings Court Gardens, Caterham Valley.
	Over	Under	Average	Under	.....	.....	Over	Over	Average	James Watt, Mynthurst Gardens, Reigate.
	Under	Under	Under	Average; bad	Under	Under	Over	Average	Under	James Lock, Oatlands Lodge Gardens, Weybridge.
	Average; very good	Under; good	Under; good	Under; very good	Under	Under	Over; very good	Over; very good	Under	Thos. Smith, Coombe Court Gardens, Kingston Hill.
SUSSEX	Average; good	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Average; good	Over; very good	.....	Thos. Tyson, Wykehurst Park, Hayward's Heath.
	Average; very good	Under	Under	Under	Under	Under	Over	Over	Under	J. W. Buckingham, Milland Place Gardens, Liphook.
	Average; good	Under; good	Under; bad	Average; good	Under; bad	.....	Average; good	Over; good	Under; good	J. Muddell, Sedgwick Park Gardens, Horsham.
	Average; good	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Average; good	Over; good	Average	A. Wilson, Eridge Castle Gardens.
	Under	Under	Under	Under; good	.....	.....	Average; good	Average; good	Under	William E. Bear, Magham Down, Hailsham.
	Average; good	Under; bad	Under	Average; good	Under; bad	Under	Average; good	Over; good	Under	W. H. Smith, West Dean Park Gardens, Chichester.
	Average; good	Under; bad	Under; bad	Average	.....	.....	Over; good	Over; good	Under	W. A. Cook, Leonardslee Gardens, Horsham.
	Over; very good	Under; good	Under; good	Under; very good	Under; bad	.....	Over; very good	Average; very good	Average; good	W. J. Langridge, Ote Hall Gardens, Burgess Hill.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
5. Southern Counties.										
SUSSEX (continued) ...	Average; good	Under; good	Under; good	Under; good	Under	Under	Average; good	Average; good	Under	W. Goaring, Agricultural and Horticultural College, Uckfield.
WILTSHIRE	Average; good	Under; good	Under	.....	.....	.....	Average; good	Over; good	.....	George Brown, Bowood Gardens, Calne.
	Under; good	Under	Under	Under; good	Under; good	Under; good	Over; good	Over; good	Under	Thomas Challis, Wilton House Gardens, near Salisbury.
	Average; good	Under	Under	Average	Under	Under	Average; very good	Over; very good	Under	A. J. Morris, Compton Bassett Gardens, Calne.
	Under	Under	Under	Under	Under	Under	Over	Over	Under	Thomas Sharp, Westbury.
	Average; good	Under	Under	Under	Under	.....	Average; good	Over; good	Under	Henry Gandy, Longleat Gardens, Warminster.
7. England, N.W.										
CUMBERLAND.....	Average; good	Under; good	Under; good	.....	.....	.....	Over; very good	Average; good	.. ...	W. B. Little, 40 Petteril Street, Carlisle.
LANCASHIRE	Under; good	Under; bad	Under; bad	.....	.....	.....	Over; very good	Over; very good	.....	A. J. Sowman, County Offices, Preston.
WESTMORELAND	Average; good	Under; bad	Under; good	Average; good	... ..	.....	Average; good	Average; very good	.....	W. A. Miller, Underley Hall Gardens, Kirkby Lonsdale.
	Under; bad	Under bad	Under; bad	Under	.....	Under; bad	Average; good	Over; good	.....	F. Clarke, Lowther Castle Gardens, Penrith.
	Under	Under	Under	Average	.....	Under	Average	Over; very good	Under	J. Moorhouse, Dalton Hall Gardens, Burton.
	Average	Average	Under	.....	.....	... ..	Over	Over	.....	W. Catom, Helme Lodge Gardens, Kendal.
8. England, S.W.										
CORNWALL	Under	Under	Under	Under	Under	.....	Over; very good	Over; good	.....	W. Brown, Prideaux Place Gardens, Padstow.
	Under; bad	Under; good	Under; bad	Under	Under; bad	.....	Average; good	Average; very good	.....	W. Andrews, Tregothnan Gardens, Truro.
DEVONSHIRE	Over	Under	Under	Under	Under	Under	Under	Average	Under	Geo. Baker, Membland, Newton Ferrers, near Plymouth.
	Average; good	Under; good	Under; bad	Average; very good	Under; good	Under; good	Over; very good	Over; very good	Under	E. E. Bristow, Castle Hill Gardens, South Molton.
	Under	Under; bad	Under; bad	Under; bad	Under; good	Over; very good	Average; good	Average; good	Under	James Mayne, Mill Roy, Budleigh Salterton.
GLOUCESTERSHIRE...	Average	Under	Under	Under	Under	Under	Average; good	Over; very good	Under	William Keen, Bowden Hall Gardens, near Gloucester.
	Under	Under	Under	Under	Average; good	Under	Over; good	Over; very good	Under	John Banting, Tortworth Gardens, Falfield.
	Under; bad	Under; bad	Under; good	Under; good	Under; bad	Under; bad	Average; good	Average; good	.....	J. Pearce, Badminton Gardens.
	Under	Under	Under	Average	Average	.....	Average	Average; good	.....	Wm. J. Jefferies, Cirencester.
	Average; good	Under	Under	Under	Under	Under	Average; good	Over; very good	Under	G. H. Hollingworth, County Education Office, Gloucester.
	Average; good	Under	Under	Average; good	Under	Under	Over; very good	Over; very good	.....	F. C. Walton, Stanley Park Gardens, Stroud.
	Average	Under	Average	Average	Under	Under	Over	Over	Under	Arthur Chapman, Westonbirt Gardens, Tetbury.
	Under	Under	Under	Under	Under	Under	Average; good	Average; good	Under	W. H. Berry, Highnam Court Gardens, Gloucester.
HEREFORDSHIRE.....	Under; very good	Under; bad	Under; very good	Under; very good	Under; bad	Under; bad	Average; good	Average; good	Under; bad	A. Buckingham, Stanage Park Gardens, Brampton Brian.
	Under	Under; good	Under	Under; bad	.. ...	Under	Over; good	Over; good	Under	Thomas Spencer, Goodrich Court Gardens, Ross.
	Under; good	Under; bad	Under; good	Under; good	Under; bad	Under; bad	Average; good	Average; good	Under; bad	George Mullins, Eastnor Castle Gardens, Ledbury.
MONMOUTHSHIRE ...	Under; good	Under	Under	Under	Under	Under	Average; good	Average; good	Under	Thos. Coomber, The Hendre Gardens, Monmouth.
	Under	Under	Under	Average	Under	.....	Average.	Under	Average	W. J. Grant, Director of Agricultural Education, County Council Offices, Newport.
SOMERSETSHIRE	Under; very good	Under; very good	Under; very good	Under; good	Under; bad	Under; very good	Under; good	Over; good	Under; good	George Shawley, Halswell Park Gardens, Bridgwater.
	Under	Under	Under	Under	Under	Under	Average	Average	.....	J. T. Rushton, The Gardens, Barons Down, Dulverton.
	Average	Under	Average	Under	Under	Under	Average	Over; very good	Under	F. J. Little, Knowle Gardens, Dunster.
	Under	Under	Under	Under	Under	Under	Under	Average	Under	Samuel Kidley, Runnington Nurseries, Wellington.
	Under	Under; bad	Under; bad	Under; bad	Average	Under	Average good;	Over; very good	Under; bad	E. A. Hussey, Leigh House Gardens, near Chard.
WORCESTERSHIRE ...	Average	Under	Under	Under	Under	Under	Over; good	Over; good	Under	A. Young, Witley Court Gardens, Worcester.
	Under	Under	Under	Under	.....	Under	Average	Average	Average	C. A. Bayford, Davenham Gardens, Malvern.
	Average; good	Under; good	Under; bad	Under; bad	Under; bad	Under; bad	Average; good	Over; good	Average; good	W. Crump, Madresfield Court Gardens, Malvern.
	Under; good	Under; good	Under; good	Under; very good	Under; good	Under	Under; good	Average; very good	.....	Thos. Watkins, The Grange Gardens, Claines.
	Under	Under	Average	.....	.. ...	.....	Over; very good	Over; very good	Under	Ernest Avery, Finstall Park Gardens, Bromsgrove.
	Under	Under	Under	Under	.....	Under	Average	Average	Under	James Udale, 7, Ombersley Road, Droitwich.
WALES:										
CARDIGANSHIRE	Under	Under	Under	Under	Under	.....	Over; good	Over; good	.....	W. Phillips, Derry Ormond Gardens, Llangybi.
CARNARVONSHIRE...	Under; good	Under; bad	Under; bad	Under; bad	Under; bad	.....	Over; good	Average; very good	.....	J. S. Higgins, Glynllivon Park Gardens.
DENBIGHSHIRE	Average	Under	Under	Under	Under	Under	Average	Over; good	.....	J. A. Jones, Chirk Castle, Ruabon.
	Under good	Under; good	Under	Under	Under; good	Under	Average; very good	Over; very good	Under	Hy. Young, Horsley Hall Gardens, Gresford.
	Under	Under	Under	Under	Under	Under	Average; good	Over; good	Under	J. Martin, Bryn Estyn Gardens, Wrexham.
FLINTSHIRE	Under	Under	Under	Under	Under	Under	Over	Over	Average	John Forsyth, Hawarden Castle Gardens, Chester.
	Under; good	Under; good	Average; good	Under; bad	.....	Under; good	Average; good	Average; good	.....	J. Barnard, Mostyn Hall Gardens, Mostyn.
GLAMORGANSHIRE...	Under	Under	Under	Under	Under	Under	Over; very good	Over; very good	Over	Richard Milner, The Gardens, Margam Park, Port Talbot.
	Under	Under	Under	Average	Under	.. ...	Over; very good	Over; very good	Under	C. T. Warmington, Penllergaer Gardens, Swansea.

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
WALES:										
PEMBROKESHIRE.....	Under; bad	Under; bad	Average	Under; bad	Under; bad	....	Under	Average; good	Under	Geo. Griffin, Slebeck Park Gardens, Haverfordwest.
	Under; good	Under; bad	Over; good	Under; bad	Average; good	Under; bad	Average; good	Average; good	Under	W. A. Baldwin, Clynflew Gardens, Boncath.
RADNORSHIRE	Average; good	Under; good	Under; good	Under; bad	Under	Under; good	Over; good	Over; good	Under	J. MacCormack, Maesllwch Castle Gardens, Hereford.
	Under; good	Under; bad	Under	Under	....	....	Over; very good	Over; very good	Under	Wilson Pulliser, Norton Manor Gardens, Norton, R.S.O.
IRELAND:										
9 Ireland, N.										
MEATH	Under	Under	Under	Under; bad	.....	.....	Average	Average; bad	.....	Michael McKeown, Julianstown, Drogheda.
	Under	Under	Under	Under	Under	Under	Over; good	Over; good	Average	J. B. Pow, Dunsany Castle Gardens.
TYRONE	Under	Under	Under	Under	.....	.....	Average; good	Over; very good	.....	Fred. W. Walker, Sion House, Gardens, Sion Mills.
WESTMEATH	Under	Under	Under	Average	.....	Under	Over; good	Over; very good	Under	Geo. Bogie, Pakenham Hall Gardens, Castlepollard.
10. Ireland, S.										
CORK	Under	Under	Average	.....	Under	.....	Over	Average	.....	M. Colbert, Aghern Gardens, Conna.
	Under; good	Under; bad	Under; good	Under; good	Under; good	.....	Average; good	Average; good	.....	Isaac Dearnaby, St. Patrick's Terrace, Magazine Road Cork.
	Under	Under	Over	.....	Average	.....	Average	Under	.....	J. G. Pearce, Corkbeg Garden Whitegate.
KING'S CO.	Average; good	Under; good	Under; good	Under; bad	Under; bad	.....	Over; very good	Average; good	Under	E. Clarke, Claremount, Garry Castle, Banagher.
KILDARE	Over; good	Average	Under	Under	Under	Under	Over; good	Over; good	.....	Frederick Bedford, Strafford House Gardens
	Under	Over	Under	Under	Under	Under	Over	Over	Under	Alexr. Black, Carton, Maynooth.
ROSCOMMON	Average	Under	Under	Under	Average	.....	Average	Average	.....	Terence Rogers, French Park House Gardens.
WATERFORD	Under; good	Average; very good	Under; good	Under; good	Average; good	.....	Average; very good	Over; very good	.....	Thomas Dunn, Strancally Castle Gardens, Tallow.
	Under; good	Under; bad	Average; good	Under; bad	Average; good	Under	Average; good	Average; good	Under	David Crombie, Curraghmore Gardens, Portlaw.
CHANNEL ISLANDS:										
GUERNSEY	Average; good	Under; bad	Under; bad	Under; bad	Under; bad	.....	Over; very good	Under; bad	.....	C. Smith & Son, Caledonia Nursery, Guernsey.
JERSEY	Under; good	Under; bad	Under; bad	Under; bad	Under; bad	Under; bad	Average; good	Average; bad	.....	Thomas Sharman, Imperial Nursery, St. Heliers.
ISLE OF MAN:										
DOUGLAS	Under	Under	Under	Under	Under	.....	Average	Under; bad	.....	James Inglis, Brunswick Road Nursery, Douglas.

SUMMARIES.

SCOTLAND.

Records	Apples	Pears	Plums.	Cherries.	Peaches and Nectarines.	Apricots	Small Fruits.	Strawberries.	Nuts.
Number of Records ...	(45)	(42)	(45)	(44)	(14)	(19)	(45)	(45)	(4)
Average...	24	10	16	21	6	3	18	13	1
Over	6	—	1	—	1	—	24	31	—
Under	15	32	28	23	7	16	3	1	3

ENGLAND

Number of Records ...	(182)	(174)	(174)	(140)	(129)	(125)	(175)	(174)	(124)
Average	92	10	20	48	12	2	95	67	27
Over	22	—	2	3	1	1	68	102	—
Under	68	164	152	89	117	122	12	5	97

WALES.

Number of Records ...	(13)	(13)	(13)	(13)	(11)	(8)	(13)	(13)	(9)
Average	2	—	2	1	1	—	5	4	1
Over	—	—	1	—	—	—	7	9	1
Under	11	13	10	12	10	8	1	—	7

IRELAND.

Records	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots	Small Fruits	Strawberries.	Nuts.
Number of Records ...	(13)	(13)	(13)	(11)	(10)	(5)	(13)	(13)	(5)
Average...	2	2	2	1	4	—	7	6	1
Over	1	1	1	—	—	—	6	6	—
Under	10	10	10	10	6	5	—	1	4

CHANNEL ISLANDS.

Number of Records ...	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(2)	—
Average	1	—	—	—	—	—	1	1	—
Over	—	—	—	—	—	—	1	—	—
Under	1	2	2	2	2	1	—	1	—

ISLE OF MAN.

Number of Records ...	(1	(1)	(1)	(1)	(1)	—	(1)	(1)	—
Average	—	—	—	—	—	—	1	—	—
Over..	—	—	—	—	—	—	—	—	—
Under	1	1	1	1	1	—	—	1	—

GRAND SUMMARY, 1913.

Number of Records ...	(256)	(245)	(248)	(211)	(167)	(158)	(249)	(248)	(142)
Average	121	22	40	71	23	5	127	91	30
Over	29	1	5	3	1	1	106	148	1
Under	106	222	203	137	143	152	16	9	111

SUMMARY OF 1912 FOR COMPARISON.

Number of Records ...	(274)	(273)	(272)	(259)	(181)	(172)	(274)	(273)	(161)
Average	107	112	86	154	74	42	133	88	85
Over	16	117	38	40	14	7	129	11	58
Under	151	44	148	65	93	123	12	174	18

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—63°.

ACTUAL TEMPERATURES :—

LONDON.—*Wednesday, July* 30 (6 p.m.); Max. 64° Min. 57°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Thursday*, July 31 (10 a.m.); Bar. 29.7° Temp. 63°.

PROVINCES.—*Wednesday, July* 30, Max., Scilly, 61°, Min., Aberdeen, 57°.

Weather—Sunshine.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, AUGUST 4—

Sandiway Fl. Sh. Bletchley and Fenny Stratford Hort. Soc. Sh. in Bletchley Park. Old Sherborne Hort. Soc. Sh. in the Old Castle, Sherborne.

TUESDAY, AUGUST 5—

Leicester Fl. Sh. in Abbey Park (2 days). Aberdare Fl. Sh. Scottish Hort. Assoc. meet. Nat. Amateur Gard. Assoc. meet.

THURSDAY, AUGUST 7—

Perthshire Sweet Pea Sh. (2 days).

SATURDAY, AUGUST 9—

Cercle Horticole Van Houtte, Ledeberg, Gand, International Exhibition in the Palais d'Horticulture, Ghent (10 days). Crewe Memorial Cottage Hospital Fête Rose and Sweet Pea Sh.

The Fruit Crops.

We have rarely, if ever, been called upon to publish more dismal tables in our annual fruit records than is the case this year. Our Special Commissioner, after his visits to the fruit districts in Gloucestershire and Kent, described in his articles published several weeks ago, a condition of things eminently unsatisfactory, and the tables which we give this week confirm only too conclusively his careful observations. If we look at the returns for Pears, we find that out of 245, there is only one report where an overcrop is recorded; and this is in Ireland! So far as we are aware, this is without a precedent in the half-century or so during which these records have been made. The number of average crops is only given as 227, whilst as many as 222 are described as "under" in order to keep to the rules of the table, but in many cases we are informed that the trees bear no fruit whatever! Plums are not much better; out of 248 returns, only 5 cases are above the average, and there are 203 deficient crops to compare with 40 of average yield. Cherries, again, give us 137 deficient crops; whilst there are only 71 records of average yields, and 3 of crops above the average. Peaches and Nectarines have 1 overcrop in Scotland; and whilst there are only 23 average crops, there are 143 cases in which the trees have failed to produce an average yield.

The next crop, following the sequence of the table, is that of Apricots; and these share with the Pears the distinction of constituting the conspicuous failures of the year—failures unprecedented.

Out of 158 returns, there are 152 in which the crops fall below the average.

We have so far spoken of the crops which are least satisfactory, and we may now turn to others which are not of so disappointing a nature. The first is Apples, the principal hardy fruit crop in this country. Fortunately, 1913 is not a bad Apple year; indeed, it may be said that the Apple crop is an average one. There are 256 returns, and of these 150 record average crops. There are, it is true, 106 records of deficient yields; but this, though bad, is not so hopeless as the case of Pears and stone fruits.

Small fruits are also satisfactory; there are only 16 under-average returns out of a total of 137.

Strawberries provide the most bountiful crop of the season, being much in excess of the yield in 1912, as shown by the summaries. There are 248 returns, and 239 of these register satisfactory crops.

Nuts are not nearly so plentiful as in 1912, and may be described as much below the average.

Our correspondents have expressed opinions upon the causes which have operated so adversely upon the Pear crop and the yield of stone fruits, and their remarks will be published in subsequent issues; but it is already evident that the reports are singularly uniform in their general character, and tend to show that the climatic conditions must have been the determining factor. Diversities of climate, soil, and elevation, which must necessarily be considerable, do not seem to have affected the general results; the responsibility for the poorness of the crops is therefore to be laid on the weather. It will be remembered that the winter of 1912-13 terminated earlier than usual, and that at the very commencement of spring outdoor plants appeared to be dangerously forward. Then, in the middle of April, when the Pear blossom was opening; and again in May, when the Plum trees were in flower; and the Pear and Apricot blossom still lingered in the trees, there were again winter conditions, which prevented bees and other insects from visiting the flowers, thus hindering fertilisation, and explaining in some measure the lack of fertility. But in seeking for such explanation it has to be remembered that the summer of 1912 was deficient in sunshine, and the frequent rains in August and September caused the fruit trees to continue their development longer than usual. Some cultivators, therefore, attribute the failures this year partly to the fact that the trees were less well matured than usual, it having been noticed that in frequent cases where the flowers set, the fruits fell from the tree whilst still very young.

In the very worst cases there are some varieties, especially of Plums, that are bearing moderately well, and the careful cultivator will be sure to take notes of these, and endeavour to find a reason for their bearing. It may be that they are fairly persistent croppers in the particular locality; or, on the contrary, their fruitfulness may be due to the fact that whilst other trees yielded well last season, these particular varieties were more or less barren.

Such seasons as the present show unmistakably that efforts ought to be made to raise new varieties of fruit which can be more depended upon to crop in average seasons. The qualities to be encouraged are immunity from disease, resistance to cold, and capacity for self-fertilisation. We do not know that any serious work is being done in this way on systematic lines at the present time. It is a long and tedious business, and this fact probably deters workers who would be willing enough to embark upon the task if the results could be properly attested after the lapse of a few seasons. It is sometimes argued that varieties are needed which will have a habit of late flowering, so that they may escape the late frosts, but this quality would not always suffice to avert failure, for in the case of Plums some of the early varieties flowered this year in favourable weather and set good crops; but later ones are perfectly barren, owing to the fact that the weather was altogether unsuitable at the flowering period.

Thus at present we fall back upon the skilled and prescient cultivator, who, by the selection of site, judicious thinning of trees, avoidance of excessive use of stimulants, prevention of overcropping in good seasons, and by waging incessant war against pests and diseases, can do a very great deal towards obtaining crops in the majority of seasons. When all has been said against our most variable climate, it is very rarely indeed that our hardy fruit crops fail us. Occasionally some are below the average, but usually the shortage is compensated for by an abundance of some other kind of fruit. The success that is obtained is the success of the cultivator, and to him, rather than to any appreciable alterations in climatic conditions or in the habits of fruit trees, must we look for still further progress in the efforts to obtain from the trees their fruit in due season.

Coloured Supplement.— Among the many interesting plants introduced into European gardens from South Africa a century or more ago, the several species of Strelitzia have held a prominent place owing to their striking appearance and capacity for doing well in ordinary garden conditions. The early history of the first-comer, S. Reginæ, is given in the *Botanical Magazine*, Vol. IV., published in 1795, when a plant flowered for the first time in the Apothecaries' Garden at Chelsea. We there learn that the genus was named by Sir JOSEPH BANKS "in honour of our most gracious Queen Charlotte." It was first introduced into Kew in 1773, but does not appear to have perfected itself there owing, it is hinted, to its roots having been confined in a flower-pot; whereas in the Chelsea garden, the roots having extended by accident into a bed of rotten tan, the plant grew with greater vigour and developed flowering stems. Like all fleshy-rooted plants, Strelitzias require

plenty of root-room and are gross feeders. The best examples we have seen have been planted in a border of good soil in a conservatory, where they enjoyed a fair amount of sunshine. If grown in a pot or tub it must be of large dimensions or there will be no flowers. The genus is related to Musa and is confined to South Africa. S. parvifolia (juncea), remarkable in having elongated, rushlike leaf-stalks and a blade reduced to a very small size, is a second stemless species, whereas the other two, S. augusta and S. Nicolai, have woody stems which attain a height of 20 feet or more. A hybrid named S. kewensis (see fig. 38), raised at Kew by crossing S. Reginæ with S. augusta, flowered in 1910, the flowers being pale ochre-yellow and blue. There are several varieties of S. Reginæ, namely, citrina, farinosa, and ovata. In sub-tropical countries these Strelitzias may be planted in permanent positions where, when once established, they will thrive indefinitely, as they produce sucker shoots freely, and their constitution is such that nothing except frost appears to hurt them.

Geo. Monro, Ltd.—The name of George Monro is a household word amongst growers, buyers and sellers of garden produce. The business is by far the most important of its kind in Great Britain, and yet, like many other great undertakings, it had a small beginning, as was told by Mr. Monro himself at a luncheon which took place in the Hotel Cecil on the 22nd ult., to celebrate the opening of new premises in Tavistock Street. Mr. Monro invited some four hundred guests, including many well-known horticulturists. The history of the firm is really a history of modern market-gardening, especially as it concerns the development of the trade in choice fruits and flowers. Mr. Monro first started business in Covent Garden Market in August, 1862, so that his experience extends over fifty years. In those early days the market growers were chiefly concerned with the cultivation of vegetables and other outdoor crops, and of crops raised under frames. Such indoor fruits as reached the market came mainly from gentlemen's gardens, being the surplus after satisfying the home requirements. The first person to undertake the growing of Grapes for market on serious lines, said Mr. Monro, was Mr. William Thomson, of Clovenfords, and Mr. Monro acted as his agent. In 1882, when Mr. Thomas Rochford started Grape-growing for market at Turnford, near Broxbourne, the trade grew by leaps and bounds. Other early growers were Mr. Sweet, of Whetstone, Mr. Peter Kay, of Finchley, and Messrs. Shoults, of Finchley. The Grape-growers soon found that Tomatos were a most profitable crop to cultivate in conjunction with their vines, and Mr. Monro stated that no crop was of more importance to the grower, the salesman, or the trader than Tomatos. The Tomato soon became popular with the public, and the demand for this fruit is now an enormous one. The success of the growers advanced steadily, and they next turned their attention to Cucumbers, which proved profitable. But the profits of English Grape-growers are said to show a serious decline nowadays owing to competition from Dutch, Belgian, and other nurserymen on the Continent. However, the modern growers have many advantages, such as improved railway facilities, cold storage and a greater number of shops dealing in the sale of their commodities. Forty years ago, said Mr. Monro, there were practically no flower shops. The greengrocer and fruiterer of those days bought flowers only when they were cheap, and there were no florists such as we know them. However, the flower trade has grown, especially during the past twenty years, and there is a constant demand for Roses, Carnations, Narcissi, Chrysanthemums and such like subjects. Much of this is due, said Mr. Monro, to the fortnightly meetings of the Royal Horticultural Society, which create a desire amongst those who visit these shows to have the things they see for themselves. The Continental method of arranging bouquets and sprays in a lighter manner than the old style that formerly obtained has also been a help in the extension of trade. The market fruit and flower trade has become a national industry and also an international one, and is worthy of more patronage by the Government. Good advice was given by the speaker on the question of prices. It was no use seeking to obtain fancy prices, for it paid better in the end to sell for a moderate value, as those who bought cheaply came again for more and trade grew in consequence. His motto was sell cheap, not dear. Mr. Joseph Rochford and other growers and salesmen gave interesting reminiscences of the market trade, and afterwards the guests were invited to inspect the new buildings in Tavistock Street, which extend through to Exeter Street. The ground floors—for there are two, owing to the difference in the level of the two streets, the ground floor in Tavistock Street becoming the first floor in Exeter Street—are utilised as sale-rooms for the trade in flowers. They are both very spacious, and provided with every convenience for a business of this description. The size of the two floors may be estimated when it is stated that the area of the two together is greater than that of the foreign flower market in Covent Garden. The most interesting parts of this large building are the sale-rooms for the sundries department and the offices. The first floor in Tavistock Street is occupied by show-rooms for displaying glass and china ware, and baskets used for arranging flowers and fruits, and is connected by a wide corridor with the corresponding floor in Exeter Street, which is stocked with articles of more general use, such as florists' paper, wire, string, moss, fertilisers, and a thousand and one other things used in all branches of the nursery,

Fig. 38.—Strelitzia kewensis (S. reginæ × S. augusta).

(See p. 86 and Coloured Supplement.)

florists', fruiterers', and allied businesses. On the third floor are found the English and French offices, together with four private rooms for the sub-managers; whilst on the fourth (or top floor) are the housekeeper's quarters, store-room, salesmen's reading-room and dining-room, and the kitchens. Nothing appears to have been overlooked in the arrangement of these fine buildings, either for the convenience of trade or for the comfort of the staff.

"The Journal of Horticulture."—We understand that Mr. J. Harrison Dick, editor of the *Journal of Horticulture*, will shortly leave England for America. Mr. Horace J. Wright will succeed Mr. Dick at the *Journal of Horticulture*, a paper which he edited some years ago, when it belonged to Mr. Hogg.

"Trees of Great Britain and Ireland."—This great work has been brought to a close by the publication of the seventh volume, together with a separate index volume, containing a list of 80 pages, a list of subscribers, addenda and errata, also a postcript by the authors, Mr. H. J. Elwes, F.R.S., and Prof. A. Henry. The book contains in all 2,022 pages. We understand that only 500 copies of the entire work have been issued.

Gift of Orchids to Kew.—We learn from the *Kew Bulletin* that the collection of Orchids in the Royal Botanic Gardens has been enriched by the gift of 150 large plants of Cattleya, Lælia, Lælio-Cattleya, Brasso-Cattleya, Cymbidium and Cypripedium by Lt.-Col. Sir George Holford, from his famous collection at Westonbirt. While the collection of Orchids cultivated at Kew must be essentially botanical, its main object being to represent the family in as comprehensive a way as possible, the great progress made in recent years in the breeding of hybrids, many of which are botanically interesting as well as possessed of exceptional claims as garden plants, necessitated the addition of a selection of them to the collection. Increased accommodation was provided last year by the erection of an intermediate house adjoining the T Range, and, thanks to Sir George's generosity, Kew now possesses some of the best of the Cattleyoid hybrids.

The L.C.C. Winter Garden at Avery Hill.—The winter garden at Avery Hill has been closed to the public, owing to the dangerous condition of the roof, since January, 1912, but there is now every prospect of its reopening. The total area of land occupied by the garden is about 1,645 square yards, or slightly over one-third of an acre. The average expenditure for maintenance has been £220 a year. The original cost of providing the winter garden is stated to have been over £20,000. After giving full consideration to all the facts and inspecting the building and the plants contained therein, the Parks' Committee came to the conclusion that the Council would be justified in incurring the expenditure of £2,750 involved in reopening the garden for the use of the public. The Finance Committee of the County Council, however, withheld their approval, and on Tuesday last Mr. H. J. Greenwood moved that the recommendation of the Parks' Committee should be referred back. This was lost by 44 votes to 27, and the recommendation of the Parks' Committee was adopted.

Gardeners' Royal Benevolent Institution.—A garden fête was held at Ynys-y-Maengwyn, Towyn, Merioneth, the residence of Mrs. Cobbett, on Wednesday, July 23, in aid of the funds of this Institution. It is satisfactory to learn that, as a first venture, the fête was successful.

Nova Scotia Apple Crop.—According to reports from various districts the Nova Scotia Apple crop will probably be below normal. Cold, wet weather at blossoming time caused imperfect pollenisation, while frosts in early June also caused damage. Certain places, however, have been more favoured and report a better crop than that of last year.

Motor Car Unpopular in Canada.—A curious prejudice against the automobile exists in the province of Prince Edward Island. A measure recently passed by the Legislature admitting this familiar vehicle has been held up pending a plebiscite. The returns at present to hand show that the farmers are strongly opposed to allowing autocars to run under any conditions. This attitude is in strange contrast to that of Canada generally. In Ontario, and even more so in the West, the automobile is almost as ubiquitous as the buggy, while motor power is becoming more and more extensively employed in agricultural and other industries.

A New Method of Preserving Fruits.—It is stated that excellent results with various fruits—Apples, Cherries, Grapes, etc.—have been obtained by a new and comparatively simple method of preservation. The process, due to Mr. E. Cooper, consists in packing the fruits in tarred cardboard boxes in which the air has been replaced by nitrogen. The tarred cardboard renders the box impervious to air. It is filled with fruit and closed, except for a small hole. The boxes are put into a large chamber, the air of which is exhausted, and hence the major part of the air is removed from the boxes. Nitrogen is passed into the chamber, and when sufficient time has elapsed the holes in the boxes are sealed. It is stated (see *La Tribune Horticole*, June 21) that fruit remains perfectly fresh for from three to five months when packed in this way. It is evident that if the process leads to good results it is of considerable importance, but till it has been tested fully it is premature to express an opinion as to its utility. The fact that many chemical changes go on in plants in the absence of air—the conversion of sugar into alcohol, for instance—would suggest that fruits are not likely to remain unchanged for long even in an atmosphere of nitrogen. Without giving much weight to theoretical objections, it is as well to bear them in mind when forming a first estimate of the value of new processes. The most recent investigations bearing on this new method (see Bulletin 330, April, 1913, Cornell University Agricultural Department) would appear to show quite definitely that storage in oxygen-free gases is not likely to replace refrigeration. The writer of the bulletin, Mr. G. K. Hill, jun., shows as the results of his experiments that ripe fruits—Cherries, Grapes, Apples, etc.—continue to respire and to produce carbon dioxide in the complete absence of oxygen. This form of respiration is, of course, well known, but the fact that it goes on in ripe fruits suffices to show that the latter continue to undergo chemical changes, and, it is to be presumed, to deteriorate even when stored in such gases as nitrogen. Mr. Hill finds, moreover, that, as a matter of fact, ripe Apples lose in colour, texture, and flavour, and take on the quality of the half-baked fruit as a result of being kept for a considerable time in oxygen-free gases. If this be the case, the shipper of fruit will have to continue to rely on refrigeration, which method, if proper attention be given to the all-important matter of ventilation, gives excellent results.

Fruit Crops in Brandenburg, the Province of Saxony and Silesia.—The Board of Agriculture and Fisheries have received a further report from his Majesty's Consul-General at Berlin on the fruit crops in his district, from which the following are extracts: "On the average there may be expected in this district a moderate crop of Apples, Pears, and Plums of all kinds; a poor crop of sweet Cherries, although sour Cherries will be better; very few Peaches and Apricots and a good crop of Strawberries. Gooseberries and Currants will be below the average, but other berries will be fairly good. The principal varieties of Plums grown in the district are Victorias, Wangenheimer and Buhler Early Zwetschen, Hausswetchen, Mirabelles, and Greengages for dessert, chiefly Hausswetchen for cooking and Mirabellen von Nanzy, large Greengages and Italian Zwetschen for jam-making. The varieties mainly used for home consumption are Victorias, Wangenheimer and Buhler Early Zwetschen, Hauszwetschen, Oulin Greengages, and large Greengages. The principal kinds exported are blue Hauszwetchen, large Greengages, and Mirabellen von Nanzy. The Zwetschen crop this year is expected to be very fair in Brandenburg—in some parts, especially the Altmark district, very good. In the Province of Saxony they will be moderately good and very fair in Silesia. The prices of this crop should be very nearly the same as last year—perhaps, on an average, 1s. per cwt. higher.

Flowers in Season.—We have again to acknowledge the receipt of a bouquet of Delphiniums from Messrs. Kelway, in which the pretty gradations of tint in pale and dark blue are very pleasing.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Artificial Ripening (see p. 50).—If it is the fact "that artificial ripening may be induced by subjecting unripe fruits to carbon dioxide," the "physiology of the process" is certainly "not altogether clear." Ripening is not a matter on which much information will be found in the textbooks. But the main facts are pretty obvious. A green fruit behaves like any other green plant-structure; it decomposes carbon dioxide and gives out oxygen. It is still doing its work as part of the general plant body. When it begins to ripen this ceases and is, in fact, reversed; oxygen is absorbed and carbon dioxide and water are given off. Ripening is a thing apart from the general life of the plant; the chemical changes which take place are not in the nature of the upbuilding of nutritive material, but are on the down grade and analogous to decay and death. It is of no advantage to the plant, but only to the race; it has been brought about to attract frugivorous animals and so facilitate the dispersal of seeds. Man has developed its capacity for the gratification of his own palate. Ripening, like germination, is broadly a process of oxidation. The changes which actually take place have been little studied and are certainly complex. The acids at first produced more or less disappear, tannin is broken up and sugar increased. These changes are due to the action of ferments, many of which are no doubt oxidases—i.e., capable of producing oxidation. Cooking produces similar changes in unripe fruit, an illustration of the fact that in chemical change time and heat are interchangeable. In what is called "bletting," oxidation is carried still further and sugar itself is destroyed. As long ago as 1872 Pasteur experimented on the effect of placing unripe fruit in carbon dioxide. "Plums remained firm, hard, and sound in appearance, even if some of these characters were not sensibly increased." Sugar, instead of being increased, was destroyed with the production of carbon dioxide and alcohol. The same thing happens with Pea-seeds germinated without air. We now know that this is due to the action of zymase, which effects alcoholic fermentation. In a control experiment Pasteur found that "similar Plums left in contact with air became soft, watery and very sugary." He adds that "Grapes, all acid fruits, Melons, etc., behave in the same manner," when placed in carbon dioxide. It is difficult to reconcile Pasteur's results with those described by Professor Francis Lloyd. It seems hardly possible that "ripening," properly so-called, can take place under the conditions. The only difference is that "pressures of from 15 to 45 pounds per square inch" were used. But the former is only that of the atmosphere, which is presumably what Pasteur used, though it may have been a little more from the additional carbon dioxide given off by the Plums. As far as I can see, the only mode of arresting ripening is by keeping fruit in a cold storage. But even then, Cape Peaches often have a vapid flavour which may possibly be due to some trace of alcoholic fermentation. *W. T. Thiselton-Dyer.*

A Hybrid Foxglove.—In connection with Sir Herbert Maxwell's note (see p. 70), it is perhaps worth recording that from seed obtained here in 1910 by crossing Digitalis ambigua with pollen of the white form of D. purpurea there resulted about a dozen hybrid

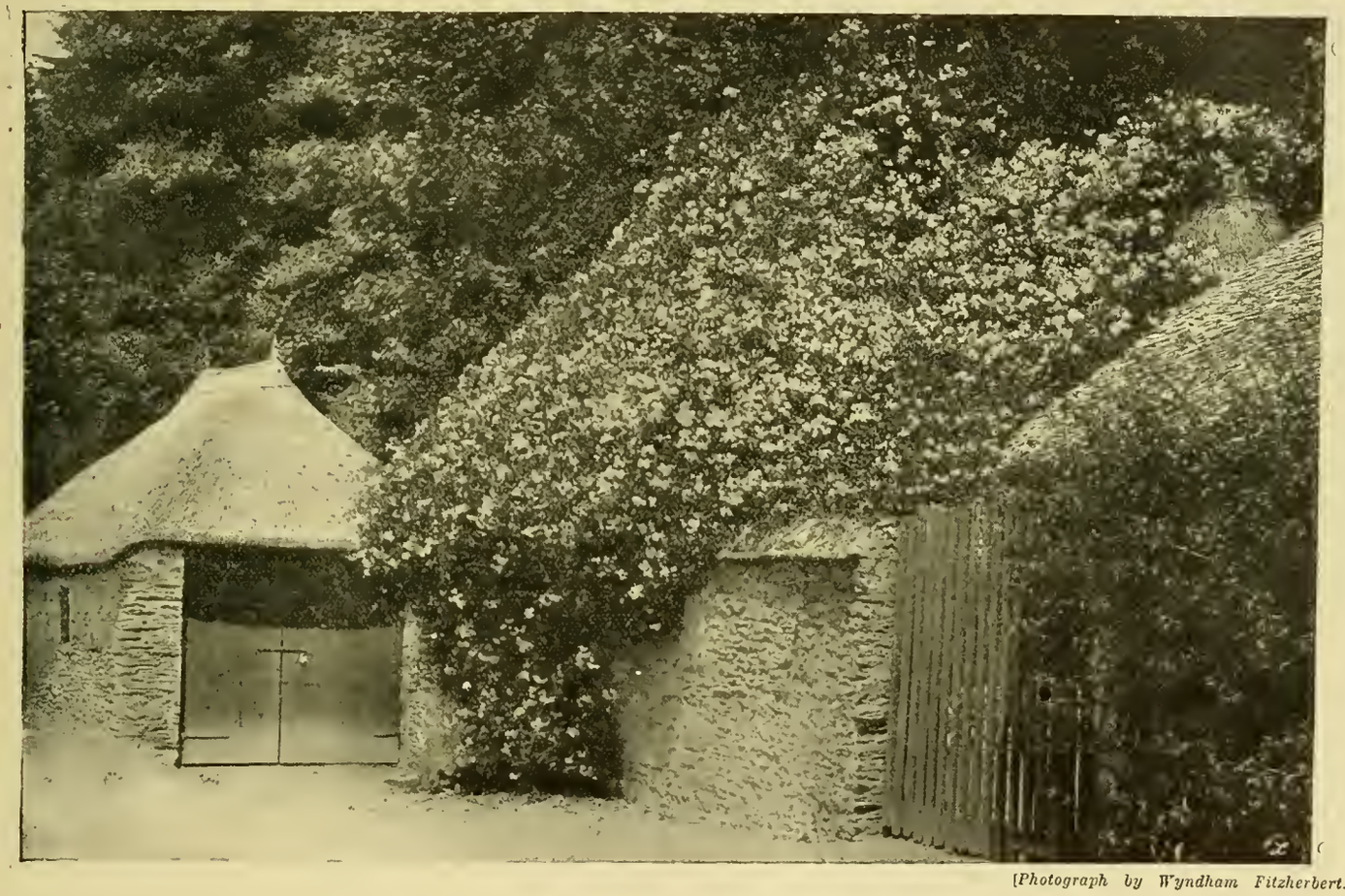
plants, which flowered for the first time in 1912 and are doing so again this year. Though varying somewhat among themselves, the flowers of all these plants agree very well with Sir H. Maxwell's description. My plants have all the appearance of being truly perennial. Though visited freely by humble bees they have not so far produced fertile seed. It is interesting to note that though the pollen parent belonged to a strain of white Foxgloves which have been kept severely rogued for 15 or 20 years, yet the red colouring is developed in all my hybrid plants. *W. H. B. Fletcher, Aldwick Manor, Bognor, Sussex*

Disease in Peas.—I was very much interested in the article concerning the diseases of Sweet Peas (see p. 21). Before I proceed further I must state that I am only outside foreman at the establishment I serve, but none the less I should be grateful if you will permit me to explain my experience with culinary Peas. This garden has been under cultivation for a longer number of years, and since I have been here (three years) I have cultivated culinary and Sweet Peas fairly extensively. Last year and this season my culinary Peas have been attacked with root or stem rot, which sets in just under the ground and turns the stems of the Peas black and soft, working its way down to the roots; the behaviour of the haulm after the attack coincides exactly with the Sweet Peas illustrated in fig. 10, and said to be attacked with the fungus Thielavia basicolor. They make healthy growth till just before they start blooming, then the disease attacks them, and they cease to grow. In bad cases there are very few pods that develop properly, the foliage turns yellow, and the plants just linger on, not dying outright. On three rows that were attacked I gave each row a good dusting of lime, and watered it in, and on one row it checked the disease to a great extent, but on the other two it had but very little effect, owing, no doubt, to the disease being far worse in degree. Those rows were of the variety Early Morn, and were sown at about the middle of April. I have one row of Duke of Albany, and two rows of Harvestman with the same disease, they were sown early in May in the same garden, but not on the same plot of ground. Harvestman, in addition to being diseased at the roots, has on the extreme end of the haulm, and about 1 foot down, a yellow appearance, and the leaves are mottled with brown spots, and they look altogether very sick and unhealthy. The article published in *Gardeners' Chronicle* states that root rot is caused by the fungus known as Rhizoctonia and Corticum vagum, and stem or collar rot is caused by the fungus Sclerotinia libertiana, but by the habit of my Peas after an attack it seems to me that they are attacked by the fungus Thielavia basicolor. Last year I intended sending you some for examination, but thought that possibly it was the wet weather we had that caused it, but now this season has been so far a dry one, and the attack is worse, weather conditions have not much to do with it. *Correspondent.* [Kindly send specimens for examination.—Eds.]

How Plants are Named.—The following conversation between two experts took place at a recent fortnightly meeting of the R.H.S. :—A. : Have you ever seen that plant before? B. : I don't think I have; it appears to be something new. A. : I know it is new, as it came from a place where no collector had ever been. No one here knows it. B. : How did it get the name it bears? A. : Oh, I named it, as the Society will not look at a plant that is unnamed. B. : Have you tried Kew? A. : It is no use sending plants there, as they give them any kind of name; they won't bother. B. : But they will. The collections of living and dried plants are maintained to enable them to identify plants, and I know they do a lot of it. A. : I wouldn't ask them. I would rather name my plants myself. B. : Then you would most likely make a mistake. It doesn't follow because a plant is not known to cultivators that it has not already been named by some one competent to do it. A. : Surely when I introduce a new plant I have the right to name it? B. : But you must first find out if it is new and nameless. A. : Well, I know this is new. B. took particulars of the plant, went to Kew and found that it was well known there, a figure of it having been published in the *Botanical Magazine* a few years ago. *Eavesdropper.*

Fasciation in Lilium candidum.—A plant of Lilium candidum in my garden developed a dense, rounded mass of flowers at the top of a fasciated stem about 3 feet high. This stem was flat, with a spiral twist throughout its length; it measured ¾ inch at the base, and increased in width to about 3½ inches at the top. There were over 60 flowers in the head; they were smaller than ordinary blooms, but most of them perfectly formed. Instances of stem fasciation in Lilies have been fairly numerous in my garden, but I do not remember such a case as this occurring with L. candidum. *S. G. Reid (Capt.), Yalding, Kent.*

Distribution of Alpine Plants (see p. 46, and Vol. liii., p. 381).—When I commented on M. Correvon's use of the word endemic, as applied to certain species in the Maritime Alps, which are by no means confined to that region, I did not realise that he was alluding to "centres of dispersion," and I was careful to say that "It [the paragraph] reads as if all the plants named therein were endemic, but evidently that was not the writer's intention." M. Correvon now begs the question by reminding one that "the centre of dispersion of any plant is the source of the species, not its sole habitat." Of course, but "he must surely be aware" that the word endemic means "confined to a given region, as an island or a country." See Dr. Jackson's *Glossary of Botanic Terms. H. S Thompson.*



[Photograph by Wyndham Fitzherbert.

Fig. 39.—Solanum jasminoides flowering by the roadside at Stoke Fleming, near Dartmouth.

SOLANUM JASMINOIDES.

This climber is surpassed by none of its race in the beauty of its flowers and in the lengthened period through which it blooms. A few years ago a large specimen, which covered the gable of a house from ground level to eaves, expanded its first flowers towards the end of April, from which time the white bloom-clusters increased in number every week until, in August and September, the whole plant was

veiled in a wealth of snowy blossoms, swaying with every breeze on their slender tendrils. October showed little diminution of their numbers, which gradually grew fewer as Christmastide approached, a few blossoms, however, remaining through the whole of January, while the second week of February had arrived before the petals of the last flower-cluster fell, the plant having bloomed continuously for nearly ten months. It is, naturally, only during open seasons, even in the favoured South-West, that such an extended period of blossoming can be looked for, but five or six months' flowering may be confidently expected. When planted in good soil the growth of this Solanum is very rapid, a small, rooted layer forming a plant that will reach to the eaves of a two-storied house in three years. For pergolas, trellises, and archways this climber is equally valuable, its white flower-wreaths festooning them with graceful bloom-trails for many a week. The plant is not unreasonably exacting as to the nature of the soil in which it is planted, and may be seen in equally satisfactory condition when growing in stiff, almost clayey, loam, and in a light and porous staple. It is, however, well in the case of this, as of all other climbers, to give it every inducement to make a good start by planting it in a barrowful of rich and friable compost, in which its roots will at once commence to grow freely. Where specimens make weak growth this may usually be attributed to their having been planted in soil naturally very poor, or being crowded with the roots of other vigorous subjects, in which cases the struggle for existence does not permit the plants to assume the robust habit that would have characterised them if they had been given a rich and unhampered root-run at the commencement of their career. Though admittedly of a somewhat tender constitution, being a native of South America, this Solanum has been known to succeed as far north as Derbyshire, and is well worth a trial in sheltered South-west angles of the house wall, even in the colder localities, where it may be afforded some temporary winter protection, since it amply repays by its summer beauty any little trouble expended on its winter preservation. The illustration (see fig. 39) shows a plant that may be viewed any summer day on the coach drive from Dartmouth to Kingsbridge. Passing through the village of Stoke Fleming, the road descends a winding hill to the beach at Blackpool, on which a charming valley opens out. In the valley runs a lane by the side of which is the shed here shown entirely smothered in Solanum jasminoides. *Wyndham Fitzherbert.*

THE APIARY.

By Chloris.

Storeo Honey.—Many are eager to remove racks of sections and shallow frames, i.e., before they are completed, because they believe that by adopting this method it will conduce to a big "take," while experience proves that the converse is true. The best course to adopt is to place another rack under the first when it is two-thirds to three-fourths filled. There is a period of waiting necessary before the last honey stored can be sealed, because bees will not cap it until it is perfectly ripened, and this interval the bees will employ in drawing out foundation, and filling the cells in the new rack. Since the nights are rather cold bee-keepers will be well advised to wrap up the racks round the outside with material of a non-conducting nature, so that the internal heat may be conserved, and they should not be afraid of placing on plenty of good quilts, remembering that what will prevent loss of heat will also act as a protective covering during the heat of midday. If the heat of the hive be allowed to drop seriously during the night the bees will soon leave the supers, and nothing will induce them to return again this season.

A little extra care in the management of Bees is always repaid by better results, and now that good English honey is so scarce, owing to the prevalence of the Isle of Wight disease, those with healthy stocks should make the most of their advantage in immunity from the complaint.

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking

Epidendrum vitellinum.—Plants of this summer-flowering species will be starting into growth, and when root action commences they should be afforded a fresh compost consisting chiefly of Osmunda-fibre. This useful species may be grown either in the ordinary flower-pot or shallow Orchid pan. Good drainage is essential, and in re-potting keep the base of the young growths well above the compost, as they will be less liable to decay. The later-flowering variety is finishing up its season's growth, and flower spikes are appearing from the apex of the new pseudo-bulbs; at this stage the plants will require abundance of water at the root till the flowers commence to open, but afterwards the quantity of moisture should be lessened gradually. Grow these plants in the lightest position available in the house, and especially at the time when forming their new pseudo-bulbs, light being an important factor, so that the latter, aided by plenty of ventilation, will assist the plants to dry quickly and assimilate plenty of water, and thus help them to form strong flowering growths.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Pentstemon.—Few plants give a better return for liberal cultural treatment than Pentstemons. Some of the varieties are now in full bloom, and if not already supported with stakes suitable supports should be provided without delay. Pentstemons are invaluable for massing in the mixed border or for cultivation in beds by themselves. The variety Newbury Gem is a distinct and beautiful sort, which may be used in various ways in the flower garden. In order to extend the flowering season for as long as possible the plants should be watered frequently during dry weather, using diluted liquid manure occasionally as a stimulant.

Holly and Yew Hedges.—The present is a suitable time to cut hedges formed of Holly or Yew, as they will make very little growth after this month. The work is best done with the shears. Specimen Yews may be pruned at this season, also various other kinds of conifer, but such work can only be entrusted to experienced workmen.

Foliage for Indoor Decoration.—Where large quantities of flowers are required for indoor decoration there is always a demand for suitable foliage, especially for furnishing very large glasses. To save spoiling the trees in the pleasure grounds others should be planted in out-of-the-way places for cutting. Species suitable for this purpose are Prunus Pissardii, Copper Beech, Ruscus racemosus, Acer Negundo and other variegated Acers; Dogwoods, and some of the finer Bamboos. Ruscus racemosus should be planted in considerable quantity, as it is most useful for indoor decorations.

Agapanthus.—Large plants of Agapanthus are very thirsty subjects, and now that the flower spikes are in course of development, any specimens that have already filled their tubs or pots with roots may be given copious supplies of liquid manure.

Begonia.—Examine beds of tuberous-rooted Begonias frequently to remove dead flowers and seed-vessels. Begonias succeed best in half-shady situations, where they have a free rooting-medium and plenty of moisture. Similar positions are best suited also for the fibrous-rooted Begonias, amongst which the varieties Crimson Bedder and Fairy Queen are excellent bedding plants.

Spiræa (Astilbe).—Plants of Spiræas that have flowered in the conservatory may be planted by the margins of water. The varieties Queen Alexandra and Peach Blossom will succeed in such a situation just as well as the old Astilbe japonica. A. palmata deserves a prominent place in the bog garden, where its roots may find plenty of moisture. It is a very effective plant in July and August.

Lavender.—If the flowers of Lavender are required for use indoors they should be cut and dried before they are too far advanced, and the plants may afterwards be trimmed. Hedges of Lavender may be cut fairly hard back at this season, as they will break readily into growth again. Lavender flowers may be dried on sheets of canvas, spread out in a vinery which has yielded its fruit.

Spring Bedding Plants.—Prick out the seedlings of spring-flowering plants as soon as they are ready for handling, or they will become drawn and weakly. Wallflowers should be planted in an exposed situation in ground that is neither too rich nor too loose, it being necessary that the growth should be hard in order to stand the winter. If there are colonies of Foxgloves, Honesty and such plants in the woodland garden that have sprung from self-sown seeds, they may need to be thinned, and the thinnings can be used for planting further batches. The seed pods of Honesty (Lunaria biennis) should be left on the plants, as they may be cut later for decoration indoors during winter, when they associate very well with dried specimens of the winter Cherry (Physalis Alkekengi).

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Morello Cherries.—Trees of Morello Cherries are carrying good crops, both the specimens against walls and the standards in the open garden. The fruit is just colouring, and the birds are getting troublesome, therefore it is desirable to transfer the nets from the Strawberry beds for use upon the Cherry trees. In netting the trees on the wall see that they are placed clear of the young shoots, and that the bottoms are tied up so that they will not drag upon the ground, otherwise they will be likely to decay with the weather. Galvanised wire should be placed over the top a foot above the trees, supported by posts driven into the ground to keep the net clear from the growth. The end of the young growth very often bears the only wood bud on the whole shoot, consequently the tips need to be retained. If Cherry trees are planted in a spot by themselves, and they are secured from pests and rain, fruits may then be allowed to hang on the trees for a considerable time, and they supply an addition to the dessert at a time when variety is sought after.

Sweet Cherries.—These being now almost all gathered the nets may be removed from the trees and attention given to the shoots, thoroughly syringing the trees and watering the roots if these appear to be dry.

Strawberries.—A plot of land should be got ready for the cultivation of the main crop of Strawberries, and no ground is better than that which has been cropped with Onions, as it will need little attention beyond cleaning. Strawberries may also follow early Potatos, which leave the land thoroughly clean; but a good dressing of manure will be necessary. The ground should be allowed to settle, and afterwards made firm, as advised for early planting. The runners should be well rooted, but if their layering is not complete the stronger plantlets should be chosen, and those uninjured by trampling, for if the crown is bruised the plant will be useless. They may be layered in small pots or in pieces of turf; but pots are preferable. Fill the pots to the brim with good, open loam, and keep the runners in position with a peg or stone, as previously advised. If well attended to the runners will quickly fill the pots with roots, and should be detached and planted out before they become potbound. Another plan, and one which answers quite as well with less labour, is to lift runners from between the rows of the old plants with a trowel. Such plants, if lifted before they develop many roots, generally grow away better than those planted from pots, but this plan can only be practised in wet seasons, when runners are plentiful. The rows should be 3 feet apart, and the plants 2 feet distant in the rows. In the first year after planting, a crop such as Lettuce, Spinach, or French Beans may, if desired, be grown be-

tween the rows. Then, if the plants do well, they will occupy the whole bed the second year. Unless light and air reach all parts of the plants the flavour of the berries will be inferior, and if the season is excessively wet many of the fruits will rot before reaching maturity. As advised for early planting care in the matters of watering, mulching, etc., will be necessary if the season remains dry.

Selection of Varieties.—The best varieties for planting will depend largely on the nature of the soil and the district. Certain varieties which succeed well on heavy land and in low-lying districts will not do at all in these gardens. The best variety for all purposes is Royal Sovereign, but for flavour British Queen is still unexcelled. This latter variety, however, is, with us, a wretched grower, and we have substituted Laxton's New Queen. This Strawberry is nearly equal in flavour to British Queen, is a grand grower, and bears large fruits of a bright appearance. Other good varieties in their order of ripening are President, Louis Gauthier, Utility, Waterloo, Given's Late Prolific and Latest of All.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Cucumbers.—Cucumber plants that have been bearing fruits for some time should have the older growths and foliage removed, training young shoots to take their places. Apply a top dressing of half turfy loam and half manure from an old hot-bed, and water the plants copiously with manure water. Syringe the plants with clear water on fine afternoons, and close the houses early while the sun's rays are still upon the glass, in order to produce considerable heat, which should be maintained more or less during the night with fire heat. Sow seeds at the beginning of August to produce plants for winter-fruiting, and encourage the seedlings to make a sturdy growth, ventilating the house freely during favourable weather.

Pineapples.—The commencement of August is the best time for potting suckers of Queen Pines. Fruiting plants of this variety produce suckers freely when in a satisfactory condition, and it is usual to allow two suckers to develop on each. Sever the offsets and make the base of each smooth by means of a sharp knife; also remove several of the short leaves. The stronger suckers should be selected and planted in 8-inch pots, placing the remainder in 6-inch pots. Let the receptacles be cleansed thoroughly, and place a layer of crocks about 2 inches in depth in the 8-inch pots, and rather fewer in the smaller ones. Spread a layer of moss or some of the more fibrous portions of the loam over the crocks, and next a few crushed bones mixed with a little soot. The soil for growing Pines should contain plenty of fibre, and should be on the light rather than the heavy side in texture. To every barrowful of the loam, mix with it an 8-inch potful of bonemeal. Let the suckers be placed sufficiently deep in the soil for them to remain firmly in position, and make the compost firm by means of a blunt stick. They should be grown in a shallow pit, preferably one furnished with bottom heat from hot-water pipes. Plunge the pots to their rims in a bed of tan or leaves, and maintain the bottom heat at 85° to 90°. Shade the suckers from direct sunshine until roots have formed; if the soil is fairly moist at the time of planting water will not be needed until this stage is reached, when tepid water should be afforded in sufficient quantity to afford a thorough soaking. Up to the time when roots develop, overhead sprayings will be beneficial, and this may be done by means of a can with a fine rose. Let the night temperature be about 70°, allowing a rise of 10° or 15° in the afternoon at closing time, when the sun is shining brightly. When the plants are growing freely, air may be admitted early on fine days, and let the plants be exposed as much as possible to sunlight. The pit or other structure in which Pine suckers are grown must be perfectly clean, therefore the house should be washed and cleansed thoroughly, also the walls limewashed, before the plants are brought into them. At this season there are usually more Pines ripe at one time than are required. The fruits may be retarded by keeping the house comparatively cool and permitting a circulation of dry air. Another plan is to remove the plants to a vinery where the grapes are ripening; the cool air of the vinery together with the shade of the vines will have a successful retarding influence. Plants of Smooth Cayenne, Charlotte Rothschild and other late varieties intended for fruiting in the late autumn and winter should be fed with weak guano water as soon as they have finished blooming and commenced to swell, each time moisture is afforded. During bright days the Pine pit should be closed in the afternoons, when the temperature is very high, and this warmth, if supplemented with fire heat in the evening, will prevent the temperature falling below 70° at night-time.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Calceolaria and Cineraria.—Seedlings of Calceolaria and Cineraria should be afforded plenty of air and light; the earliest plants will now be large enough to handle, and may be pricked out into pans or boxes. Keep a sharp look out for slugs and other insect pests.

Lachenalia.—A batch of Lachenalia, so useful for greenhouses or conservatory, may now be potted. The corms should be shaken from the old soil and potted in a compost of rich loam, leaf-mould, coarse sand, and a little wood ashes and decayed cow-manure. Use pots 4½ or 5 inches in diameter, and provide good drainage. Five or six corms may be placed in each pot, covering them with soil and placing the pots in a cold frame. The soil may be watered once, but moisture will not be required again until the growths appear. Grow the plants as cool as possible. Provide them with shade from hot sunshine and plenty of air, preventing cold draughts, as these are apt to injure the foliage. As soon as the flower-spikes are seen a little manure-water may be used with benefit, but care must be taken to keep the manure-water from the foliage, and on no account permit overwatering during the winter months. Lachenalias are very effective grown in baskets or pans. It is not advisable to force them, as they are more satisfactory when grown in cool conditions.

Mignonette.—Seed of Mignonette should be sown for winter flowering.

Cyclamen latifolium.—Sow seeds of Cyclamen in pots or pans filled with a mixture of fine loam, leaf-mould, and sand. Distribute the seeds evenly at a suitable distance apart, and cover them lightly with fine soil. Give a thorough soaking with water, and then cover the pans with a sheet of glass, shading the latter with paper. Stand the receptacles on a shelf in a greenhouse, and take care that the soil does not become dry at any time. When the seedlings appear remove the glass by degrees, and accustom the plants gradually to more light, until finally they are pricked off singly into thumb pots. At this stage the seedlings should be placed as near to the roof glass as convenient, and grown during the winter in a temperature of 60° to 65°. Old plants require feeding, and a suitable stimulant is liquid manure made from cow or sheep dung supplemented with a little soot water. As the pots become filled with roots top dress the soil with Clay's fertiliser.

Poinsettia.—Re-pot Poinsettia plants into 6-inch pots, and re-pot the old plants if they require more rooting space.

Crassula coccinea.—These plants, which are often known in gardens as Kalosanthes, should be cut down as they pass out of flower, and the best of the growths selected for inserting as cuttings. Place three or more of the shoots around the edge of each 60-sized pot. Plenty of mortar rubble should be mixed with the soil, which must be of a fine, porous nature. Make the cuttings firm in the soil, and then place the pots under hand lights or bell glasses in a shady position either out of doors on an ash bottom or in a house facing north. When roots have formed afford plenty of ventilation to prevent the shoots from becoming drawn. Later the plants may be potted into 6-inch pots in a mixture of rich loam, leaf-mould and mortar rubble, adding a little coarse sand to keep the compost open. Grow the plants in a cool house or frame during the whole season. Those plants which were cut back may be potted into larger receptacles as soon as they have made new growth, but do not disturb the roots more than is unavoidable. These plants, being succulent, require very little moisture during the winter, and, as succulent plants are always very brittle, the inflorescences should be supported by stakes at an early stage.

Early Bulbs.—The earliest batch of Roman Hyacinths should be potted or boxed at once. In potting bulbs it is not advisable to ram the bottom soil; they should be simply pressed into the soil, and the latter made firm around them. When the work of potting is finished plunge the pots and cover them with a layer of cocoanut fibre, fine leaf-mould or manure from an old mushroom bed before the final covering of ashes is applied. Where large quantities of these plants are forced it is economical of both labour and pots to grow them in boxes. When the pots are removed from the layer of ashes liquid manure should, if the pots are filled with roots, be afforded the plants. Paper Narcissi should be treated in much the same manner as advised for Roman Hyacinths. See that the bulbs do not remain in the packing cases after they are received from the nurserymen; if it is not convenient to pot them at once spread them out on the floor in a cool house or in boxes.

Humea elegans.—Pot the seedling plants of Humea elegans singly into thumbs or small 60-sized pots, and grow them in frames close to the glass, keeping the atmosphere close and moist. Later, when they are re-established and growing again, the plants should be hardened gradually.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

French Beans in Pits.—If space is available in one of the glass pits, a plantation of Dwarf Beans should be made at once, in order to prevent a break in the supply occurring during the autumn. Protection from frost is necessary for this plantation, but not any artificial heat. The bed of the pit should be dug deeply, and a quantity of old potting soil or manure from a spent Mushroom bed mixed with it. Make the soil moderately firm, then draw shallow drills at 18 inches apart, placing the seeds 6 inches apart in the drills, and covering them with fine soil. Dwarf-growing varieties should be chosen for this purpose. At Windsor we grow the Belfast, the pods of which are gathered while quite small, and cooked for the Royal table whole. The lights should be removed from the pits until the weather becomes cold, when they should be washed and placed in position.

Tomatos.—Tomato plants in the open should be thinned freely, removing all side shoots and keeping the plants tied to strong sticks. Fruits have not set well so far, but when sufficient have been secured to furnish a crop, the main stem should be stopped and a liberal dressing of artificial manure applied to hasten the development of the fruits. Seeds may be sown now to produce plants for fruiting in winter. As soon as the young seedlings are large enough they should be potted singly into small pots and grown quite close to the roof glass, shifting them later into 6-inch pots, and using a compost composed of two-thirds turfy loam and one-third leaf-mould or thoroughly-decayed horse manure, with a sprinkling of coarse sand. These plants should produce ripe Tomatos in January and February.

Late Peas.—The latest batch of Peas should have the sticks placed in position before the plants fall over. New sticks should be used as far as possible. Give liberal supplies of weak liquid manure at least once a week.

Cucumbers.—Sow seeds of Cucumber for winter fruiting, placing the seeds in small, clean pots. If these are placed on a gentle hotbed the plants will be ready to put out about the third week in August. All the Year Round and Every Day succeed best at Windsor in winter, and are strongly recommended. It is best to make two plantations, one in the middle of August and the other in the first week in September; the earlier ones for fruiting in November and December, and the second batch in the New Year. Overcropping of these winter Cucumbers must be prevented.

SOCIETIES.

ROYAL HORTICULTURAL.

July 29.—At the meeting of the Royal Horticultural Society in the Vincent Square Hall on Tuesday last, visitors were unusually few. The exhibits, too, were fewer than usual, but the special show of the National Gladiolus Society contributed its quota to the display.

Orchids showed the greatest falling off in numbers, but several novelties were submitted to the Orchid Committee for award, and two of these received Awards of Merit.

The Floral Committee granted 11 Awards of Merit, and, in conjunction with the National Gladiolus Society, one First-class Certificate and seven Awards of Merit to varieties of Gladioli.

The Fruit and Vegetable Committee found little to inspect. This body granted three Awards of Merit to two varieties of Beans and one variety of Turnip respectively, after trial in the Wisley Gardens.

At the 3 o'clock meeting in the Lecture Room Prof. R. H. Biffen, M.A., delivered a Masters Memorial Lecture, his subject being "Some Factors in the Prevention of Disease in Plants."

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair), and Messrs. Jas. O'Brien (hon. sec.), R. B. White, W. Bolton, W. H. White, S. W. Flory, W. P. Bound, J. E. Shill, W. H. Hatcher, J. Charlesworth, W. Cobb, C. H. Curtis, T. Armstrong, A. McBean, F. Sander, Gurney Wilson, C. J. Lucas, R. G. Thwaites, A. Dye, R. A. Rolfe, and Sir Harry J. Veitch.

The meeting was of the kind usual at this season of the year, the exhibits being interesting, but with fewer novelties than there are earlier in the season, and the groups restricted in size and number.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Banksian Medal for a group specially interesting in rare species, some of which are not yet identified, and which included a singular Bulbophyllum from West Africa, and a charming species near to Platanthera iantha. The plant was of erect growth, the spike bearing a head of cream white flowers with large rosy-lilac labellums. Oncidium Sanderæ, the elegant species of O. Papilio section, was shown, together with O. Papilio for comparison. O. luridum guttatum, the rare Dendrobium Griffithianum, D. ciliatum annamense, Angnloa eburnea, with a large, pure-white flower; the fine white Cœlogyne Mayeriana, Cirrhopetalum biflorum, Bulbophyllum galbinum, Ancistrochilus Thompsonianus, the pretty little scarlet Lælia monophylla; Masdevallia bella and other Masdevallias; a selection of Lælio-Cattleyas, the best of which was the finely-coloured L.-C. Bletchleyensis The King; Odontioda Wilsoni, O. Charlesworthii and other hybrids were also included; some Brasso-Cattleya albanense (C. Aclandiæ × B. Digbyana), has cream-coloured sepals and petals, striped and dotted purple, and distinctly three-lobed, fringed lip, veined with rose.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Banksian Medal for a group of finely-grown specimens, the principal plants being Angræcum Eichlerianum (see Awards). Odontoglossum ardentissimum xanthotes with nine-branched spike of 60 white flowers; O. Rolfeæ, also with a branched spike; Peristeria elata, the rare Houlletia Wallisii, Odontioda Keighleyensis, Paphinia cristata, two finely-flowered Miltonia Roezlii alba, the elegant little Oncidioda Charlesworthii (Oncidium incurvum × C. Noezliana), Cattleya Warscewiczii delicata and a very interesting Schombolælia obtained from a cross between S. tibicinis and L. tenebrosa. The flower resembles L. tenebrosa, and is bronzy-orange with rose-veined lip.

Messrs. Jas. Veitch and Sons, Chelsea, were awarded a Bronze Banksian Medal for a small group of very finely flowered Disa grandiflora raised from seeds, sown less than three years ago, and now blooming on very stout spikes, the flowers being large and of a brilliant scarlet. A very dark form of Lælio-Cattleya callistoglossa was also shown.

Messrs. Hassall and Co., Southgate, secured a Bronze Banksian Medal for a group in which were several good examples of Cattleya Thurgoodiana, some good forms of C. Dowiana, a fine Odontoglossum percultum, an interesting cross between Cattleya Bowringiana and C. Skinneri, and the fine yellow Acineta Barkeri.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. J. M. Black), was awarded a Bronze Banksian Medal for a small group of splendidly grown Orchids, including several of the very attractive Odontioda Thwaitesii; the fine white-petalled Cattleya Warscewiczii Frau Melanie Beyrodt, C. F. W. Wigan, and several C. Caduceus (Gaskelliana × granulosa), that named Imperialis, with pink-tinted flowers, having purple-veined lip.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), showed as Aërides odoratum album, a species with a spike of white flowers, which the committee decided was a form of Aërides virens; Miltonia vexillaria Queen Alexandra, Gatton variety, a large flower tinted with pink; and M. vexillaria radiata splendens, a large variety with a fine mask of radiated deep rose-coloured lines on the lip.

Pantia Ralli, Esq., Ashtead Park, sent Odontioda Keighleyensis Ashtead Park Variety, scarlet, with some yellowish-white markings on the petals; Odontoglossum eximium Mrs. Ralli, a large flower, finely blotched with purple, and Miltonia Charlesworthii var. G. Hunt (see Awards).

Sir Trevor Lawrence, Bart., Burford (gr. Mr. W. H. White), showed the rare Odontoglossum Galeottianum, the singular Bulbophyllum odoratissimum, Maxillaria fractiflexa, with slender segments with curiously twisted petals and Dendrobium polyphlebium. Also a fine basket of Habenaria rhodochila (see Awards).

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), sent Odontioda Desdemona (C. Noezliana × O. Othello), with broad and finely-shaped light-red flower, and Odontoglossum Queen Alexandra var. Theodora (see Awards).

Messrs. Manda, St. Albans, showed three well-flowered Cattleya Gaskelliana, and a dark C. Warscewiczii.

AWARDS.

Award of Merit.

Miltonia Charlesworthii var. Mrs. Ralli (*M. vexillaria Memoria G. D. Owen* × *M. Hyeana*), from Pantia Ralli, Esq., Ashtead Park, Surrey.—A form of the fine hybrid which secured a First-class Certificate at the last Chelsea Show. The present variety was of a delicate rose pink tint, with white margin, and white base to the lip, on which was an intensely dark triangular maroon mask, with short lines in front, and a ruby-red, oval blotch at the base of each petal.

Odontoglossum Queen Alexandra var. Theodora (*Harryanum* × *triumphans*), from De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables). The best of the fine batch, for two of which Mr. Crawshay had previously obtained Awards. The variety Theodora closely approaches O. Harryanum, especially in the fine white front to the lip and its rose-purple markings. Sepals and petals yellow, heavily marked with chestnut-brown.

Cultural Commendation.

To Mr. W. H. White, Orchid grower to Sir Trevor Lawrence, Bart., K.C.V.O., for a basket of about twenty plants of Habenaria rhodochila, all propagated from two or three original plants. The specimens were dwarf and bore heads of light orange-coloured flowers, some with a rose tint.

To Messrs. Charlesworth and Co., Haywards Heath, for a tall specimen of Angræcum Eichlerianum, with fifteen large, white-lipped flowers distributed over the whole length of the stem.

Floral Committee.

Present: H. B. May, Esq. (in the chair), Messrs. G. Reuthe, C. T. Druery, Chas. Dixon, John Dickson, W. Bain, W. J. Bean, E. A. Bowles, W. A. Bilney, Jas. Hudson, J. W. Moorman, Thomas Stevenson, C. R. Fielder, Chas. E. Shea, Chas. E. Pearson, J. T. Bennett-Poë, George Paul, Arthur Turner, R. C. Reginald Nevill, W. Howe, R. Hooper Pearson, W. B. Cranfield, R. C. Notcutt, John Jennings, George Gordon, and E. H. Jenkins.

Messrs. H. B. May and Sons, The Nurseries, Edmonton, showed stove and greenhouse Ferns in variety, for which a Silver Flora Medal was awarded. Tinted Adiantums such as A. Veitchii, velutinum and pulverulentum were all pretty. Choice Nephrolepsis were shown in N. exaltata superba and the finely dissected variety Willmottæ. Other good things were shown in Drynaria quercifolia, Asplenium radicans, Pteris cretica Childsii, Polypodium Vidgenii, Lomaria Pattersonii, Davallia assamica, and Niphobolus lingua.

Mr. L. R. Russell, Richmond, staged a collection of stove and greenhouse plants. This exhibit was a pleasing change from the numerous groups of hardy flowers, and was one of the best displays in the Hall. This nurseryman always shows the beautiful Anæctochilus well, and his plants of A. petola were delightful; the leaves resembling green velvet with tracery of gold, like fine filigree work. Codiæum (Croton) Mars, C. Thompsonii, yellow and green; Maranta insignis. Cyperus alternifolius variegata, Homalomena picturata, Aralia Veitchii, Dracæna Sanderiana, and Saxifraga sarmentosa bicolor were all excellent. Mr. Russell also exhibited large plants of Hydrangea hortensis finely in flower. (Silver Flora Medal.)

Messrs. James Veitch and Sons' exhibit of Gloxinias was as meritorious for the fine quality of the plants as for the excellence of the strain, which received an Award of Merit. The plants were raised from seed sown in January last, yet these six months old seedlings were perfect models, each bearing several excellent blooms. They were arranged in batches of distinct colours, the most striking shade being indigo-blue. Those with crimson petals and cream-coloured throat, the picotee-edged varieties, and the spotted sorts were all charming. As a separate exhibit Messrs. Veitch showed the graceful Thalictrum dipterocarpum with tall, loose plumes of mauve and yellow blossoms. (Silver Flora Medal.)

Messrs. W. Cutbush and Son, Highgate, filled a large table with tender foliage and flowering plants, Caladiums, and a large batch of the beautiful rosy-coloured Coleus Cordelia showed to advantage in a setting of the more sombre greens and greenish-yellows of Ferns, Palms, and Dracænas. This firm also showed varieties of Chrysanthemum maximum, known in America as Shasta Daisies. "The Speaker" was the largest flowered variety, and Kenneth has fimbriated flower heads. (Silver Banksian Medal.)

Mr. James Douglas, Great Bookham, showed border Carnations, including the novelties, Rosy Morn, a beautiful shade of rose; Mrs. Elliot Douglas, yellow; Mrs. Andrew Brotherstone, a flower with white spots on a clove ground and beautifully scented; and Basuto, crimson-maroon. (Silver Banksian Medal.)

Messrs. W. Paul and Son, Ltd., Waltham Cross, showed Roses, representing the more recent varieties raised by this firm. There were vases of the beautiful Juliet, a large batch of the H. T. Ophelia, of exquisite shape in the bud, and showing a touch of gold at the base of the pale pink petals; Lady Downe, buff-yellow; Bianca, creamy yellow; and Mrs. Chas. Hunter, rosy-carmine. (Bronze Banksian Medal.)

Messrs. Bakers, Wolverhampton, exhibited varieties of coloured Astilbes (Spiræas). Venus showed most tinting, a shade of pink; Ceres is flushed faintly with purple on a pink ground. (Bronze Flora Medal.)

Mr. Chas. Turner, Slough, showed a collection of shrubby Spiræas, for which a Bronze Flora Medal was awarded.

Messrs. Sutton and Sons, Reading, exhibited a large batch of the "red" Sunflower, which originated in America. The colour is reddish-brown. The value of the plant for breeding may be considerable. A hybrid, with Helianthus cucumerifolius, was shown, and this has great promise as a border plant. The flowers are not so heavy as in the "red" variety, whilst the yellow ground is much brighter. (Bronze Flora Medal.)

Mr. Amos Perry, Enfield, was awarded a Silver Gilt Banksian Medal for Astilbes, Nymphæas, and other hardy flowers. A fine feature was a pool of water planted with Nymphæas, and backed by masses of the golden Senecio macrophylla, S. Veitchianus, and S. lingulata, with Bocconia cordata, interspersed. Iris Kæmpferi contributed bright colours, and a border of Ferns to the pond completed this imposing portion of the group. Anomatheca cruenta, a pretty little

bulbous flower of coral-pink colour, with a maroon tinted base, Lilium longifolium formosum and a fine mass of Achillea Perry's White were other good features.

Messrs. Phillips and Taylor, Bracknell, Hertfordshire, showed a group of border flowers and Lily pool, the latter planted with fine Nymphæas, including the varieties Wm. Falconer, crimson; Carnea and Gladstoniana, the last being especially good. The double Arrowhead, Sagittaria japonica plena, associated well with the Water Lilies. (Silver Banksian Medal.)

Hardy flowers were shown well by the Guildford Hardy Plant Nursery, including Adenophora Potaninii, with china-blue, Campanula-like flower; Sidalcea Listeri, a pale pink mallow; and Dracocephalum virginianum album.

Messrs. Wares, Ltd., Feltham, exhibited a very large group of hardy flowers, for which a Silver Banksian Medal was awarded. Veronica virginica alba, with tall spikes of bloom; Galega Hartlandii, a pretty pale mauve and white Goat's Rue; and Campanula grandiflora, with flowers a fine shade of blue, were noticed in this extensive collection.

Mr. Maurice Prichard, Christchurch, Hampshire, showed, in a collection of hardy flowers, Delphinium, Mrs. Brunton; Montbretia, Mrs. Geo. Davison; Stokesia cyanea præcox, Liatris spicata, and the new Campanula Tenori, var. maculata, Campanula acutangulosa, and Rhododendron lanatum. (Bronze Flora Medal.)

Mr. James Box, Lindfield, Haywards Heath, exhibited a large floor group of hardy flowers, for which a Silver Banksian Medal was awarded. The principal subjects were Phloxes, Sweet Peas, and Gladiolus "Halley," which received an Award of Merit last season. At the back was a large mass of Aconitum, Sparks's variety, a fine dark blue flower, distinct in shade from any other Monkshood.

Mr. H. J. Jones, Ryecroft Nurseries, Hither Green, showed pot plants in 52 varieties of border Phloxes, and was awarded a Silver Flora Medal. This excellent exhibit was staged on the floor and was very pleasing with its background of small Bamboos and border of Helxine Soleirolii and Adiantum Ferns. Of the Phloxes, we admired nana cœrulea, Fort de France, salmon-pink; Widar, mauve, with white centre; Rosenberg, violet-purple; and Mrs. R. C. Pullin, salmon-pink.

Messrs. W. Wells, Ltd., Merstham, Surrey, showed border Phloxes in variety, including Arthur Rane, salmon and white; Aurora, scarlet; Richard Strauss, violet-purple; and Antoine Mercie, lavender and white, these representing good new sorts. (Silver Banksian Medal.)

Messrs. W. Fells and Son, Hitchin, put up a rockery and planted it with suitable alpine and border flowers.

Messrs. J. Cheal and Sons, Crawley, showed border flowers in variety and vases of rambler Roses.

Messrs. Carter, Page and Co., London Wall, exhibited varieties of Antirrhinum and Violas, for which a Bronze Banksian Medal was awarded.

Awards of Merit

Carnation Rosy Morn.—A deep rose-pink self border variety. The large flower has a full, deep centre. Both calyx and stem are good, but the variety possesses little fragrance. Shown by Mr. J. Douglas.

Fig. 40.—Dendromecon rigidum: flowers bright yellow.
(R.H.S. Award of Merit on Tuesday last.)

"*Red*" *Sunflower.*—A strain of "Red" Sunflowers (Helianthus annuus), in which the yellow of the ray is more or less obscured by a reddish-brown band, the red on yellow producing a dull brown, which is effective in sunlight. The strain owes its origin to H. lenticularis var. coronatus, a banded form of a Colorado Sunflower, collected by Prof. Cockerell, of Boulder University, which Messrs. Sutton crossed with H. annuus. The resultant strain has the vigour and habit of H. annuus, reaching 8 to 10 feet in a good border, and 90 per cent. of the seedlings are said to have the brown band more or less in evidence. Shown by Messrs. Sutton and Sons.

Rose Annie Crawford.—A vigorous H.P. variety raised by Dr. J. Campbell Hall from the varieties Mrs. J. Laing × Capt. Hayward. The flowers are of great size and depth, much resembling those of Mrs. J. Laing in form and colour—a clear light pink, with deeper shades in the opening bud. The petals are very large and have a distinctly waved margin. The blooms are fragrant. Shown by Mr. W. R. Hammond.

Sweet Pea King White—A very large, pure white flower with much frilled standards. The habit is excellent and all the stems carried four blooms. It was raised by Mr. Malcolm, of Duns.

Sweet Pea Dobbie's True Lavender.—This is a good Spencer form, having the true Lady Grisel Hamilton colour—a pale mauve-shaded lavender. The stems each carried three or four large flowers, with waved standards. Both these varieties were shown by Messrs. Dobbie.

Dendromecon rigidum.—A sub-shrubby Poppy with large, bright yellow fleeting flowers and rigid, erect stems. It has the curious habit of bearing its flowers singly at the end of the shoot, and further growth, which soon overtops the faded flower, is taken up by two lower axillary shoots which bear buds at the end and are extended in the same way. The foliage is flat, leathery and glaucous, lanceolate in shape and with a finely serrated edge. This is an old garden plant, but remains scarce though hardy and reaching some ten feet in height when given a favourable position at the foot of a south wall, such as that given to the allied Romneya Coulteri. Shown by Sir Trevor Lawrence, Bt.

Gloxinias, Veitch's strain.—This is an admirable strain of large-flowered forms showing a wide range of colour which was mostly represented by strong-flowering young seedlings only six months old. On one side Messrs. Veitch are working for a deep, self-coloured crown and a clear, white, unspotted throat; the deep violet-purples and crimsons showed these characters well. Others have large, flatter flowers wholly covered with a delicate spotting. Pure white, Rose-edged White, Plum-purple and deep crimson self were other selected forms which were much admired. The whole exhibit showed fine culture and care in selection. Shown by Messrs. Jas. Veitch and Sons, Ltd.

Spiraea (Sorbaria) arborea var. grandis.—This is a shrubby Chinese species with pinnate leaves belonging to the same section as S. Aitchisonii and S. sorbifolia. The shoots exhibited showed very large, conical, branched heads (some 18 inches in length and 15 to 18 inches broad at the base) consisting of densely-packed, small creamy white, strongly-scented flowers, each only a quarter of an inch in diameter. The foliage consists of about nine pairs of lanceolate tapering leaflets, which are deeply and closely feather-veined and finely serrated at the edge. The leaflets are each about 4 inches in length by 1 inch in breadth. They are not so sharply serrated as in S. sorbifolia, and are much larger and duller than in S. Aitchisonii. Shown by the Hon. Vicary Gibbs.

Clematis tangutica var. obtusiuscula.—This variety has the elegant, finely-divided, glabrous foliage of the type, with five to seven leaflets each ternately divided, and wiry, purple stems which are held up by the tendril-like stalks to the leaflets. The flowers are nearly globular, from ½ to ¾ inch in diameter, golden-yellow, mostly solitary in the leaf axils and pendant at the end of stiff pedicels 4 or 5 inches long. The four "petals" are glossy on the inner surface and curiously and sharply folded at the margin. A distinct plant raised from seed collected by Mr. G. Fenwick-Owen in the Chow district of West Kansu in 1911. Shown by F. C. Stern, Esq.

Nymphaea Escarboucle (Marliac, 1909).—This fine hybrid Water Lily is, without exception, the most richly coloured of all. The colour is of a uniform vermilion-red, the stamens also are of the same colour, but of a deeper shade. The flower possesses great substance, notably in the sepals, and is some seven or eight inches in diameter. In every respect it is a most remarkable variety.

N. Colossea (Marliac, 1901).—This variety has now been some few years in cultivation, but its merits as a vigorous grower and an abundant bloomer have not been generally recognised. It blooms both early and late in the season, and the flowers are sweetly scented. They are of the largest size, some 9 to 10 inches in diameter, with broad and elongated petals. The colour resembles N. Marliac rosea, but is of a deeper tint. The variety is one of the very best Water Lilies for planting in deep water; a depth of six feet is not too much. These two Nymphæas were shown by Mr. Leopold de Rothschild, Gunnersbury House, Acton (gr. Mr. James Hudson).

Awards to Gladioli.

The following awards were made by a Joint Committee of the Floral Committee and the National Gladiolus Society.

First-class Certificate.

Gladiolus Electra.—A fine Childsii variety, with large flowers and bold, well-balanced spike of some 15 flowers and buds. The colour is deep scarlet in the bud. When open it varies from a bright scarlet self and sometimes shows a rich rose-pink in the upper petals. On the lower inner petal (generally on only one and not on two, as is the rule) is a light cream band with a central, scarlet blotch. Shown by Mr. P. Hopman, Hillegom.

Awards of Merit.

Gladiolus Prince of Wales.—The flowers of this variety are of a soft orange or salmon-pink, with a small yellow blotch on the two lower inner petals. They are of the same type as Halley, but the spike is stronger, carrying fifteen buds and flowers. This was adjudged the premier salmon-coloured variety. Shown by Mr. C. van Zanten, Hillegom.

G. Frank Paddleton, Jr.—The colours of Pink Beauty are reproduced in this variety, which has flowers the size of those of G. Childsii—a pleasing pink, with large crimson-scarlet blotch on the lower inner petals. The flower is neat, but the spike rather weak, as only three flowers appeared to remain open together. Shown by Mr. Firma P. Vos Mz, Sassenheim.

G. King of the Blues.—The deepest velvety violet-purple self. The flowers are small, as in the Lemoinei section, but the spike is bold and full. The colour is much darker than in the invaluable Baron Joseph Hulot, and is a pure self, except for a minute splash of white on the two lower inner petals. Shown by Mr. K. Velthuys, Hillegom.

G. Pink Perfection.—The flowers are a very pure and lovely shade of uniform clear soft pink, the outer petals showing a faint splashing towards the margin in a deeper shade. There is no blotch, but a scarcely seen touch of purple is present in the centre. The flowers are of a very fine texture. Shown by Mr. P. Hopman, Hillegom.

G. Incontestable.—A well-formed, round flower with white petals; a large scarlet blotch on the lower inner segments lights up the bloom. It resembles the variety Willy Wigman, and has the weak spike of that variety, but the flowers are a little smaller and the white is quite pure, not pink shaded. Shown by Messrs. Alkemade and Co., Noordwijk.

G. Liebesfeuer—A striking coral-scarlet self variety with a very smooth petal of Canna-like texture. The flowers are large and the spike good. There is a thin purple line down the centre of the two lower inner petals, but it is insufficient to mar the intensity and purity of the self colouring.

G. Loveliness.—This is a large, finely-formed, smooth-petalled flower in a strong, bold spike, carrying as many as eight blooms in good condition, expanded at the same time. The colour is cream, with a faint suffusion of buff or apricot except on the inner petal, which is primrose, and has a few purple lines and dottings at the throat. The blue anthers set off the purity of this noble flower. These two shown by Mr. de Ruyter, Noordwijk.

Other Novelties.

A pan of the lovely Chinese Gentian, Gentiana Veitchiorum, was shown by Messrs. J. Veitch and Sons, who, on August 31, 1909, secured an Award of Merit for it under the name of G. ornata. The habit is low, the solitary flowers much resembling those of G. acaulis, but the flower stem is more leafy, and the compact glossy foliage is much narrower. The great value of the plant lies in its late-flowering habit.

Campanula Tenori var. Somerville.—An interesting hybrid between C. Tenori ♀ × C. pyramidalis ♂ was shown by Mr Maurice Prichard. It has the spike of C. pyramidalis, rising to a height of five feet, but the blue centred flowers and tough foliage show the influence of the mother plant. It is hardy, and its long spikes are showy.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the chair), Messrs. Jos. Cheal, Geo. Woodward, Owen Thomas, J. Jaques, A. Grubb, J. Davis, and S. T. Wright (secretary).

Lady Wernher, Luton Hoo (gr. Mr. A. W. Metcalfe), showed fine Muscat of Alexandra Grapes and twenty Melons of the varieties Ringleader and Hero of Lockinge. (Silver Knightian Medal.)

A Cultural Commendation was awarded to Mr. James Hudson, gardener to Leopold de Rothschild, Esq., Gunnersbury House, Acton, for an excellent plant of Bourgassotte Grise Fig, propagated from a cutting rooted on February 2 last. The plant had made excellent growth and was furnished with several fruits.

Awards of Merit.

French Beans Sunrise and Perpetual, both from Messrs. J. Carter and Co., and a selection of *Turnip Snowball*, from Messrs. Sutton and Sons. These vegetables were grown under trial at Wisley, and proved to be very abundant croppers. Sunrise is of very dwarf habit and has small leaves, two desirable points in a forcing variety.

HORTICULTURAL CLUB.

VISIT TO FRIAR PARK.

On Thursday, the 24th ult., a party consisting of upwards of sixty members and friends of the Horticultural Club took part in the annual excursion. By the kindness of the President, Sir Frank Crisp, Bart., the afternoon was spent in the beautiful grounds at Friar Park, and as the weather was extremely fine the gardens were seen to the best advantage. The party started from Paddington in saloon carriages at an early hour in the morning, and proceeded to Marlow. Here they alighted, and walked down to the riverside, where the President's launch was waiting to convey them to Henley. Alighting at the boathouse, the party were entertained at lunch by Sir Frank and Lady Crisp, after which they drove to Friar Park, and spent a delightful afternoon in the gardens. Sir Frank did the honours himself, assisted by his head gardener, Mr. P. Knowles, and although many of the guests had already visited the grounds, there seemed to be some new plant or fresh effect at almost every turn. The Alpine gardens and rockeries, the Japanese gardens, the old Tudor and Elizabethan gardens, the Rose gardens, all were visited and admired.

The Alpine garden, with its representation of the snow-capped Matterhorn, produces a wealth of flowers from early spring until late autumn. Many of the plants are rare as well as beautiful, and many of the colour effects would delight the eye of the artist. Large patches of purple Aubrietias, white Saxifrages, and blue Gentians, Primulas of every tint, and Lithospermums of the loveliest blue, adorn the lower slopes; while the higher ground is occupied by such plants as Alpine Pinks, Arenarias and Androsaces. The rivulets

which run down the sides of the rocks are flanked with beds of Irises, and Marsh plants occupy the islands; while in the water Nymphaeas, white, rose, and yellow, raise their heads just above the surface.

The shrubberies are interesting by reason of the independence of their construction. The plants of which they are composed are not the conventional shrubs of the ordinary garden, but every plant which is above the average in attractiveness, and which can be got by any means to grow out-of-doors, is represented, and each is given the particular soil in which it succeeds best.

The Japanese garden has begun to show the softening effect of time—a great improvement. The most prominent feature consists of the bright golden-yellow, clipped Yews. Quaint conifers of great age are planted on the banks of a rivulet, spanned by a picturesque bridge, and ancient standard Wistarias fling down a shower of rosy blooms from their spreading branches. Below the waterfall, Azalea amœna shows its delicate mauve-coloured flowers, and rare species of many forms and hues adorn the banks of the stream. The Japanese Maples are well worth a study, the tints of the foliage being most remarkable.

The Tudor and Elizabethan gardens carry the visitor back in spirit to the sixteenth century, and the Herb garden and Topiary garden are extremely interesting. The Rose garden is beautifully arranged in the old style, with pergolas and pillars.

In the Orchid houses a speciality is made of those plants which are interesting by reason of the curious construction of their flowers. The purely ornamental kinds, however, are by no means despised, and at the present time a number of Lælio-Cattleyas and Brasso-Cattleyas are in bloom. A fine specimen of Aerides Fieldingii, and other Aerides; some beautiful Dendrobiums, including D. Falconeri, the slender stems of which bore a profusion of large white and mauve flowers; a good show of Odontoglossums, and scarlet Odontiodas; the fragrant yellow Cattleya citrina—these were among a few of the plants, for the proper examination of which the time available was only too short.

A new house has been constructed for the shelter of hardy or so-called hardy Alpines, which do not do well in our changeable English climate. The method pursued has been a great success, and many pretty Androsaces, Primulas, Saxifrages, Oxalis, and other plants bloom profusely, together with European terrestrial orchids of various kinds.

The Fern rockery is a beautiful sight, each Fern showing its own characteristic growth to perfection.

By the side of the lake there are caves which form the entrance to a succession of underground stalactite caverns. Through these the party was conducted; a stream runs through the centre, and a skilful system of lighting by electricity has been made to produce quite a weird effect.

The tour of the gardens took up the whole afternoon, and when it was finished the party again drove to the boat-house, there to partake of the excellent tea provided by their host and hostess. After tea the party re-embarked in Sir Frank's launch and proceeded to Reading, where the train was in readiness to complete the journey back to Paddington.

It was agreed by the whole party that nothing had been wanting to make the day a complete success, and Sir Harry Veitch, in a few appropriate words, offered the thanks of the club to the President and Lady Crisp. *J. O.*

NATIONAL GLADIOLUS.

July 29.—The exhibits at the second summer show of this society, which was held on Tuesday last, in conjunction with the fortnightly exhibition of the R.H.S., included a large collection of flowers from the Society's trial grounds at Southampton. Owing to the lateness of the season, which prevented English growers competing, the President's Cup, which is offered for the best exhibit of 20 varieties of Gladiolus, was not awarded. The several exhibits were judged on "points," and the competition will be continued on August 12, when the exhibitors of Tuesday may, if they wish, stage fresh collections, and the Cup will be awarded to the exhibitor obtaining the highest number of points on either day. The chief exhibitors on Tuesday were Messrs. de Ruyter and Hogewoning, Noordwijk, Holland; G. Zeestraten en Zonen, Oegstgeest; P. Hopman and Sons, Hillegom, Holland; and Messrs. Kelway and Son, Langport, Somerset.

Group of Late-Flowering Gladioli.—The 1st prize was awarded to Messrs. Van Waveren and Sons, Hillegom, for an excellent display, the finest spikes being of several unnamed Childsii seedlings and Salmonette, a dainty Lemoinei variety; 2nd, Mr. H. Barlow, Clapton, whose exhibit was bright and attractive; the three vases of the scarlet variety Seiger were very prominent.

Twenty-four Varieties of Late-Flowering Gladioli.—Mr. K. Velthuys, Hillegom, Holland, staged a splendid collection of strong spikes, well furnished with large and fresh flowers; those with blue and purple shades of colour being particularly good; 2nd, Messrs. Kelway and Son.

Twelve Varieties of Late-Flowering Gladioli; three spikes of each. — Messrs. Kelway and Son were the only exhibitors, and were awarded the Bronze Medal. In the class for 12 similar varieties, but of English origin, Messrs. Kelway were also the only exhibitors, but included some varieties not of English origin, and were disqualified.

Two Spikes of any New Seedling Gladiolus or Distinct Sport.—The Silver Medal was awarded to Mr. C. van Zanten, Hillegom, for Glory of Noordwijk.

The premier varieties in the colour classes were as follows:—*Premier Spikes. Yellow:* Nugget, shown by Messrs. Frylink and Zonen, Sassenheim. *Scarlet:* Liebesfueur, a well furnished spike of vivid scarlet flowers, shown by Messrs. Frylink and Zonen. *Pink:* Pink Perfection, shown by Messrs. P. Hopman and Sons. *Salmon:* Prince of Wales, shown by Mr. C. van Zanten. *White:* Europa, shown by Mr. K. Velthuys. *Blue:* Badenia, shown by Mr. G. Zeestraten.

G. primulinus hybrid.—No. 123, an unnamed variety, with large pink flowers, shown by Mr. G. Churcher.

Awards.

The awards were made after the society's trials at Southampton.

First-class Certificate.

Liebesfueur (see p. 94).

Halley, very strong spike of bright salmon-pink flowers, raised by Mr. K. Velthuys.

Awards of Merit.

Orby, rosy carmine, with occasional splashings of dull carmine.

Brooklands, bright shade of salmon-pink, with a white throat. These two varieties were raised by Messrs. Kelway and Son.

Ida Van, orange-scarlet, with white throat.

Golden King, rich yellow, with a carmine blotch on the lower segments. The names of the raisers were not stated.

LEAMINGTON AND COUNTY HORTICULTURAL.

July 23, 24.—Fine but cool weather favoured the fifth annual show of the Leamington and County Horticultural Society held on the foregoing dates.

Viewed collectively the exhibition was a success. Roses and vegetables were particularly good, but Carnations and Sweet Peas were shown in fewer numbers than hitherto. Of the 8 Silver Challenge Cups offered for competition, three were won outright on the present occasion, viz., two by Messrs. Gunn and Sons, Olton, and one by the Misses Robinson, Leamington. Electric light was installed in the tents and better provision than usual was made for ventilation. The general arrangements were satisfactory.

Plants (Open).

Twelve classes were provided for groups and specimen plants, and there was competition in all of them. The most important class was one for a group of plants arranged on ground space of 20 feet by 12 feet in the centre of a tent. Of the three contestants, two, viz., Messrs James Cypher and Sons, Cheltenham, and Sir George H. Kenrick, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), who were awarded 1st and 2nd prizes respectively last year, repeated their successes on the present occasion. The centre of each exhibit was marked by the familiar rustic bridge surmounted with graceful Palms and other beautiful plants. Both collections contained well-grown and highly-coloured Codiæums and a rich variety of flowering plants pleasingly arranged. 3rd, Mr. W. R. Manning, Dudley.

In the next class, which was for 12 stove and greenhouse plants, distinct, at least four to be in flower, in pots not exceeding 10 inches in diameter, Messrs. James Cypher and Sons again won the 1st prize. Included in their exhibit were particularly good specimens of Codiæum inimitabilis, C. Sunset, Bougainvillea Cypheri, Anthurium Scherzerianum and Ixora Pilgrimii. 2nd, C. C. Shaw, Esq., Thornbank, Leamington (gr. Mr. W. Bartlett), whose best specimen was Acalypha Sanderiana. The best of three exhibits of 3 Fuchsias came from Mrs. A. W. Jenkins, Westwood, Leamington (gr. Mr. M. Gobly), who had well-grown specimens 5-6 feet high covered with flowers from base to summit. 2nd, J. Murray Molesworth, Esq., Comyn Lodge, Leamington (gr. Mr. S. Bradshaw). 3rd, H. L. V. Pryse, Leamington. The same three exhibitors were placed as named in a class for 3 Zonal Pelargoniums, distinct. The 1st prize plants were splendidly grown and profusely flowered.

J. Murray Molesworth, Esq. (gr. Mr. S. Bradshaw), had the best of 5 exhibits in a class for 6 Tuberous-rooted Begonias, distinct, with 5 very large double-flowered varieties, and 1 single-flowered variety. The plants exhibited excellent culture. 2nd, Rev. F. W. Mason, The Firs, Warwick (gr. Mr. W. Philpot).

J. W. Lamplough, Esq., Leamington (gr. Mr. S. Vincent), won the 1st prize for 6 Gloxinias. 2nd, the Misses Robinson, Leamington (gr. Mr. A. J. Friend).

Sir George H. Kenrick had the best of 8 exhibits in a class for 6 table plants. 2nd, Messrs. W. Pemberton and Sons, Bloxwich, Walsall.

Albert Cay, Esq., Woodside, Kenilworth (gr. Mr. G. Marlow), won the 1st prize for three large handsome Ferns. The best specimen plant in flower was Pelargonium King of Denmark, bearing very large flower-trusses. It was exhibited by Mrs. A. W. Jenkins. 2nd, Alfred Holt, Esq., Leamington (gr. Mr. J. Fisher).

Cycas revoluta was adjudged the best foliage plant, and this was shown by C. C. Shaw, Esq. (gr. Mr. W Bartlett). 2nd, The Misses Robinson.

Roses (Open).

Roses have never been seen in better condition at Leamington. The quality of the flowers in the class for 24 Roses, distinct, shown by Mr. H. Drew, Farringdon, Berks, and Messrs. Gunn and Sons, Olton, Birmingham, were so extraordinarily good and evenly balanced that the judges had very great difficulty in separating the 1st from the 2nd prize lot. The decision was eventually given in favour of the first-named exhibitor, whose large shapely blooms were of good form and colour throughout. A few of the best varieties were Duke of Wellington, Dr. O'Donel Browne, Gloire de Chedane Guinoisseau, Edward Mawley, Caroline Testout, Comte Raimbaud, Maman Cochet, C. J. Grahame, George Dickson, Gladys Harkness, Frau Karl Druschki, Marie Baumann and Mrs. Stewart Clarke.

3rd Mr. W. H. Frettingham, Beeston, Nottingham, whose flower of Gustave Piganeau was one of the most perfect specimens in the show There were seven entries in this class.

Messrs. Chaplin and Collin, Leicester, exhibited the best 12 H.P. Roses, distinct. Included in this collection were superb specimens of Hugh Dickson and Countess of Rosebery.

The class for 6 H.P. Roses, one variety, was a good one, and here again Messrs. Chaplin and Collin secured the 1st prize with exquisite flowers of Gloire de Chédane Guinoisseau. 2nd, Messrs. Gunn and Sons, with Her Majesty.

Mr. Henry Drew showed the winning exhibit of 12 Tea Roses, distinct The varieties Bridesmaid and Mrs. Edward Mawley were the best of a really good lot.

Mr. W. H. Frettingham obtained the 1st prize in the class for 6 Tea Roses, one variety, showing Madame Jules Gravereaux in splendid condition.

Messrs Gunn and Sons, Olton, were the only exhibitors in an important class for a group of Roses—plants and cut flowers allowed—on a space of 12 feet by 4 feet. The conditions attached to the Silver Challenge Cup, value 25 guineas, offered as 1st prize, were that before becoming the absolute property of the winner it was necessary that it should be won three times in succession, or four times in all. The first-named condition having been complied with Messrs. Gunn and Sons now become the possessors of the cup. The flowers were beautifully arranged in vases, tall stands, and on arches, and included some of the best and latest varieties in cultivation.

Miscellaneous Flowers.

A Silver Challenge Cup of the same value, and under the same conditions as the last-named, was offered for 20 bunches of hardy flowers, distinct kinds (mixed bunches not allowed and Lilies and other bulbs, corms and tubers excluded). Here again Messrs. Gunn and Sons were the winners, and as they secured the trophy in 1911 and 1912 they enjoy the distinction of winning outright two cups in one year. Their exhibit included splendid bunches of Phlox Elizabeth Campbell, Lychnis chalcedonica, Scabiosa caucasica, Chrysanthemum maximum Mrs. Lowthian Bell, Campanula alliariaefolia and Anchusa italica Dropmore variety; 2nd, Mr. Frank Bouskell, Nuneaton, the winner of the cup in 1910. This exhibitor had a very fresh collection of flowers, but hardly displayed to the best advantage. He had beautiful bunches of Catananche cœrulea, Potentilla Marie Lemoine, Œnothera Fraseri, and a seedling Poppy raised from the variety Mrs. Perry; 3rd, Mr. C. H. Herbert, Acock's Green.

In a class for 12 bunches of hardy flowers, distinct kinds, Mr. Frank Bouskell was 1st and Mr. C. H. Herbert 2nd. The flowers of each exhibitor were beautifully fresh and well set up. Mr. Bouskell's examples of Papaver Mrs. Perry, Achillea Ptarmica The Pearl, Helenium cupreum and Gaillardia meteor were of outstanding merit.

Miss Greenfield, Leamington, excelled in a class for a bouquet composed of Orchids, and Messrs. Perkins won the 1st prize for a bridal bouquet. The Misses Robinson were awarded the 1st prize for three sprays of flowers suitable for a lady's dress. The same exhibitors were the only contestants in a class for 24 Dahlias to include 12 Cactus varieties. W. J. Gresson, Esq., Birlingham House, Pershore (gr. Mr. T. Parry), showed 12 bunches of annuals for which he was awarded the 1st prize.

Messrs. W. Pemberton and Sons, Bloxwich, Walsall, had some handsome Violas in a class reserved for 6 varieties, and they were deservedly awarded the 1st prize.

Carnations.

Messrs. Young and Co., Cheltenham, had a "walk over" in a decorative class for cut Carnations arranged in a space of 10 feet by 4 feet, for which a Silver Challenge Cup and £4 were offered as 1st prize. Messrs. Young's flowers were remarkable for good quality and artistic arrangement.

The 1st prize for 12 vases of Carnations, to include at least 6 varieties in a vase, was won by Messrs. A. R. Brown, Ltd., King's Norton, whose collection contained Border and Tree varieties of superb quality. The varieties Clement, Alba and Mandarin stood out well; 2nd, J. B. Akroyd, Esq., Birdingbury Hall, Rugby (gr. Mr. F. Daniel), who showed large Malmaison varieties.

Mr. R. G. Rudd, King's Heath, won the 1st prize in the next class, which was for 12 Border Carnations. He had shapely flowers of Etna, Titan, John Knox, Daffodil, Wyatt, Mrs. Robert Gordon and Lilian. 2nd, Mr. C. H. Herbert, Acock's Green, whose blooms were almost equal to those of the 1st prize winner, but lost points in arrangement. The varieties Mrs. George Marshall, Mrs. Robert Berkley, and Daffodil were very fine.

In a class for 12 fancy Border Carnations, Mr. W. H. Parton, Moseley, was placed 1st with exquisite specimens of Mrs. Leo Hunter, Linkman, Forester, Hercules, and Sam Weller. 2nd, Mr. C. H. Herbert, whose best flowers were Sam Weller, Melton Prior, Kingfisher, and Liberté. 3rd, Messrs. A. R. Brown, Ltd.

(To be concluded.)

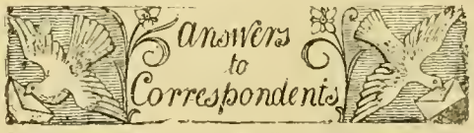
TRADE NOTE.

ROBERT SYDENHAM, LTD.

We understand that the business of Robert Sydenham, Ltd., will not be affected by the unfortunate death of Mr. Sydenham. A few years ago Mr. Sydenham founded a private limited company for the purpose of giving some of the older employees an interest in the business and of relieving Mr. Sydenham of some of the details in the management. Mr. Herbert Smith will act as managing director.

Obituary.

Leonard Lille.—We regret to record the death, at the age of eighty-two, of Mons. Léonard Lille, a well-known nurseryman of Villeurbanne, near Lyons. For some time past Mons. Lille had been unable to take an active part in the business, which is carried on by his sons, Louis and Jean Lille.



Clover on the Lawn : *W. T.* As lawn sand and nitrate of soda have proved ineffectual, you might try the effect of a plentiful dressing of finely-sifted manure applied towards the end of the year, and a dressing of sulphate of ammonia in the spring. These will promote the growth of the grass, and diminish the growth of the Clovers.

Correction.—In the obituary notice of Mr. Sydenham (see page 75), the last-mentioned figures at the bottom of col. 1 were given us in error; they should read 35,000.

Figs Falling : *P. H. R.* We think it probable that your Fig trees are attacked by a disease known as Cercospora Bolleana, which would have the effect of causing the fruits to drop. We are unable, however, to give a definite opinion unless you send us a specimen fruit and some of the leaves for examination.

Lavender Water : *H. S. B.* You must first extract the essential oil by the process of distillation. The flower heads should be placed in a receptacle either of iron, copper or glass, covered with a dome-shaped lid, and fitted with a pipe which is twisted like a corkscrew. The twisted pipe must be led into some receptacle which will hold cold water, the end of the spiral leading through the bottom, and fitted with a tap. The water in the still is made to boil, and, having no other exit, the steam passes through the pipe, which, being surrounded with cold water, condenses the vapour before it can arrive at the tap. The liquid which thus runs through separates on standing into two portions, the water being at the bottom. If it is placed in a glass funnel with a tap at the bottom it is an easy matter to run off the water A very concentrated perfume is made of Oil of Lavender 4 ozs., mixed with rectified spirit 5 pints, and Rose water 1 pint. This makes, when distilled, 5 pints of perfume. A simpler method is a mixture of Oil of Lavender, 4 ozs.; spirit, 3 quarts; and Rose water, 1 pint. This Lavender water is ready for use after it has been merely filtered.

Lily-of-the-Valley : *G. B. G.* Although the Lily-of-the-Valley is a shade-loving plant, a north aspect, such as you mention, is not entirely suitable. It must be remembered that spring-flowering plants, such as the Lily-of-the-Valley, which are found in woods, make their growth before the trees develop their full canopy, and that although the plants are shaded from the full sunshine, the broken rays of the sun reach them. A very sandy soil is not sufficiently moisture-holding, and it will be advisable to add a good proportion of loam and leaf-mould to the natural soil; making the three of equal proportions. The crowns may be lifted and transplanted at any time during their resting period, but the earlier in the winter the work is done the better will be next season's flowers. The bed may be left undisturbed for several years; an annual top-dressing of finely-broken loam, sifted leaf mould and fowl manure will be beneficial.

Name of Fruit : *H. W.* Apple not recognised. Probably a local variety.

Names of Plants : *H. W. Findon.* 1, Sedum spectabile; 2, Astrantia major; 3, Tradescantia virginica; 4, Artemisia abrotanifolium. —*Lucan.* Roses: 1, Bennet's Seedling; 2, Rosa lucida; 3, Léopoldine d'Orléans; 4, Flora; 5, Blush Boursault; 6, Queen Alexandra. — *North Devon.* Rose Crimson Damask. — *W. B. S.* Lonicera involucrata (Syn. Ledebouri). — *J. Bridge.* Rose Paul Lédé. — *Torboy.* Eriophorum polystachyum (Cotton Sedge).—*Constant Reader.* Photinia serrulata.—*Carnation.* We do not undertake to name varieties of Carnations or other florists' flowers. Send them to some grower who can compare them with varieties in his collection.—*Newlings.* Zenobia speciosa from S.E. United States. The name "Lily of the Valley Tree" is usually applied to Clethra arborea, a native of Madeira. Both plants belong to the Nat. Ord. Ericaceæ.—*H. T.* 1, Oncidium altissimum; 2, Brassia caudata; 3, Cœlia triptera; 4, Oncidium serratum; 5, Dendrobium Parishii. — *Foreman.* 1, Pteris arguta; 2, Adiantum formosum; 3, Blechnum occidentale; 4, Adiantum pubescens. —*C. G. A.* Genista tinctoria.—*J. S., Durham.* The trailer is Ceropegia Woodii, the other plant Ornithogalum longibracteatum.—*M. C.* The specimens are not numbered, and it is difficult to give you the proper names. The variegated plant is Euonymus latifolius variegatus; the double-flowered shrub Deutzia crenata; the single-flowered plant is a white-flowered hybrid variety of Veronica. Then there are some tiny crushed specimens of Campanula which we are unable to distinguish; and the remaining feathery-like plant is Artemisia pontica.—*W. J. M.* A species of Euphorbia; send when in flower.—*Kuro.* Danæa Laurus, commonly known as the Alexandrian Laurel.—*C. W.* Arthropodium cirrhatum, a native of New Zealand.—*P. R. C.* 1, Spiræa palmata; 2, S. Lindleyana; 3, Salix alba var. vitellina; 4, Rose, "Aimée Vibert."—*A. C. H.* 1, Pinus Pinea; 2, Thuya orientalis; 3, Abies cephalonica; 4, Cupressus macrocarpa; 5, Pseudotsuga Douglasii; 6, Abies nordmanniana.—*A. V. C.* Ulmus montana, not a Hornbeam.

Sweet Peas : *E. W. R.* It does not matter whether Sweet Peas are cut or pulled so long as they are carefully and regularly gathered. Probably cutting is of the two methods the less likely to be injurious to the plants, as leaves are sometimes pulled with the flowers, and if done carelessly the roots even may be strained. On the whole, therefore, we should advise cutting; moreover, the cut stalks absorb water more readily than pulled ones, and the flowers are thus likely to remain fresh for a longer period.

Vine Not Fruiting : *Col. D.* The Vine in question being in the middle of the house was probably shaded too much by its neighbours last season, which was very deficient in sunlight, hence the buds were not fully developed, and the growths were imperfectly ripened. As it is not bearing any fruit, we recommend you to shorten the lateral growths to about 1 foot in length.

Communications Received—A. J.—E. C., Hollywood—Grower—M., Wilts.—H. W. A.—C. M.—H. G. B. —A. C.—T. V.—C. M.—A. W.—O. W.—R. H.—The C.G.A.—H. M. V.—H. R. D.—N. E. B.—A. S.—J. O. B.—T. E. W.—White Rose.—J. V.—C. H. H.—A. B. C., Reading—J. J. P.—E. P.—Rev. D. W.

STRELITZIA REGINAE (Nat. Ord. Scitamineae)

A South African stove plant.

THE

Gardeners' Chronicle

No. 1,389.—SATURDAY, AUGUST 9, 1913.

CONTENTS.

ILLUSTRATIONS.

AGRICULTURAL EDUCATION AND RESEARCH.

THE Board of Agriculture has summarised* the provision which has been made in the last few years for agricultural education and research in England and Wales. The grants which are now made for higher agricultural education amount to £18,500 per annum, and are distributed among the universities and agricultural colleges. Work of a less advanced character which is carried on in most of the counties is subsidised by the Board to the extent of £7,000 per annum. As the leaflet points out, grants are also available from the Development Fund for a further extension of this latter type of work, and particularly for the erection and maintenance of farm schools and farm institutes.

The leaflet gives an account in summarised form of the courses of study in agriculture provided at the several universities and university colleges. In addition to instruction in agriculture, courses in forestry are provided at the University College of Wales, Aberystwyth, which institution possesses at Chirk an experimental area of fifty acres for forestry purposes. The Cambridge school of forestry does not appear to possess at present any similar facilities, and students are required to attend a course of practical work for one long vacation in a British forest. Experimental plantations and tree nurseries exist at Cockle Park (Armstrong College), Newcastle-upon-Tyne, and H.M. Commissioners of Woods and Forests have placed the Chopwell Woods of 900 acres under the control of this College. A diploma of Forestry is granted by Oxford. At Cirencester the Royal Agricultural College has access to an area of 3,000 acres of woods, the property of Lord Bathurst, a forest garden of 10½ acres, an experimental area at Colesbourne, and two forest nurseries.

Horticultural instruction is provided at Wisley, Reading, Swanley, Wye, and Holmes Chapel; and at Wye attention is paid to commercial fruit growing. The National Fruit and Cider Institute at Long Ashton occupies about seventeen acres of land, two-thirds of which consists of orchards.

Of farm schools and similar institutions, the leaflet mentions the Bedford Agricultural Institute, Ridgmount, Aspley Guise; the Worleston Dairy Institute (Cheshire); the Farm School, Newton Rigg, Penrith (Cumberland and Westmorland); the Dairy School (Denbighshire); East Anglian Institute of Agriculture, Chelmsford (Essex); the Farm School, Basing (Hampshire); the County Council Farm, Hutton (Lancs); the Technical School for Girls, Redbrook (Shrewsbury); the Fixed Cheese School (Somerset); the Dairy School, near Nuneaton (Warwickshire); the Dairy School, Garforth, Leeds (Yorks); and the Droitwich Experimental Garden (Worcester).

For the purposes of agricultural research a sum of £31,000 per annum is distributed among some fourteen institutions. Of the latter the Imperial College of Science is responsible for research in plant physiology, the University of Cambridge and the John Innes Institute are named for plant breeding, Kew for plant pathology, Bristol University (and the National Fruit and Cider Institute) for fruit growing and the practical treatment of plant diseases, and Rothamsted for plant nutrition and soil problems. Provision is also made for supplying technical advice to farmers, and a grant of £12,000 has been made to eight of the University institutions to assist them in carrying on this advisory work in the regions in which they are severally situated. In addition to the provision for forestry referred to above, the Board refers to the Practical School of Forestry maintained by H.M. Office of Woods in the Forest of Dean and to the fact that £1,200 per annum is granted from the Development Fund in aid of research in forestry at Oxford, Cambridge, Bangor, Cirencester, and Armstrong College (Newcastle). From the same source £2,500 per annum is granted for the provision of technical advice in forestry. To give effect to this scheme England and Wales have been divided into five districts, and an advisory officer has been attached to a teaching institution in each district. In ordinary cases no charge is made for the services of the adviser. Those who wish for advice in forestry should apply to the advisory officer in charge of the district in which their woods are situated.

The districts and advisory officers are as follows:—

I. *Northern District.*—The Counties of Northumberland, Durham, Cumberland, Westmorland, Lancashire and Yorkshire. *Advisory Officer*—Mr. J. F. Annand, Armstrong College, Newcastle-on-Tyne.

II. *Welsh District.*—The whole of Wales (except Glamorgan), Cheshire and Shropshire. *Advisory Officer*—Mr. Fraser Story, University College of North Wales, Bangor.

III. *Central and Southern District.*—The Counties of Derby, Stafford, Leicester, Warwick, Oxford, Bucks, Berks, Surrey, Kent, Sussex, Hampshire and Dorset. *Advisory Officer*—Mr. B. B. Osmaston, School of Forestry, Oxford.

IV. *Eastern District.*—The Counties of Lincoln, Nottingham, Rutland, Northampton, Huntingdon, Bedford, Cambridge, Norfolk, Suffolk, Essex, Hertford and Middlesex. *Advisory Officer*—Mr. C. Hankins, 1, Free School Lane, Cambridge.

V. *South-Western District.*—The Counties of Hereford, Worcester, Gloucester, Monmouth, Wilts, Somerset, Devon and Cornwall; also the County of Glamorgan *Advisory Officer*—Mr. H. A. Pritchard, Royal Agricultural College, Cirencester.

* Leaflet No. 97.

STRAWBERRIES IN 1913.

THE strawberry season of 1913 has supplied a great contrast to that of 1912, and in almost every particular. Last year was one of the earliest—if not quite the earliest—season on record, outdoor English Strawberries being on the market well before the end of May, and a good supply of the fruit was available in the first week of June. This year picking began a full fortnight later in most cases, and in some of the usually early districts not until the middle of June. But whereas in the spring of 1912 much damage was done by frost owing to the exceptionally early blossoming of the plants, there was very little trouble of the kind this year. Up to the middle of May, however, the weather was by no means favourable for the development of the plants, for frequent rains had made the ground cold and sodden, and it was not until about three weeks before the time for gathering arrived that the plants really began to make the necessary headway. A sudden change of weather at that stage put matters right for the time being, but, as is so often the case in this country, extremes followed each other, and the plants soon suffered as much from drought as they had already suffered from an excess of wet and a lack of sunshine.

Strawberries have done best this year on the heavier and more retentive soils, where, during the hot and dry time of late May and June, they were able to obtain benefit from the coolness of the subsoil. But a good crop has only been obtained upon such heavy soils as have been kept well worked upon the surface, for the natural result of much wet followed by drying winds and hot sun was that the ground began to crack as the moisture was drawn out of it, and where the use of the hoe was neglected, things speedily went from bad to worse. Never has the value of hoeing been better exemplified than this season. To a lesser extent the same remark applies to the lighter soils, but on these, notwithstanding constant hoeings and application of mulches, the crop has been disappointing, except where the ground was heavily manured last autumn. It is, of course, inevitable that soils which are incapable of storing moisture should

yield less satisfactory results in a dry period than those of a heavier and more retentive character. But the grower who keeps his garden most free from weeds is the one whose crops suffer least on such occasions. After the middle of May there was no difficulty in keeping the weeds under, and where this was done, the Strawberry plants were able to hold out much longer than in those gardens where weeds had been permitted to rob them of a large proportion of the available moisture.

The quality of the fruit has been excellent this year, but both as regards size of berry and amount of yield the crop has suffered on account of drought. The berries matured with a rush, and in many cases were soon over, but at no time was the glut of fruit so bad as it was in 1911 and 1912. North of England and Scottish growers have done well this year owing to the short duration of the Southern crop, and prices all through the season have ruled a little better than usual. In a season such as this, it would have paid the South Country growers to have had a large acreage of late varieties, for the showers of July would have helped the plants, and the berries would have come in useful for late season functions. But, on the whole, the early crop will probably always be the most satisfactory for growers in the South, as competition from the North becomes keener every year. On the whole, it may be said that the Strawberry crop of 1913 has been satisfactory, for although the yield has been much lighter than that of last year, the harvesting of the berries has been a much more easy matter, and slightly better prices have helped out the ultimate result. *East Sussex.*

THE VILLAGE FLOWER SHOW.

SOME OF ITS LESSONS AND HUMOURS.

It is incumbent on everybody interested in "rural revival" to do his utmost to make the country-side yield profitable lines and side-lines to the workers who choose to remain there.

Begin at the beginning with the youthful minds. The children can win prizes at the village flower show without spending a penny. Purposeful flower-picking in the meadows, by the streams, or on the hill-sides contributes not a little to a life-long contentment with simple pleasures, and may likewise help to form the æsthetic sense. Some of the lads will become amateur, practical, or professional gardeners, and gardening is universally admitted to have an uplifting effect upon all those who engage in it. A young married woman will always encourage her husband to do his best in the flower or kitchen garden; and with such encouragement he most assuredly will, even if dead tired after a hot summer day's back-breaking toil, show much devotion to his flowers, fruits, or roots. Becoming enthusiastic over his paying hobby, and fully occupied while ever there is any daylight, he will rarely darken the doors of a public-house, or care what remarks the idlers at the village crossways pass about him. The consequence is that he becomes a better workman and a useful member of the village community.

Some people, who have not pursued the paths of horticulture so far as they might, feel a kind of revulsion against displays of gorgeous conservatory plants which have been trained into factitious types of excellence for the purpose of taking a prize. Horticulture has achieved some very wonderful results and unexpected triumphs among non-indigenous plants, but one cannot expect every observant show-goer to enthuse over monster blooms arranged with mathematical nicety and in other ways telling the story of their own assiduous teasing and coaxing into shape. We cannot endorse the statement that it has become fashionable to make things which are beautiful in themselves assume the appearance of monstrosities; nevertheless, some judges do now use a criterion which is inimical to true floral grace; they put on one side beauty in its best sense, and bring freakishness to the front, so that a large number of big, stiff blooms carrying some originality of colour, shade, or mark carry off the first prizes. We are more or less educated to this kind of thing, but some day, we suspect, the fashion will be radically changed. If we should happen then to go to the other extreme there will be no less carping, probably more.

Town shows and country shows occupy a somewhat different plane. Chelsea and York excite professional rivalry in floral exotics and quixotics. The country show is, for the most part, content with a development of the old-time simplicities; it exhibits very few departures from what may be described as the natural state of things. Townspeople sometimes marvel that the sweetly situated village at the end of lanes garlanded with Dog Rose and Honeysuckle—the village with red roofs, with Roses and Clematis on its front walls, with Ivied-green porches, with Pelargoniums, and Cinerarias in rows behind its windows, with gardens full of Lilies, Carnations, Picotees, Sweet Williams, Canterbury Bells, Aaron's Golden Rod, Petunias, Sweet Rocket, Pansies, and the like, should need any such stimulant to flower-growing as a show of that description is usually supposed to give. Actually, the more winning a rural place is the more industrious, thrifty, and contented its folk, the greater need is there of an annual show to demonstrate to the outside world what its folk are capable of producing within the narrow compass of their own pales or at the allotment after the regular hours of labour. One cannot positively say that gardening "runs in the blood" of some families, for the village florist or Onion grower is often a ploughman, carpenter, or blacksmith, whose sole hobby is gardening, just as a town dweller's sole hobby may be horse-racing or football. It is rivalry that "sets him on" to do his best. He wants to have finer Roses or Chrysanthemums, bigger Peas or Onions, or whiter Celery, than George, Joe, or Sam. Success in that direction will be hard to achieve. He will send a long distance, maybe, for what he considers to be the choicest strain of seeds, he will con the long list of insecticides, and pick up all the information he can on Saturdays and Sundays from more experienced men. A philosopher has well said that it is, perhaps, possible to get some things for nothing, but experience isn't one of them. Should Thomas fail to accomplish his purpose after two or three good tries there is some danger of his losing heart, but if a prize be not long delayed he will proceed to better things like a giant refreshed with wine.

Throughout June, and probably July, the prevailing weather and the forthcoming show provide leading topics of conversation over hedge and pale, at cottage door and gate, and on the allotments. More sunshine or more showers are wanted only as the prevailing weather affects a man's special line of flowers or vegetables. On the eve of the show there is not a lounger in the village who could be kept away from the entrance gate. Numerous exhibitors are now bearing their pots of flowers to the tents, each with his little regiment of followers. Wheelbarrows and trucks filled with vegetables are being pushed along in the same direction. To avoid confusion it is exhibitors only who are permitted to penetrate the tented shrine this evening. Every numbered item has to be placed in order by the busy members of the committee, whose word is law. Jealousy amounts to a scarcely suppressed clamour on the part of every exhibitor to appear on the front row. Obviously, this privilege cannot possibly be accorded to all, and, actually, there are many exhibits which would be quite out of place at the front. A well-behaved man knows better than to "chunter" or grumble because of the unwarranted notion that he is snubbed.

Done by various ladies who are quite beyond the reproach of showing favour, the ticklish work of judging takes up the whole morning. It cannot even be laid to their charge that they have a penchant for discovering the best exhibits in the front rows—or the back rows either. The coloured, printed cards are all set in order before lunch-time. By this time the workaday villagers are free to don their best clothes. No matter how warm it may be, neither George nor Joe would think of exchanging his black billycock for a hat of straw on this most important summery Saturday afternoon of the year. The band discourses indifferent strains, and the sun blazes down upon two or three white canvas tents. How eagerly everybody pays his or her shilling at the box beside the gateway, to come in contact next moment with tethered horses, carts, wheelbarrows, empty cases, sacking, and straw which are much too near the entrance. A continuous stream of people crosses the field in the direction of a wide-open flap door. Inside the tent there is a scrimmage to get round the stands and see everything on exhibition at close quarters, from almost every position and angle. With no ventilating fan the interior becomes a "summer stew," which the Sweet Peas and Pansies appear to bear moderately well. Faces flush like pæonies as country youths and wenches rudely brush past where least space offers a passage, knocking down one plant-pot here and another there, and apologising with the unfelt, formal apology, "I'm sorry."

Weeks ago most of the intending exhibitors took liberty to prearrange the bestowal of prizes. As the result of nightly gossip they apportioned out these bounties to friends and rivals, leaving none for the rank outsider. Their selfishness, or limited generosity, accounts for nearly all the tickets used by the adjudicators getting wrong! A preliminary survey denotes satisfaction in one or two cases, but dissatisfaction in five or six. One gentleman is positively elated, while three or four are dumbfounded. To be thrust into the background is bad enough, but to be passed over without comment by the judges is unbearable. I have frequently heard an aspirant for a prize declare that he would never again compete with anybody related to the squire's head gardener. To be utterly ignored at the finish is worse than total ignorance of flower shows and flowers! When Charles unexpectedly lands a 1st prize how could one possibly expect Henry to be satisfied with a "Certificate of Merit"? If poor Charles happens to hear any remark derogatory to his exhibit he preserves strict silence, looks surly and ill at ease, and has a secret desire to "get out of it." Nevertheless, the prize-winners contrive to be close at hand all the time, so eager are they to drink in the various complimentary comments which come as a matter of course. If Joe be one of the fortunates he will not scruple to introduce himself to people greater than himself. He may even assume the authoritative air of a specialist who has already made his mark.

We must pass over the bushels of big Green Peas in their "swads," and the heavy Broad Beans, the Tomatos, Cucumbers and Spanish Onions, the Potatos of "every description," the huge Cabbages and Cauliflowers and Vegetable Marrows, the Parsnips, blushing Beetroot, and thick-set, gold-green Carrots which taper to a needle point, the Strawberries, Raspberries and Currants, the honey, eggs and poultry. All these can be inspected in another tent not far from the refreshment buffet, where the caterer's busy young ladies from a town five miles off are getting used to the buffoonery of those gentlemen whose barometer runs up to very dry! Tea in a side tent appears to have the usual irresistible call for the ladies, many of whom will contrive to put in an appearance at the rural sports which are announced on the day's programme.

When the broad shadows of declining day begin to steal athwart the field there will be dancing to the strains of a tired band. At 9 o'clock the exhibitors have notice to take away as many of their belongings as they wish to retain. Any not appropriated by 11 o'clock will be packed and sent to the local hospital or sold in aid of the charities for which the proceeds of the show are destined. Many of the best flowers and most useful vegetables are cheerfully left behind in charity's sweet name.

One evening during next week the various prizes are distributed at a public meeting, attended by the squire, vicar and other local gentry, at the village schoolroom. Most of the faces of the people present we have seen before, for practically the whole village is here in no partisan spirit, be he either with or without a grievance or a direct personal interest. Probably it is the proudest moment that George, John, Joe or Sam ever had in his life when, attired once more in best suit and tie, he is called up to the platform to receive his prize-money from the lady of the manor. Each recipient, putting on a broad grin though still bashful, comes in for hearty applause as he subsides into a corner at the rear, there to be the centre of a hubbub which indicates that he is receiving congratulations from his bosom friends. *Harwood Brierley.*

THE DEVELOPMENT OF THE RED HYBRID TEA ROSE.

A REVIEW OF RED ROSES.

(Concluded from page 64.)

Besides the Roses of China-like habit, 1908 gave us Ards Rambler, a fine strong pillar Rose of fair size and good colour, but difficult to manage satisfactorily. Rhea Reid, which may perhaps be described as a fuller Lady Battersea, best under glass, and somewhat disappointing in the garden, and Commander Jules Gravereaux, a single H.P., said to have come from Frau Karl Druschki × Liberty; the colour is a fine crimson scarlet, but the flower has a somewhat dishevelled appearance. The best garden Rose of the year, apart from those resembling the Chinas, is G. C. Waud, a Rose with a flower somewhat of the shape of Laurent Carle, but orange-crimson in colour. It is very free and constantly in flower.

The only Red Rose I have down for 1909 is His Majesty. Some magnificent flowers of this variety have been shown from time to time, particularly by the trade growers. I have seldom seen more striking blooms of any Rose than were shown of this variety by two well-known Colchester firms recently at Canterbury, but somehow I have not found it a good garden plant. Its vigorous growth made me try it as a pillar Rose, and perhaps it resents this treatment; moreover, it suffers badly from mildew. It is free flowering, but the proportion of good flowers I have grown has been small. A climbing sport of Liberty appeared in this year.

1910 gave us more red varieties, but none, I think, of first-rate quality. Georg Reimers, raised from Richmond × Etoile de France, is extremely free flowering and a good coloured crimson Rose. Perhaps the season in 1912 was too wet for it; anyhow, by way of protest it produced a number of flowers with the petals curved over the centre like a "self-protecting" Lettuce or Cauliflower. Still, it may get over this with a more favourable summer, and it certainly has possibilities. Eugène Boullet has been with me rather too often of poor and dull colour, though, like the last, it flowers freely. Lieut. Chauré has shown the same fault, though not so badly. It is, without doubt, variable in colour, and in other gardens I have seen it much better than in my own. Its parentage is given as Liberty × Etoile de France, and the colour is much what might be expected from the combination. Mary Countess of Ilchester and Mrs. W. Easlea are both free-flowering Roses, but are of slightly different shades of carmine, which do not much appeal to my taste. Sheilagh Wilson was to have been a perpetual Carmine Pillar, and it is perpetual, but is not so strong a grower, nor, I think, quite so bright a colour as that excellent variety.

1911 was a year of progress, and produced five Red Roses all worth something more than passing consideration. First comes Edward Mawley, with rather large, shell-shaped petals of a rich crimson colour. It was recommended for exhibition, for the garden, and for culture in pots, but from my own observation I should doubt its often finding its way into the exhibition box. It is, however, very free in flowering, and if it will produce a fair proportion of good flowers, should be useful for the garden. Perhaps we are all a little jealous for the honour of the name it bears, and, in consequence, inclined to be more than usually critical of the performance of this variety. Florence Haswell Veitch is a fine Rose of a bright crimson colour, well shaped and free flowering. It is a big grower, and may perhaps make a good pillar Rose; certainly it is effective in a large bed, but is too strong a grower for small ones. Leslie Holland, however, may possibly prove useful for this purpose; it seems to be rather a dwarf grower, and to produce medium-sized and not very full flowers of a light crimson, which retain their colour well. But I think for this purpose the best Rose of the year is Mrs. Edward Powell, which has proved very successful with me as a bedding Rose. The flowers are scarlet crimson, with a purplish shading, and there is a suspicion of purple in the wood and foliage which is very effective. The flowers are of the true decorative type and carried erect; they are freely produced, and the habit of the plant is good. Othello is a very dark crimson, almost maroon, and seems a good grower.

Fig. 41.—Rose Annie Crawford: colour light pink.
(R.H.S. Award of Merit, July 29, 1913. See description on page 94, *ante*.

The last Rose of this year I shall mention is President Vignet. Coming from France, perhaps little is known of this Rose in this country as yet, beyond what we saw at the International Exhibition last year, where admittedly it was not at its best; but if it turns out to be the vermilion red which is attributed to it we shall all want to try it in our gardens.

Of the 1912 Roses I can only speak from my notes at the shows. The Irish raisers have sent us a goodly list of Red Roses for this year, for which we shall be grateful if the plants take kindly to this side of the water. The most notable among them is George Dickson, of velvety

crimson colour, and a curious veining in the petals.

The Earl of Gosford, a deeper crimson, was also a fine flower as shown, and a good crimson is to be found in H. E. Richardson. H. Vessey Machin was a big flower, but with a lake colouring in the crimson, which was to me less attractive than the others I have named above. Then there came two Geoffrey Henslows — one an H.P., said to be a sport from Mme. Victor Verdier, of a clear crimson shade, and the other an H.T. of a remarkably striking colour, as seen at Holland House. This was a glowing orange-crimson, which, if it is well retained, should be most effective in the garden. The plant is said to be of the "robust" type, an epithet used by rosarians in a somewhat technical sense, as indicating a plant with a sturdy, upright habit of growth like that of Mildred Grant.

King George V. is a very dark Rose, of rich, purplish crimson, a shade of colouring often apt to "burn" rather badly, but we may hope this variety may prove an exception to the rule. Mrs. Muir MacKean, another Rose said to have the robust habit, has a certain amount of pink in the crimson, and is therefore described as carmine crimson. Some of my friends tell me it is an improved Mrs. A. E. Coxhead. If so, it should prove useful to the exhibitor. Climbing Richmond, a sport from that variety, has also come this year, and will be welcome. Finally, we have another Red Rose from Luxembourg, Prince E. C. Aremberg, a crimson flower with purplish shading.

Photograph by Wyndham Fitzherbert.

Fig. 42.—Arundo conspicua in July.

This completes my list. It makes a notable collection for a single year, and we may feel some satisfaction that, save for one Rose, the whole have originated in Great Britain.

I suggested that as a decorative garden Rose the Red Hybrid Tea seemed to have culminated in Richmond, and I have named some three dozen Roses that have appeared since the year (1905) of that variety. I review the list again and enquire with some anxiety, is there any one of them which will prove superior to Richmond in the garden as a decorative plant, or even a serious rival to it? Let us look at some of the points of this Rose:—(1) Brilliance and decisiveness of colour may, no doubt, be found among the 36 as well pronounced as in Richmond; (2) so perhaps as to fragrance; and (3) in beauty of form there may be rivalry in the opinion of some, notwithstanding that a fresh cut flower of Richmond in early summer takes a lot of beating; (4) for hardihood of constitution we may well expect to find several of even superior merit; and (5) a few may be of equally good habit as garden plants; (6) for continuity of flowering it is difficult to believe that we can expect much improvement. But the combination of all these qualities! I look through the list again, and can put my finger on none that I have myself tried which is more useful in my garden than Richmond. The 1912 Roses remain to be tested, and much as I should welcome a real improvement on this fine Rose, I feel grave doubts whether there is at present "another Richmond in the field." *White Rose.*

ARUNDO CONSPICUA.

The New Zealand Reed, Arundo conspicua, is sometimes called a Pampas Grass, but the true Pampas Grass (*Cortaderia argentea*) bears erect and not gracefully bending shafts, and lacks somewhat of the delicate grace of Arundo conspicua, whose arching plumes spread on every side outward far beyond the limits of its narrow, drooping foliage. This latter species is slow in making growth, and when small plants are put out they will take from six to seven years before they form what may be termed good specimens, and therefore plants some years in age should be procured in the first instance. Arundo conspicua is one of the most graceful of all the grasses, bearing slender, arching, plume-tipped shafts 10 or 12 feet in height when grown in deep and rich soil. It attains the zenith of its beauty about the close of July, whereas the Pampas Grass is not at its best until October and November in most cases, so that in northern gardens its attractiveness is often destroyed by wintry storms almost before its plumes are expanded. The New Zealand Reed is not quite so hardy as the Pampas Grass, and in very cold districts is occasionally killed in a very hard winter; but a clump of fine size known to the writer has withstood 27° of frost without injury, although it is growing in deep, retentive loam of a clayey nature. The best place for it is an isolated position on the Grass, where it will at all times present a handsome appearance. For planting in masses on the margins of open woods and drives or in open spaces, when viewed from some little distance, this noble plant is very effective, and is equally valuable for growing by the margins of streams, being especially charming in such a site. In very cold districts it may well be grown in boxes or tubs, so that the specimens can be sheltered during the winter. Ornamental Grasses have been treated with unmerited neglect. Even the most graceful of all, the Bamboos, are not planted so largely as they should be. So it is with those elegant Japanese Grasses, the Eulalia or Miscanthus, of which there are green, barred, and striped forms, all hardy, graceful, and beautiful. *Wyndham Fitzherbert.*

REMARKS ON CONDITION OF THE FRUIT CROPS.

(*See Tables and Summaries, ante, pp.* 80-85.)

1, SCOTLAND, E.

Aberdeenshire.—Apples are a poor crop owing in a great measure to the wet autumn of last year. Strawberries were a good crop, and Black and Red Currants are plentiful. *James Grant, Rothienorman Gardens.*

—— An almost entire absence of frost during the spring months accounts for our fairly satisfactory crops. *John McKinnon, Haddo House Gardens.*

Banffshire.—The crops of Apples, Pears, and Plums promised well, but the fruits set badly owing to cold, wet weather when the trees were in bloom. Mildew affected the Strawberry crop and aphis was prevalent on Red Currants. The soil in this district is a stiff clay. *George Ogg, The Gardens, Netherdale, Turriff.*

—— The fruit crops, with the exception of Apples, are disappointing after the good show of blossom and the fine weather whilst the trees were in flower. Apricots and Victoria Plums appeared to "set" well, but the fruits dropped to a considerable extent after swelling to the size of peas. Insect pests have been most troublesome to keep in check, and fungus diseases worse than we have experienced for years past. *Chas. Webster, Gordon Castle, Fochabers.*

Berwickshire.—Of Apples we grow mostly Bramley's Seedling, which suits our light, gravelly soil, and the trees never fail to set a good crop. Pears will not succeed with us. Apricots are a poor crop, and we can never depend much on these fruits. Small fruits are looking well, and Strawberries are a very good crop. The varieties Royal Sovereign and Garibaldi do best here. The fruit generally is heavier and a better flavour than last year. *Peter Smith, The Gardens, Duns Castle, Duns.*

Haddingtonshire.—Raspberries are the one fruit which has failed; the canes appear to have been frosted in November. Some varieties of Apples and Pears have failed, others have done well, giving, on the whole, an average crop. The foliage of all fruit trees is large and healthy; but, unless we have heavier rainfalls than in the past month, all the crops must suffer. One reason for the paucity of fruit is doubtless the shortage of bees. I applied to a bee-keeper to give a reason why hardly any bees visited fruit blossoms this year, and he informed me that the majority of stocks had been almost wiped out by the Isle of Wight disease. The very extended period of drought through which we are passing in East Lothian is affecting the fruit crops injuriously. The later Strawberries never properly ripened, and a fine crop of Black Currants was largely lost, while Apples are dropping to an unprecedented extent. An abundant rainfall would swell up Apples, Peas, Plums, and Apricots to a splendid sample. *R. P. Brotherston, Tyninghame, East Lothian.*

Fifeshire.—Pear, Plum, and Cherry trees on walls promised good crops when in flower, but the fruits set very badly. Peaches and Apricots produced very few flowers, and these crops are almost a failure. Small fruits are, on the whole, plentiful, especially Strawberries, and the berries are of good quality. *D. M'Lean, Raith Gardens, Kirkcaldy.*

—— The Apple trees are cropping very unequally; some have abundant crops and others none. Pear, Plum, and Cherry trees were covered with blossom, but the flowers were destroyed by cold rains and sleet. Small fruits are over the average, and these crops promise to finish well. Ours is a good garden soil; but, unfortunately, on cold, clayey bottom. *W. Henderson, Balbirnie Gardens, Markinch.*

Midlothian.—This has proved a very disappointing season for hardy fruits. Apples are a large crop, but the trees are suffering for want of rain. Pears, Plums, and Cherries blossomed well and set fruits freely, but only a small percentage matured. Apricots are a disheartening crop after entailing a lot of labour in the spring, including the protecting of the blossom from threatening frosts and high winds. Small fruits are abundant, but slow to ripen, and large fruits of strawberries are rotting for lack of sunshine. The rainfall to the end of June this year measures 10.21 inches, against 15.59 inches for the same period last year, the average for the previous five years being 12.57 inches. The soil is a good, rich loam. *Benjm. B. Ness, Oxenfoord Castle Gardens, Ford.*

—— The fruit crops are above the average, with the exception of Pears and Plums, which were damaged by late frosts. Small fruits, including Strawberries, Gooseberries, Raspberries, and Black and Red Currants, are good and clean. Pears are scarce, but Apples are a good crop. The soil is a heavy loam with a clay subsoil. *D. Kidd, Carberry Towers, Musselburgh.*

—— Pear trees blossomed sparsely, and the few flowers set badly, so that this crop is a failure. Apple trees were full of blossom, and are carrying a full crop of fruit. Plums and Cherries were very promising in spring, but cold, sunless, wet weather spoiled the good prospects. Small fruits, including Strawberries, are a heavy crop. The soil is rather light, on a gravel subsoil. *James Whytock, Dalkeith Gardens, Dalkeith.*

Forfarshire.—Small fruits are a good crop. Apples, also, are good, as late frosts did not injure the blossom. The soil is loam, with a sandy subsoil, and dries very quickly. *A. McAndie, Ruthven House Gardens, Meigle.*

6. SCOTLAND, W.

Argyllshire.—The fruit crops were spoiled in May by a blizzard of wind and sleet from the south-west just when the flowers were setting. The storm lasted about a week. Two trees of Sweet Maple had the leaves damaged, and withered as though dead. *Henry Scott. Torloisk, Mull.*

Ayrshire.—Apples are an average crop, and the trees are cleaner than for many years past. Plums on walls are also good. Small fruits are heavy crops of fine fruits. Strawberries have never been better, and particularly the variety Royal Sovereign. No frost was recorded after April 12, and this immunity from severe cold, with an abundance of rains during May (3.32 inches fell during 20 days), accounts for the clean, healthy appearance of the fruit trees and the good crops of Strawberries and other fruits. We have not needed to spray our Rose trees this season, and they are very clean and healthy. *William Priest, Eglinton Gardens, Kilwinning.*

—— Strawberries are the most satisfactory crop here this season, and the fruits have been exceptionally large and highly coloured. Royal Sovereign and Bedford Champion have proved the best two varieties here. Apricots, Apples, Pears, and other fruit trees blossomed well, but a long continuation of cold, wet weather, with high winds, had an injurious effect on these fruits. *D. Buchanan, Bargany Gardens, Dailly.*

Dumfriesshire.—The crops of Apples, Plums, and Pears were very promising early in the season. The trees blossomed most profusely, but the fruits set very badly. At the time the trees were in flower we experienced cold, wet weather, with low night temperatures, which injured the blossoms. Small fruits are good crops, and Black Currants would have been a record yield had it not been for cold nights when the fruits were setting, but this frost caused about half the berries to drop when nearly the size of Peas. *James McDonald, Dryfeholm, Lockerbie.*

—— The following six varieties of Apples are carrying good average crops:—Bramley's Seedling, Hollandbury Lane's Prince Albert, Lord Grosvenor, Stirling Castle, and Tower of Glamis; whilst Alfriston, Peasgood's Nonesuch, Duchess of Oldenburgh, Ecklinville Seedling, Cellini, and Lord Suffield are small crops, but the fruits are good. *John Urquhart, Hoddam Castle Gardens, Ecclefechan.*

Kirkcudbrightshire.—The general condition of the fruit crops in this district is fairly good. Apple and Pear trees blossomed profusely, but owing to cold, dull weather the fruits failed to set well. The young growth on fruit trees is cleaner and healthier than it has been for some years past. Small fruits are very heavy crops, and especially Raspberries and Gooseberries. Insect pests have not troubled us this season, so that the trees and bushes are exceptionally clean and healthy. *James Douchars, Kenmure Castle Gardens, New Galloway.*

2. ENGLAND, N.E.

Northumberland.—The crops of Apples in the S. and S.E. districts of Northumberland are very variable. At the County Council's Experimental Plot at Cockle Park, Morpeth, with a cold, heavy soil, and at an elevation of 300 feet, the crop promises to be over the average. The culinary varieties are very good, with the exception of Ecklinville Seedling. Of dessert varieties, James Grieve, Irish Peach, and King of the Pippins are most satisfactory. Allington Pippin failed to flower. Considerable scab has been observed on the leaves of Apples, and spraying with the Bordeaux has been resorted to. Plums are sparse in this plot. Superlative Raspberries are looking well. *C. W. Mayhew, Morpeth.*

Yorkshire.—The best crops, both as to quantity and quality, are on trees on dwarfing stocks. It is possible that this is partly owing to the better ripening of the wood on these trees. In many quarters Gooseberries are carrying an exceptionally heavy crop. Black Currants are only fair, the big bud mite being very troublesome. Also, in many districts the bushes are grown on single clean stems. Last year's wet season caused them to make a lot of growth, so that foliage has been luxuriant, and the prevalence of heavy winds has completed the damage. Red Currants are only fair, and the disease Botrytis cinerea is troublesome in some districts. Raspberries promise to be a good crop, but rain is badly needed. Strawberries have been a lighter crop than usual, and ripened rather earlier. The berries were of excellent quality. *A. S. G., Roundhay, Leeds.*

—— The Apple crop is far lighter than was expected, considering the immense amount of blossom. Old trees have set very heavy crops, but young trees have few fruits. Pears are very scarce, for the trees developed scarcely any blossom. Gooseberries and small fruits generally are heavy crops. Peaches, Nectarines and Apricots are very poor; the wood did not ripen last autumn, which no doubt accounts for the failure of these crops. Our soil is a heavy loam resting on a layer of clay and red sand. *Jas. E. Hathaway, Baldersley Park, Thirsk.*

—— Apples, Pears, Plums and Cherries are much under the average. Pears are the worst crop. The trees, and especially Plums and Cherries, were harmed to a great extent by caterpillars and maggots. Strawberries and all other small fruits are abundant crops and of fine quality. Owing to timely mulching, they have not yet suffered from want of rain. All the crops need rain badly. I think we must look to the sunless and rainy season of 1912 for the cause of many of the failures in the hardy fruit crops. Our soil is light and shallow, with a chalk subsoil. *F. Jordan, Warter Priory Gardens.*

—— The Apple crop is somewhat variable; in some districts it is plentiful, in others not so good. Few sorts of Cherries are grown here, the Morello being the principal variety. Peaches and Nectarines are grown only in a few favoured districts. The young branches and buds of all kinds of fruit trees were harmed last winter by wet and cold. Gooseberries and Red Currants are plentiful. Red and Black Currants are healthier and cleaner in growth than in 1912. *Alfred Gaut, The University, Leeds.*

—— Apples are a very irregular crop in this district; here we have an average crop. The varieties Bramley's Seedling, Lane's Prince Albert, James Grieve and Worcester Pearmain are carrying good crops. Plums vary considerably; the variety Victoria seems to be the best. Pears are a complete failure, also Apricots. Strawberries were a good crop of fine fruit of good flavour. With the exception of Black Currants, all bush fruits are good. Early Potatos have been good, and late varieties are looking remarkably well. *A. E. Sutton, Castle Howard Gardens.*

—— Apples are a good crop, notwithstanding the rainfall has been below the normal. Small fruits are extra fine and clean, Black Currants being free from mite. The variety Booskoop Giant bears better than Baldwin's Black in the same conditions. *J. G. Wilson, Chevet Park Gardens, Wakefield.*

(*To be continued.*)

The Week's Work.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

The Rock Garden.—Many plants suitable for growing in the rock garden may be propagated from cuttings inserted as soon as flowering is over. Dianthuses are easily increased from cuttings, which should be inserted in sandy soil under a cold frame or hand-light, keeping them close and shaded until roots have formed. Primulas reproduce themselves freely from seed, which should be sown as soon as it is ripe. Many Campanulas on the rockery are now in bloom. Warley is one of the most beautiful of all the trailing varieties. The rock garden should be overhauled at regular intervals, cutting well back strong-growing species that might smother the weaker-growing species. Remove weeds carefully so as not to disturb the roots of tender flowering plants. It is also necessary sometimes to remove altogether plants which have become too large. Their places may be filled with others raised from seed or cuttings, and a stock of surplus plants should always be available for this purpose. The rock garden requires more than ordinary care in the matter of watering, as many of the plants may be situated in positions which seldom receive a wetting from the rains. Such plants need attention almost daily.

Narcissus.—It is necessary to replant bulbs of Narcissus as soon as they show signs of deteriorating, and the present is a suitable time to undertake the work. When lifted the bulbs should be graded, and those of a sufficient size for flowering re-planted. The smaller ones may be planted in well-tilled soil in the reserve garden, where they will eventually grow to a flowering size. Before re-planting the flowering bulbs dig the ground deeply and enrich it by adding plenty of well-rotted cow-dung.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking

Cattleya Warscewiczii Sanderiana.—Whilst some plants of Cattleya Warscewiczii flower yearly, others, under exactly similar treatment, grow freely, but rarely bloom. Probably the greatest mistakes made in the cultivation of this Orchid is in growing the plant in a high temperature, a dark position, or a very close atmosphere. Many also afford too much water during the season of rest, which should be a long one. To grow this Cattleya well the plants should be placed close to the roof glass, where the leaves are fully exposed to the light and abundant ventilation, as these conditions are conducive to flowering. The plants having passed out of flower should be placed in a somewhat cooler position, but they should still be exposed to the light and fresh air. The amount of water afforded the roots should be reduced gradually. This treatment will harden and consolidate the young growths, and favour the development of roots. The best time for repotting is immediately the plants commence to develop roots from the base of the newly-made growths; the numerous fleshy roots will quickly enter the fresh potting compost. If the work of repotting is delayed there is a danger of many of the roots becoming injured. Afford ample drainage—to about one-half the depth of the pot for the smaller plants, and more for large specimens. For a compost use the best and toughest Osmunda-fibre, from which all the fine particles of brown moss have been removed, and an equal quantity of A1 fibre. Keep the rhizome of each plant about on a level with the rim of the pot, and pack the potting materials firmly in towards the centre. It is advisable to lightly shade the plants from strong sunshine for a few weeks after potting, but when the young roots appear through the surface more exposure to light and air will be beneficial. During this stage the plants should be watered with extra care, merely moistening the soil around the edge of the pot, and affording only sufficient water to encourage the new roots to enter and establish themselves in the rooting materials. Some of the pseudo-bulbs may become slightly shrivelled, but if the plants are not overwatered, and the roots remain healthy, the growth will become plump again when growth re-commences. Examine the plants frequently for the presence of cockroaches and woodlice, as these insects injure the ends of the young roots.

Disa.—Plants of Disa grandiflora are in bloom, or on the point of flowering. At this season they are liable to infestations of green fly and small yellow thrips, which soon spoil the beauty of the flowers and cause the foliage to become unsightly, especially where young offshoots are pushing up around the base of the plant. Remove the aphides by means of a brush and sponge, and afterwards place the plants on their sides, and syringe them with clear rain water until they are cleansed thoroughly. It is not advisable to fumigate or vaporise these Orchids, as they are very liable to injury. The most effectual way to destroy the thrips is to dip the plants occasionally in some weak insecticide. I have found Nicotine soap at the rate of about 2 oz. to one gallon of tepid soft water a safe specific. Care must be taken that none of the fluid reaches the roots. After dipping the plants the moisture may be allowed to remain on the foliage from five to ten minutes, during which time each plant should be laid on its side, and be so placed that the soapy water drains from the base of the plant to its tips, instead of into the roots. Before the mixture has time to become dry it should be washed off with warm, soft water. A good plan is to dip the plants when they are rather dry at the roots, so that if any of the mixture does get into the soil a thorough watering afterwards will wash most of the soapy extract through the drainage, and thus lessen its power for harm. Plants of this species that are coming into flower should be well watered, and as the buds commence to open the blooms will be benefited by exposure to strong sunlight, which will cause the colour to become more brilliant, but shade the foliage. As the plants pass out of bloom the amount of water should be reduced gradually, but the supply should not entirely cease. Stand the plants where their surroundings are always moist, and where plenty of light and fresh air can reach them. Should small thrips attack the young growing shoots, first destroy the insects and afterwards give the plants more shade. Plants of the handsome hybrid D. Luna that bloomed early last month are starting well into growth, and they may be re-potted or divided, as may be deemed necessary. The offshoots now starting should not be divided unless they have sufficient roots to support them. The divided portions should be placed in rather small pots, so that when they become well rooted they may be transferred to larger receptacles. Unless it is desired to increase the stock, old plants may be afforded pots two sizes larger, as they enjoy plenty of rooting space. The pots need only a few crocks placed over the bottom of each receptacle for the drainage. The soil should be of an open, yet retentive nature, and may consist of good fibrous, yellow loam, from which all the finer particles have been removed by sifting, Osmunda-fibre cut up into rather small portions, and Sphagnum-moss, also in a state of fine division. Use an equal quantity of each material mixed with a moderate amount of coarse silver sand, and some small crocks. Press the soil down around the plants with moderate firmness, but avoid making it so hard that water will not pass rapidly through. After re-potting, stand the plants upon inverted pots or pans placed on a cool, damp surface. In this way the plants will dry quicker, and allow more water to be used than if placed on a damp stage. The Odontoglossum house is a suitable place to grow these plants, and they will thrive well in a cold frame out-of-doors until cold weather sets in, when they should be afforded moderate warmth. When the plants are growing freely spray them overhead several times daily during times of warm, bright weather, and never allow the roots to become very dry. Disa grandiflora may be re-potted in the same manner in about a month's time.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cauliflowers.—There is still time to plant Cauliflowers for early winter supplies, selecting rich soil in a sheltered situation. If the variety Early London is planted now the plants should yield heads throughout October. The new variety, Great Dane, will come in about ten days earlier than Early London, yielding large heads with pure white curds. Fresh plantations of young Cauliflower should be watered freely with liquid manure, and the ground between the rows stirred frequently by means of a Dutch hoe.

Turnips.—Make a liberal sowing of winter Turnips, selecting a warm border if the district is late and cold. New White Model and Green Top Stone are suitable varieties. Sow the seeds in shallow drills at 1 foot apart, and thin the seedlings to nine inches apart. Dust the plants freely with wood ashes, and keep the hoe at work amongst them to promote a quick growth.

Sweet Basil.—If this herb is required during winter seeds should be sown now in a heat of 60°, covering the seeds lightly with fine soil. Prick the seedlings out into 6-inch pots, putting four or five in each pot. Provide the pots with liberal drainage, and use light, turfy loam for the rooting medium.

Mushrooms.—Make preparations for an autumn supply of Mushrooms. Cleanse the interior of the houses, and whitewash the walls with hot lime, taking care to reach every crevice with the brush. The horse droppings should be collected daily, and laid in a dry, open shed, to be turned frequently, until sufficient has been collected to form the first bed. The droppings should not be placed more than one foot deep during their preparation in the shed. When properly fermented they should be removed to the Mushroom house, and placed rather closer together until the heat reaches 85°, when the droppings should be spread out on the bed, and rammed tightly together, in such a way that when finished the bed will be not less than 12 inches in depth. As soon as the temperature has dropped to 80° the spawn should be broken up into pieces about the size of a hen's egg, and inserted two inches deep by means of a blunt dibber. After the lapse of a few days a covering of fine loam should be placed over the bed about one inch deep, and made firm by the back of a spade. Assuming that the atmosphere of the house will be kept moderately moist, the bed should not require water until Mushrooms begin to show, but after this stage a gentle watering with rain water may be applied if it is considered necessary. Fresh beds may be spawned at intervals of three weeks, according to the requirements.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Early Vines.—The present is a suitable time to renovate the border of early Vines that, from various causes, may have become exhausted, for while the vines are still in leaf they may be able to make fresh roots. If the latter are growing in both inside and outside borders, renew only one of the borders this season. The operation of removing the soil, beginning at the outside of the border, must be done with great care to preserve as many as possible of the roots from injury. Excavate the soil down to the drainage, and to within 3 feet of the stem of the vines. When the roots are bared they must be kept moist, and shade the roof-glass with mats or canvas. Place materials in the trench for drainage: if the subsoil is gravelly or of a porous nature, 9 inches of drainage, with a drain to carry away the water, will be sufficient. If the subsoil is of a cold and retentive character, cover the bottom with a layer of concrete, and on that place drainage materials to a depth of nearly 12 ins., with a drain made of pipes. Cover the drainage with sods placed grass sides downwards. The new soil for the border should have been prepared previously, and composed of fresh turfy loam, mixed with lime rubble and ½-inch bones—these mixtures added more or less according to the texture of the soil. The new soil should not be more than 3 to 4 feet wide and

2½ feet deep for a start, and it should be made very firm. Place the roots as near to the surface as possible, shortening the longer ones and cutting back those that are damaged. When the border is finished, well water it and cover the surface with dry litter. Continue the shading, and keep the house rather close for a week or so, syringing the foliage on the afternoons of bright days. The Vines should not be forced early the following season, and, if red spider or mealy bug be present, adopt measures to eradicate the pests. The foliage on early Vines from which the grapes have been cut should be examined carefully for the presence of red spider, and if this pest is detected, syringed. It is essential that the foliage remain in a healthy condition until it is matured. Unfavourable climatic conditions may render it necessary to promote a little warmth in the hot-water pipes at night, but let there be a constant circulation of air, increasing the ventilation as the wood matures.

The Orchard House. — Pot trees from which the fruits have been cleared may be plunged out-of-doors, and should be attended to daily in the matters of syringing and watering. In warm districts pot trees of Pear and Apple will succeed better plunged in the open, where they will ripen their fruit. They should be attended to at least twice daily for watering, affording the roots weak manure water on frequent occasions. Let the trees in the orchard house have plenty of air, and syringe them daily to keep the foliage clean. Feed the roots with liquid manure. When the fruit is ripening keep the atmosphere of the house rather dry. Guard against overcrowding by shortening the shoots, removing all unnecessary growths, and, in the case of planted-out trees, tie the shoots to the trellis.

PUBLIC PARKS AND GARDENS.

By Superintendent.

Attention to Trees. — It occasionally happens that during warm, still weather heavy limbs of such trees as the Poplar and Elm snap over without the slightest warning, and often to the danger of those who may be present beneath their shade. Several cases of this kind have occurred of late, and in two instances at least with fatal results. The reasons for this sudden snapping of branches are (1) disease or injury, (2) disposition and size of branch, (3) the extra weight of foliage during the growing season, and (4) brittleness of the timber caused by the flow of the sap. In some parks and gardens—the Royal Parks in particular — an annual examination of the trees is made, and all heavy and diseased branches either wholly removed or cut back to such an extent that their safety is ensured. But even with the most minute and careful examination it by no means follows that accidents will not and do not occur, for the simple reason that it is often impossible to detect flaws and disease which are not revealed outside the bark. This is especially the case with the branches of old Elm trees, the diseased centres of which often defy the most careful examination of the experienced woodman.

Disease or Injury.—These may arise from many causes, but probably the most prevalent are the after-effects of neglected injuries caused by wind or accident. Too often it is the case that branches which have been broken over during stormy weather receive no attention in the matter of pruning and dressing, with the result that water gains access by the fractured portion of the trunk or branch, and speedily a diseased condition of the part is brought about. This, in the case of the Elm at least, quickly spreads, fungus takes possession of the wood, and an unhealthy and unsafe condition of the tree speedily follows. Unfortunately, in many of our public parks and gardens the diseased condition of many of our old Elms and other trees can be distinctly traced to neglect when injury by storm or accident had occurred. For the safety and preservation of a tree it is always wise policy to smoothly cut across and paint or tar the wound that has been occasioned from whatever cause, and no time should be lost in carrying out this operation. It little matters, unless for appearance' sake, how the pruning is carried out; by all means prevent the inroad of water to the broken branch or stem.

The Size and Disposition of a Branch.—Apart altogether from disease or injury, a branch may, for the sake of safety, require to be pruned or lightened. Upright-growing branches are not so dangerous, but such as hang downwards from the horizontal and extend to a considerable distance from the main stem require judicious pruning. This should be carried out in such a manner that the general appearance of the tree is not damaged, the heavy top branches being neatly cut back at the point where the operation will be least readily detected. Here again a careful smoothing of the branch at the point where amputation took place is all-important, and tarring or painting should not be neglected, whether from the point of appearance or the health of the tree. The extra weight of foliage often causes a branch to become top-heavy and break across, this being accentuated by the presence of an unusually large quantity of sap, which naturally causes the timber to become brittle and more readily susceptible to accident.

Fungus and Insect Attacks.—The presence of fungus on a tree may be taken as a sure indication that all is not right and, as far at least as the public safety is concerned, the sooner such tree is examined and dealt with the better. Insect attacks, particularly that of the Goat and Wood-leopard moths, are frequently the cause of the sudden breaking of a limb or branch, especially when the tree is in full leafage or during stormy weather. The caterpillar of either insect tunnels into the wood and causes it to become so weakened at the point of attack that it readily breaks over when subjected to the extra weight of leafage or wind pressure.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Old Manure Beds.—The Celery plants are well established, and the roots require plenty of water, which should be afforded, preferably in the evening. Care must be taken to keep the beds sufficiently moist, for once the black soil becomes very dry it will be an exceedingly difficult matter to render it absorbent of water until it has been soaked with rains. The Carrots sown a fortnight ago as a succession to the Cauliflowers on the old cloche beds are now well up. They should be thinned out at an early date. Their growth must not be impeded for lack of moisture, for though they only require superficial but frequent waterings, they will need a good soaking at least twice weekly from the middle of August.

Melons.— This crop has been very successful this season, and splendid fruits are being cut daily from those planted before the middle of May. The plants require plenty of moisture at the time the fruits are swelling. The lights may be removed to afford full ventilation. The pruning of the later plants should consist of occasional thinning of the superfluous growths, removing at the same time all weeds. The Melons, when ripe, should be cut and placed in a cold storage before they are despatched to market. They may be packed in "flats" or deep boxes; wrap each fruit in soft paper and place wood-wool or soft hay between them, to prevent bruising during transit.

Crops in the Open.—The only Cauliflowers now available for market are those set directly outside late in March or early in April. They should be liberally supplied with water; this crop will be especially valuable, as the field crop will be very late, and the plants are in several places badly attacked by caterpillars. The Ridge Cucumbers that were planted early in June should also be mulched whenever possible, not only to keep the ground moist, but prevent the fruits from becoming splashed by rains. If watering is done carefully the yield of this crop will be greatly increased. Tomato plants should be stopped to one leaf beyond the last fruit truss, as further blooms cannot be expected to set and develop ripe fruit after this date. As the berries are swelling the plants should receive an occasional dressing of superphosphate, alternated with some other fertiliser, such as Peruvian guano. The ground for planting Endive should be prepared at the earliest opportunity. The curled varieties are set 10 inches apart in the row, and at 1 foot distance in the rows. The Batavian Green variety should be allowed a space of 12 inches each way. The Beans are now well through the ground, which should be hoed frequently. It is essential that the plants develop as quickly as possible, so that they may be strong and robust before the cool nights set in, as the Beans will be developing early in October. A sowing of Onion, White Lisbonne or Little Vanguard, should be made broadcast in well-prepared ground. By making three sowings at intervals of a fortnight a succession of green Onions will be available from October and until the spring-sown plants are ready.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Pelargonium. — Cuttings of Pelargoniums may now be inserted, three or four around the edge of each pot, filled with a mixture of loam, leaf-mould and sand. After a thorough watering stand the pots on a shelf in a greenhouse or in a cold frame. Subsequent waterings should, at the present, only be given when moisture is necessary to prevent the cuttings from shrivelling, but later, after roots have formed, a more liberal supply of water should be afforded. Old plants in pots intended to be grown for another season should be placed on their sides out-of-doors to favour the ripening of the wood before cutting the shoots hard back. As soon as the shoots break into fresh growth place the plants in a cool house or frame and syringe them daily until growth becomes more general. At that stage shake the old soil from the roots and repot the plants into pots of a suitable size for each individual plant. Employ a compost consisting of three parts rich loam with leaf-mould and coarse sand in equal proportions, adding a little dried cow-manure and soot—say, a 9-inch pot full of each fertiliser to one barrow load of the mixture. Water the plants with extra care until they are re-established. It is advisable to shade the foliage during the hotter part of the day in the early stage of growth.

Fuchsia. Cuttings of Fuchsias may be inserted, selecting the stronger shoots for the purpose and placing them in pots. They should be rooted in a gentle bottom heat and be kept close and shaded.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Strawberry Beds. — After Strawberries have cropped for three seasons the plants become more or less exhausted, and are better discarded. In gardens where rotations are practised one or more of the old beds may be destroyed each year, and this should be done as soon as the fruits are gathered. The plants and weeds may be destroyed by means of a sharp spade and thrown together in small heaps, then, if left exposed to the sun and air for a few days, they may be made into a heap and burned. This method not only saves labour, but the refuse, if scattered over the land, will be beneficial to the next crop. The ground may be cropped with winter Broccoli or late Brussels Sprouts, and will not need any special preparation, for solid soil is more suitable for them than that which has been disturbed much, for the plants grow sturdy and compact, thus enabling them the better to withstand a hard winter. Two-year-old beds should, after the necessary number of runners has been obtained, be cleared of weeds and dead leaves. Pinch off surplus runners. The decayed materials of the mulch may be allowed to remain, but the dry, loose litter should be removed and burned.

General Fruit Crops.—In most districts the fruit crops are suffering from drought, and more especially Apples and Pears growing on tilled land. Where practicable the trees should be watered, first loosening the soil, but always bearing in mind that the feeding roots are some few yards from the main stem. Unless attention is paid to the trees in this respect most of the fruits will fall, and the remainder fail to swell to a good size before ripening. Water first the more important and earlier varieties planted against walls, and next the bush trees growing round the kitchen garden plots.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication. *as well as specimens of plants for naming, should be addressed to the* **EDITORS. 41. Wellington Street, Covent Garden, London.** *Communicotions should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion orise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, AUGUST 11—
United Hort. Ben. and Prov. Soc. meet.

TUESDAY, AUGUST 12—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m by Mr. Frederick Enoch, on "Fairy Flies and Their Hosts.")

WEDNESDAY, AUGUST 13—
B.G.A. (Watford Branch) Outing.
Carlisle and Cumberland Hort. Assoc. Sh. (2 days).

THURSDAY, AUGUST 14—
Taunton Deane Hort. Exhibition.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich—62.4°.

ACTUAL TEMPERATURES:—

LONDON.—*Wednesday, August* 6 (6 p.m.); Max. 67°, Min. 53°.
Gordeners' Chronicle Office, 41. Wellington Street, Covent Garden, London, *Thursday*, August 7 (10 a.m.); Bar. 29.8°, Temp. 65°.

PROVINCES.—*Wednesday, August* 6, Max., Margate, 62°, Min., Aberdeen, 53°.
Weather—Sunshine.

Silver-Leaf Disease. A further contribution by Mr. F. T. Brooks to the study of this disease appears in the *Journal of Agricultural Science*. The results are a continuation of those published by the same author in 1911, and establish the view that Silver-leaf is a general pathological phenomenon of widespread occurrence which may be induced by different causes, though at present only one of them, the fungus Stereum purpureum, is known with certainty. Mr. Brooks considers, with Professor Percival and Mr. Spencer Pickering, that the chief cause of the malady in the fruit-growing districts of this country is Stereum purpureum, but he has seen specimens of silvered foliage which he is unable to attribute to the action of this fungus. Thus silvered plants of the White Dead Nettle have been seen which upon investigation exhibited no trace of fungus. Silvered Plum seedlings also failed to reveal any sign of fungus attack.

In considering Silver-leaf as a general pathological phenomenon, the writer points out that it is by no means unusual in the pathology of plants and animals for the same kind of morbid manifestation to appear as the result of different pathogenic agents, and he is inclined to regard Silver-leaf from this point of view, namely, a state due in some instances to the invasion of micro-organisms and in others to some other cause.

From the standpoint of the practical fruit-grower, however, it is the fungus Stereum purpureum which is of greatest importance, and Mr. Brooks' present paper deals chiefly with the rôle which this fungus plays in causing such serious losses in fruit plantations, particularly those of Victoria and Czar Plums.

Inoculations of Plum trees with the spores of the fungus and also with its mycelium grown in pure culture (and therefore free from contamination by other organisms) have resulted in the development of Silver-leaf, and the fact that the fungus causes infection after the manner of a wound parasite has become firmly established. It has been determined also that Stereum purpureum taken from a dead Birch stump in the midst of a wood is as effective in causing Silver-leaf as is Stereum purpureum taken from a silvered Plum tree. The fungus frequently attacks a single branch of a tree at first, and subsequently progresses into the main stem, after which the whole tree usually becomes silvered and begins to die back. Discoloured wood has been found to be constantly associated with the silvered foliage of Plum trees in gardens and fruit plantations, though the diseased wood is sometimes a considerable distance below the affected leaves.

Some interesting cases of the outbreak of Silver-leaf disease are described. In one of them twenty Plum trees which were cut back and regrafted all became silvered, and fructifications of Stereum purpureum developed in abundance on the trunk of each. Attention is also directed to the frequency with which regrafted Apple trees become silvered and die in consequence of attack by this fungus.

In regard to the treatment of the disease, Mr. Brooks would in the first place have war waged against the development of the fructifications of Stereum purpureum in fruit plantations. Experience has also shown that benefit is derived by cutting out silvered branches of trees in the early stages of attack, but in order for this operation to be successful care must be taken to cut back below the region of discoloured wood. Plum trees that are badly silvered and beginning to die back should be destroyed, as the chance of recovery in such cases is but slight. Experiments in plugging the trunks of silvered trees with sulphate of iron have been tried on a large scale, but so far this method of treatment has not given much promise of success.

Supplementary Illu tration.—The variety of tuberous-rooted Begonia known as Florence Nightingale, which forms the subject of the Supplementary Illustration, received the Award of Merit of the Royal Horticultural Society last year, when it was exhibited by Messrs. Blackmore and Langdon. The blooms of this variety are only of medium size, but they possess exceptionally good form; the petals are also of excellent quality and have a smooth texture. The variety is a good type of a modern Begonia and serves to show the great advance that has been made in recent years with this flower. The Begonia has provided many variations, and in any representative collection it would be easy to select flowers that resemble the Camellia, Pæony and Rose. So diversified is this free-flowering plant that it is not only decorative in the greenhouse and conservatory, but is also amongst the most valued subjects in present-day schemes of summer bedding.

Coloured Supplement.—The subject of the coloured plate to be published in the next issue is the Mediterranean Fruit Fly (Ceratitis capitata).

Royal Horticultural Society. — The next meeting of the committees will take place on Tuesday, the 12th inst., in the Society's Hall, Vincent Square, Westminster. At the three o'clock meeting in the Lecture Room an address on "Fairy Flies and their Hosts" will be delivered by Mr. F. Enock.

National Gladiolus Society.—At the meeting of this Society, held last Tuesday, Class 16, for amateur competitors, did not fill. A silver cup, value ten guineas, was offered for this class by Messrs. James Cartbr & Co., and they have consented to allow this cup to be competed for again on August 12. It is not necessary that competitors should be members of the Society. The class is for nine varieties of late-flowering Gladioli, one spike of each to be shown in nine vases. Entries should be sent to the Secretary, The Flagstaff, Locksheath, Southampton.

Report of the Parliamentary Committee on Seed-Testing Stations. — The enclosed is a copy of a resolution drawn up by the Parliamentary Committee of our Society and adopted by the President and Council on the 29th of last month:—"Understanding that a recent deputation to the Board of Agriculture and Horticulture recommended that a National Seed-Testing Station should be established where seeds could be tested if desired, your committee, whilst not wishing to object to the testing of seeds, desires to point out that any such station, if created, must provide a full and sufficient guarantee both to buyer and seller as to the identity of the bulk sold with the sample submitted for test." *W. Wilks, Sec. R.H.S.*

Rural Housing.—The Board of Agriculture and Fisheries wish it to be made known that they are desirous of obtaining information upon the subject of the erection of rural cottages for labourers and others. They will be grateful if any landowners or local authorities who have recently erected such cottages will furnish them with particulars of the cost of the cottages, and the results of their enterprises, both financially and otherwise. A form of particulars will be sent, on application, to any person who is willing to supply such information. Communications should be addressed to the Secretary, Board of Agriculture and Fisheries, 4, Whitehall-place, London, S.W., and need not be stamped.

Colonial Products. — On the occasion of the debate on the Colonial Office Vote in the House of Commons on July 31 last, the Colonial Secretary, Mr. Lewis Harcourt, gave the following interesting information, which we reproduce from the *Times* report:—"Jamaica had made great advances in the production of the Banana: in 1905 she exported £843,000 worth; in 1911 it had reached a value of £1,457,000. Jamaica and some of the other islands were in the hurricane belt, and Jamaica suffered from one of these visitations at the end of last year, which would perhaps for some years to come constrict her production. The export of Bananas from the West Indies had risen in the last seven

years from £880,000 to £1,500,000. Limes, Pine-apples, Oranges, and Grape-fruit constituted no small part of their fruit export. Cyprus in the last seven years had doubled the value of her exports of fruit such as Oranges, Pomegranates, and Raisins, from £31,000 to £62,000; and the total value of fruit exports from our tropical Colonies, in addition to the large figures given as to Bananas, had risen in those seven years from £611,000 to £689,000. Sugar had caused much anxiety both to our West Indian Colonies and the world at large. But production had progressed in spite of rainfall and politics. Those who thought at one time they would be ruined by conventions had come to the conclusion that they would be saved by inter-Colonial Preference. Negotiations had been concluded by which Canada and the West Indies had made arrangements of mutual advantage, which afforded a market for the commodities of each. The result, if not the intent, of this agreement had been a lowering of tariffs on both sides, with some approach to freer trade by each party to the Convention. Sugar was still the staple crop in several and a large crop in most of the West Indies. Improved machinery and the centralisation of factories had contributed to the economy of production. But in Trinidad, where six years ago sugar formed 56 per cent. of the total production of the island, it was to-day less in value and importance than cocoa. Fiji had enormously developed the industry of sugar and now exported—mainly to Australia—a crop of the value of £800,000, as compared with £540,000 six years ago. From our Eastern Colonies—Straits Settlements, Federated Malay States, and Mauritius—the value of the export was fairly stationary, though the quantity had increased; but conversely from the West Indies the bulk was somewhat less, and the value had risen from £2,500,000 to £2,800,000. The profits and produce of molasses—a by-product—represented a value of export from our Crown Colonies of £430,000, as against a previous export of £246,000. **Tobacco.**—Ceylon and the Straits Settlements had increased their export of tobacco from £380,000 to £780,000 in value; and in Nyassaland it was becoming the second in importance of its products. The amount exported had increased more than tenfold in the last seven years, from 199,000lb. to 2,147,000lb., and in value from £3,300 to £53,700, a large portion of it finding its way to the United Kingdom. On the whole, the export by our Crown Colonies of tobacco had grown from a value of £414,000 to one of £764,000. **Rubber.**—In rubber, which was subject to the fluctuations of market gambles, it would be prudent to test the progress of our Colonies rather by quantity than by price. From the point of view of production the progress of our rubber-producing regions had been abundantly satisfactory. The West Indies, British Guiana, and Honduras seemed well suited to the production of rubber, but the greater cost of labour there as compared with the East might affect their ultimate success. Their export in pounds had grown from 27,000 to 29,300, but this was no true test of their future, as there had been in the last few years a large experimental planting of trees, none of which had yet reached the tappable age. In West Africa the production maintained a fair average in quantity and price. The rubber production of Uganda had been mainly from the wild tree (Funtumia elastica). As this became exhausted, systematic planting of Para and other varieties had to be resorted to, and these had not yet come into bearing. And in addition the principal rubber areas, up to now, had been near the shores of Lake Victoria, and when this was discovered to be a "fly area" for sleeping sickness prevention, the commercial assets of that region were gravely impaired. Nyassaland was much more promising in this respect. Its export in pounds had risen from 18,000 to 48,000. Wild rubber—principally of the Landolphia species—was diminishing by exhaustion, but plantation rubber, though extensive in area, was not yet sufficiently mature for mercantile production. The East Africa Protectorate had managed to maintain a fair average of exportation. It was, however, in Ceylon and the Malay Peninsula that the great development of this production had taken place. From Ceylon and the Malay Peninsula in 1905 the exports were 6,500,000lb.; in 1912 they were 51,000,000lb. The value was, in 1905, £665,000, and in 1912 £13,700,000. With rubber should be included gutta-percha from the Malay Peninsula, where the export had grown in value by 50 per cent., and balata from British Guiana, a substitute for gutta-percha, obtained from the sap of Mimusops globosa. The export of this material had grown in value from £40,000 to £140,000 in six years."

"The Larger Fleas have Smaller Fleas . . ."—The large Larch saw-fly, which has done so much damage to the Larch of this country, is not to go on its destructive ways unchecked. Though man is able to do but little to prevent the depredation of the saw-fly, Nature herself is intervening with effect to redress her balance. An ichneumon, Mesoleius tenthredinis Mor, previously unknown to science, was discovered some time since to be actively engaged in "parasitising" the larvæ of the saw-fly. For a time this enemy did good service, and to its activities the Shoulthwaite plantation at Thirlmere won through an attack of the saw-fly. Recently, however, this plantation was attacked again by a vast swarm of adult saw-flies, and there was reason to fear that it would suffer irreparable damage. But, according to observations recorded by Mr. J. Mangan in *Nature* (July 24, 1913), the pest brought with it its own seeds of destruction, for an examination of the parasites which have emerged from the cocoons shows that, whereas the old ichneumon M. tenthredinis was scarce, another ichneumon, which till recently had taken but a languid interest in the destruction of the saw-fly, had become suddenly active, and had taken up its abode in some 25 per cent. of the cocoons. Another 24 per cent. had been chosen by a Tachinid Zenillia pexops as its residence. As Mr. Mangan suggests, these new parasites followed probably in the wake of the saw-fly, and are seeing to it that the pest shall not have things its own way for an indefinite time.

Turkish Preserved Fruits.—Preserved fruits are produced in Turkey in only three varieties—namely, "Pekmez," "Pestil," and Olives. Pekmez is made from the juice of Grapes. This is thickened by cooking over a slow fire and constant stirring, during which process certain sweet-smelling herbs are added. The thickened juice is either sold as syrup or the process is continued until the juice is thoroughly hardened. Then it is allowed to cool, and is laid out in thin cakes on boards to dry in the open air for several days. Then the substance which has cooled is mixed with walnuts and kneaded around strings, forming in this way a sort of sausage. In this form it is called "djevizpekmez." Pestil is prepared from Apricots and Plums. These fruits are cooked, their pits taken out and thickened. The cold resultant substance, which must not be burned, is then spread on zinc-plated copper sheets, and warmed from beneath by a slow fire. In this way the slices dry quickly, and are cut into strips and rolled together. Pestil keeps for a long time, and is eaten either raw or is soaked in water and made into sauce. Olives are laid either in salt water or in barrels in salted layers. In the former case they remain green and hard; in the latter they become black and soft. The consumption of Olives is very great in Turkey, as they are almost the only other food eaten by the poorer classes with their dry bread. *Journal of the Society of Arts.*

Cultivation of Vacant Land in London.—We have received the annual report of the Vacant Land Cultivation Society, established in London in 1908 to acquire vacant land for temporary cultivation by men out of permanent employment. The Hon. Secretary of the Society is Mr. Joseph Fels, the Hon. Treasurer Mrs. H. J. Tennant, and the Superintendent Mr. R. Lewis Castle. The report states that there is at the present time about 14,000 acres of vacant land in London, composed chiefly of sites awaiting the builder. The Society's Superintendent inspects these sites in order to determine which are most suitable for the purposes of the Society. Having done this, he approaches the owners and endeavours to get them to loan the land to the Society on the condition that the owners may enter into re-occupation at any time on giving a week's notice. Having obtained the land for an indefinite period, the Society prepares it for cultivation, and when this has been done it is measured out into plots, which are allotted to applicants, no charge being made for rent. The season of 1912 appears to have suited the gardens extremely well, and the report states that the results passed anything obtained in previous years. The Society has control over 50 acres, and 400 men and women have been allotted plots, but there are still 600 adult applicants, and in order to satisfy these 65 more acres of land is needed. It is stated that the gross value of the produce raised by the men in the past five years exceeds £9,000, and the produce raised last year was worth £3,000. The total income of the Society during the five years has been £2,000. The training which the men receive from the experienced Superintendent whilst cultivating these plots cannot fail to be of benefit to them, and from every point of view the public may well be asked to assist the objects of the Society. If visitors to the suburbs will take the trouble to inspect some of the gardens, and compare their appearance with other building sites which have not been brought into cultivation, they will appreciate the transformation the operations of the Society effect.

Nursery Employees Outing.—The annual outing of the members of the staff of Mr. Amos Perry, nurseryman, Enfield, took place on the 26th ult., when Yarmouth was visited. At the dinner Messrs. Amos and William Perry, who accompanied the party, were made presentations by Mr. Redmond on behalf of the employees.

Mr. H. Cutbush, Junr. — The *Morning News*, Jersey, of the 31st ult., contains the following interesting announcement:—"At St. Brelade's Parish Church yesterday morning was solemnised the marriage of one of the Island's most talented and popular professional singers, Miss Flora H. Vardon, A.R.C.M., only daughter of Mr. and Mrs. H. Vardon, of 72, Rouge Bouillon, to Mr. Herbert Wm. L. Cutbush, only son of Mr. and Mrs. Herbert Cutbush, of Normanhurst, Highgate, London."

A Gardener's Long Service.—Mr. Robert Anderson, gardener to Mr. Y. G. Lloyd-Greame, of Sewerby House, near Bridlington, has completed fifty years' service with Mr. Lloyd-Greame and his family. Mr. Anderson recently celebrated his eighty-sixth birthday. A native of Keith (Banffshire), he served his apprenticeship at Haddo House. Leaving Scotland at the age of about 21, he took a situation at Sion House. Afterwards he served at Blaise Castle, Trentham, Coney House and South Ella. On his thirty-sixth birthday he commenced his duties as head gardener at Sewerby House, and that position he still holds.

Fruit and Potato Crops in the Bruges Consular District.—The Board of Agriculture and Fisheries have received a further report, dated July 24, from his Majesty's Consul-General at Antwerp, on the fruit and Potato crops in the Bruges Vice-Consular district, from which the following are extracts:—Plums will only yield half a crop. It is impossible as yet to fix their approximate prices, but these will certainly run high. A poor yield of Greengages is expected and prices will be high, probably not less than about 4½d. per lb. Nuts will be an average crop. Apples will yield abundantly and prices will, in all probability, be lower than

last year, ranging from 6s. to 8s. per cwt. Pears are a good crop and prices will also be lower than last year, varying from about 1¼d. to 1½d. per lb. Potatos promise well, and at present an abundant crop is expected, but disease is feared if wet weather continues. The chief varieties grown in the district for table use are Walen and Fleur Blanche. Other varieties are L'Enorme de Veenhuizen, La Kruger, La Juillet de Poulsen, and L'Industrie. Prices for the better qualities now range from about 4s. 9d. to 6s. per cwt. and for ordinary Potatos from 2s. to 2s. 4d. per cwt.

Forecasting the Weather.—We have received a reprint of an article, by Andreas Voss, entitled 'Die Grundzüger einer praktischen Wettervorhersage" ("Principles of a Practical Weather Forecast"). The author criticises the weather-charts issued by the Prussian Agricultural Meteorological Service, at a cost of about 380,000 marks (approximately £19,000) annually, as almost useless, inasmuch as they are mere daily prognostications. He claims to have foretold, and to be able to foretell, sudden changes and the character of the weather of the yearly seasons at least a year in advance. Falk's theory of the great influence of the sun and moon is the foundation of Voss's forecast; but he also attaches great importance to eclipses of the sun in relation to the direction of the wind and other phenomena. He says the forecast of the weather for a lengthened period is based on the direction of the wind, caused directly by an eclipse of the sun, which controls atmospheric pressure, and the distribution of humidity over the earth. In proof of the soundness of his deductions he adduces his forecast for the year 1912, drawn up at the beginning of November, 1911, and his forecast for 1913, drawn up in August, 1912. No doubt the general character of the forecast for 1912 was correct. Harvest prospects for 1913 are thus briefly summarised: In consequence of unfavourable spring weather sowings would be delayed and summer grain crops below the average. Winter grain an average crop. Fodder crops, including roots, above the average. Leguminous crops and Cucumbers below average, in consequence of drought and mildew during month of June. Winter Potatos below the average in districts where wet or cold weather sets in too early. Fruit in many places short in consequence of a rainy flowering, otherwise better than in 1912. Plant diseases and enemies more abundant than in 1912. Of course, these forecasts relate to Germany, with Berlin as the centre.

ORCHID NOTES AND GLEANINGS.

MAXILLARIA FRACTIFLEXA.

Maxillarias are well represented in the famous collection of Sir Trevor Lawrence, Bart., K.C.V.O., at Burford (gr. Mr. W. H. White), and we have been indebted to him for the opportunity of illustrating some of the most remarkable, and notably the very extraordinary M. scurrilis (July 28, 1900, p. 65), and M. fractiflexa, illustrated in the *Gardeners' Chronicle*, May 31, 1902, p. 359, both species collected in Ecuador by the late Consul F. C. Lehmann.

M. fractiflexa was shown by Sir Trevor Lawrence at the meeting of the Orchid Committee of the Royal Horticultural Society, on July 29 last, in improved vigour, its slender erect spikes bearing several of its curious flowers about 6 inches across. The narrow, yellowish-white sepals and petals are curiously twisted, the petals being curled round at the outer half. The small labellum is white, spotted at the base with purple.

ONCIDIUM LIMMINGHEI.

This charming little Orchid is blooming in the collection of J. J. Neale, Esq., Lynwood, Penarth (gr. Mr. H. Haddon), and is well worth recording as few know that it is still in cultivation. It is a very small grower, of the Oncidium Papilio section, though totally different in habit, its small rugose, one-leafed greenish pseudobulbs, and leaves, marked with red, closely pressing against the block on which they are grown, the whole plant not more than 2 inches in height. The spikes are 2 to 3 inches in height, bearing two to four flowers, opening in succession. They are like small flowers of O. Papilio, the lip being yellow spotted with red. The species has always been rare, although it has been occasionally imported since it first appeared in flower at the Liege Botanic Gardens in 1855, the plant having been collected in Caracas. It grows best in the shady end of an intermediate house.

CATTLEYA WARSCEWICZII ALBA "MUESSER'S VARIETY."

A two-flowered inflorescence of a fine form of the rare and beautiful white variety of Cattleya Warscewiczii, together with a photograph of the plant, is sent by Mons. Arthur Muesser, Orchid importer and grower, Brussels, who collected it and brought it home with a fine importation of the best typical C. Warscewiczii, and of Cattleya aurea. M. Muesser writes: "The plant was nearly dead when it arrived, and I had to nurse it carefully, but, being a robust grower, it soon recovered, and is now flowering on one of its two strong leading growths. It has thirteen bulbs, seven with leaves. The flowers sent will show what a beautiful thing it is."

It is a true C. Warscewiczii in size and form, and of the clear whiteness of the superb C. Warscewiczii var. Firmin Lambeau, but the lip is longer and more crimped, and close examination shows a faint blush, like that on a pearl, on the front lobe. The disc of the lip is yellow, displayed on each side in a roundish, lighter blotch, after the manner of the species. The actual measurement of the flower is seven inches across, and the segments are of very fine substance. *J. O. B.*

ODONTADENIA SPECIOSA.

Odontadenia speciosa (see Fig. 43), is a beautiful flowering climber with thin, twining branches, reaching a height normally of 20 to 25 feet, and is suitable for training along horizontal wires in a plant house. The illustration is of a plant in the Royal Botanic Gardens, Peradeniya, Ceylon, where the plant is shown growing over a Cassia tree, which it has draped completely, forming graceful festoons from branch to branch. In Ceylon it blossoms profusely at least twice a year, usually after spells of dry weather. The large bell-shaped flowers, which somewhat resemble those of Allamanda, are of a beautiful salmon-yellow colour streaked with crimson on the throat and inner side of the tube, the corolla ending in a prettily scalloped and wavy margin. The blooms are borne in great profusion towards the ends of the branches, the latter being weighed down by the heavy trusses. The flowers are very

[Photograph by H. F. Macmillan.

Fig. 43.—Odontadenia speciosa flowering in Peradeniya Botanic Garden, Ceylon; colour of flowers salmon-yellow.

pleasantly and delicately scented, suggesting a strong Primrose perfume. The ground beneath the trees is often carpeted with the fallen flowers.

The plant is a native of Tropical South America, and in Great Britain requires the protection of a plant stove or warm conservatory. I have not known it to produce seed under cultivation; but it may be propagated by layering, or from cuttings placed under a bell-glass; the ends of healthy, vigorous branches should be selected for the purpose of propagation, as these not only strike root best, but plants raised from cuttings flower much earlier than those increased from seeds. *H. F. Macmillan.*

NOTICES OF BOOKS.

Vegetable Culture.

This is a small volume in its third edition, which treats in a brief, though perhaps not inadequate, manner of garden vegetables. The first part discusses these in alphabetical order, and the second is a calendar of operations in equally brief fashion and to the point. The author is Mr. Trevor Monmouth, and the publisher Mr. Upcott Gill, London. Price 1s.

Garden Work for Every Day.*

This little volume treats of gardening somewhat after the manner of Abercrombie, but, unlike the productions of that fecund scribe, it is inclined to be scrappy. At the best the method is of doubtful merit in presenting the pleasures and profits of gardening; it necessarily involves unprofitable repetition, and, as it seems to be the case in this volume, when more than one writer is employed in its production there is a perplexing diversity in the directions. Apart from these almost inevitable flaws the volume contains much useful information, conveyed in plain and easily understood language. A large number of cuts add to the educative value of the book.

Successful Gardening.†

This manual of gardening is now generally well known, and in this new edition we find many new writers and new articles. As a cheap review of everyday gardening it is first-rate, and on comparison with the first or earlier editions it will be found to have been almost entirely rewritten and the old items extended. The lists of varieties of the several plants treated have been suppressed, and others up to date substituted. Many new illustrations have been added, and the volume as a whole runs to three times the number of pages. If, therefore, the book as first issued was worth its money, it is clear that the present issue must be ridiculously cheap, which its purchasers will no doubt agree that it is. *R. P. B.*

PRICES OF ENGLISH TIMBER.

"Prospective work which is to be carried out by the Metropolitan Water Board on the Littleton Park Estate, Staines," writes W. D. in the *Kew Bulletin*, "necessitated the disposal of the whole of the timber growing on an area of 600 acres, which was sold by auction on February 12. The sale was particularly interesting, for it gave a good idea of the average value of the general timber growing in plantations, parks and hedgerows on well-placed estates. The volume of timber ran to approximately 111,000 cubic feet, and consisted of Oak, Ash, Elm, Horse Chestnut, Sweet Chestnut, Plane, Scots Pine, Larch, Spruce, Beech, etc., the first three kinds predominating. It may be said to be typical of the timber found on many estates throughout the country, some, more particularly the Ash, being of good quality, others being medium, and a fair percentage medium to poor, amongst the latter being aged, rough or immature trees. By a comparison of maximum and minimum prices a good indication is given of the difference in quality of the various lots. The estate is favourably situated for the removal of timber, for it is within one mile of one railway station, two miles of two others, is near a river wharf, and is but 15 miles from London. Moreover, nine months are allowed for the removal of the timber and facilities are granted for its partial working on the ground. Oak ran to about 54,000 feet and consisted of all classes of trees, from well-grown clean specimens containing between 60 and 110 feet of timber, to rough hedgerow trees of 20 to 40 feet, and a considerable number of small trees containing less than 20 feet each. About 18,639 cubic feet of Ash realised the best prices of the sale, and the general quality was more consistent than that of other kinds. Of 24,378 feet of Elm offered a good deal was small and prices generally were low. Horse Chestnut was in demand and sold well, and the same may be said of Plane. About 1,500 feet of Beech in several lots created little excitement, and neither lot secured a good price. Larch, Spruce and Scots Pine together were estimated to yield 4,319 feet, and all was knocked down below the average price. In a few cases the trees had been felled, but this fact did not appear to affect the prices to any appreciable extent.

"Taking the sale throughout the timber averaged about 11d. a cubic foot, omitting fractions, and the prices of individual kinds per cubic foot are given below. In each case small fractions are omitted :—

Variety of Timber.	Average price.	Maximum price.	Minimum price.	Remarks.
	s. d.	s. d.	s. d.	
Oak	10½	1 11½	4½	Young and rough trees seriously affected the average price.
Ash	1 9	3 0	11¾	Although the maximum price only once exceeded 2s. 5d., it only dropped below 1s. twice.
Elm	5¾	10½	2½	There was a considerable amount of small timber.
Horse Chestnut	1 2¾	1 11	1 0½	Appeared to be in good demand.
Plane	1 1½	1 4	1 0	A few buyers were eager to purchase.
Sweet Chestnut	8	1 3½	7	—
Beech	7½	1 0¾	4½	—
Scots Pine, Spruce and Larch	2¾	9½	1¾	The highest price was obtained for one lot composed chiefly of Larch.

HOME CORRESPONDENCE.

The Future of the N.E.H.S.—It is to be hoped that some portion of Mr. Bernard Hall's suggestions (p. 70) may yet be carried out. I allude more particularly to the fixing of a site for an experimental garden, or, if preferred, Northern school of horticulture—in Yorkshire. Something of this character was in view three years ago, when the discussion took place in the *Yorkshire Post* which gave birth to the N.E.H.S. I mention Yorkshire in particular as the best site, seeing there is already a good base in the excellent horticultural work done at Garforth and other places by the officials connected with the University, Leeds. I take it for granted that in any future developments the same authority would have a leading part. The Council of the N.E.H.S. would, of course, have their share, seeing that amongst its members are many of those most interested. No doubt the two authorities could get support from the Board of Agriculture and Horticulture or Development Board for a well-conceived plan of operations. None of the other public authorities connected with northern counties have so far done so much work on horticultural lines as Yorkshire has. Mr. Hall's suggestions as to a model rock garden can well wait, unless some person or persons will defray the cost. No doubt there is much interest shown in Rockeries nowadays. The same remark can fitly be applied to Rose gardens, hardy plant gardens and school gardens. His comparisons to the R.H.S. Hall and Garden are scarcely appropriate, seeing that the Society had been in existence a century before it came into its own fully. All the same it would be a misfortune to northern horticulture were the good work done already not followed up. The main obstacle has been its attack of mental indigestion. Let us hope that Mr. Hall's aphorism, namely, progress comes from suffering, may ere long make the N.E.H.S. strong and well. The concluding note as to lack of sympathy and help from adjoining counties somewhat confirms the ideas of some of us at the outset, that it would have been wiser to have retained its first name —Yorkshire Horticultural Society.—*Yorkshire Gardener.*

Disease in Peas (see pp. 21, 89).—I was interested to read the communication from "Correspondent" about disease in culinary Peas, and would be glad if you will allow me to use your paper as a means of getting in touch with Pea growers in different parts of the country. The diseases of culinary Peas are numerous, and seem to be getting more prevalent, and as I am making a special study of a bacterial disease of Pea which is causing considerable damage, I should be glad to examine any specimens of diseased Pea plants forwarded to me at the John Innes Horticultural Institution, Mostyn Road, Merton, Surrey. The specimens should be packed quite fresh, and the whole plant, including the roots, if possible, should be sent. Some of the symptoms described by your correspondent undoubtedly show that part of the trouble is due to bacteria, which require a warm temperature to develop rapidly. Hence early sowing should be practised to ensure the Pea plants being well established and growing rapidly before the attack becomes severe. *D. M. Cayley.*

How Plants are Named.—"Eavesdropper" (see p. 89) is obviously an optimist of the kind that does incalculable harm by maintaining that all things official and accepted are perfect and infallible. Let him go to Kew and look at the "collections of living plants maintained to enable them to identify plants," and he will find among Irises alone (1) an albino I. germanica exhibited as "I. pallida Princess of Wales"; (2) I. Monnieri as a Cretan plant, though the author of its name expressly says that it came from the garden of one Lemonnier at Versailles, and although Sieber's Cretan specimens are I. pseudacorus; (3) I. Kæmpferi grown as I. lævigata; (4) a variety of I. lævigata grown under the name of I. albopurpurea: (5) I. flavescens exhibited as a Caucasus plant, though it is a garden hybrid, and though the true Caucasus plant is also grown at Kew but under the name of I. obtusifolia, which was given at Kew, when all the time Lindley's name of I. imbricata was in existence; (6) I. tenax confused with I. Douglasiana. These are only a few of the errors that Kew seems doomed to spread and perpetuate by the inadequacy of its small trained staff to deal with what is probably the richest botanical collection in the world. *W. R. Dykes.*

Strawberry Propagation.—As an appreciative reader of your journal I may, perhaps, be allowed to offer the following remarks. As a boy I can well remember having to water the Strawberry plants layered as advised on p. 90. In those days I had hoped to find an easier way of raising these plants, and for some years I have practised the following method :—I prepare a bed of fine soil mixed with plenty of leaf-mould in a half-shaded position. Having made it firm by treading, I dibble in the young plantlets from 4 to 6 inches apart straight from the beds, leaving about 1½ inch of the sarmentum attached to keep them steady when being watered. The advantages of the method are, (1) runners may be taken from the most fruitful and healthy

* *Garden Work for Every Day.* Illustrated. By H. H. Thomas. (London: Cassell and Co.) Price 1s.

† *Clay's Successful Gardening.* By Professional, Amateur and Market Grower. (London: Clay and Son.) Fifth Edition. Price 1s.

plants very early in the season; (2) a saving of time in watering, preparing the soil and the pots; (3) the runners may be dipped in a specific to destroy insect or fungous pests before they are planted; (4) the roots, not being restricted, grow in a natural way straight from the crown of the plant; (5) should their planting-out be delayed by unfavourable weather or other causes, the young plants will not suffer as these in pots. As to catch crops between the newly-planted border, Onions and Shallots are suitable. Plenty of light and air are essential to healthy plants and good flavoured fruit, and it would be interesting to hear from growers who protect their fruit from birds with muslin in preference to netting. I prefer President to British Queen, notwithstanding the latter is the better cropper. Royal Sovereign is not nearly so good here as in gardens in southern counties. Elton Pine I would place before Given's Late Prolific. Louis Gauthier is the most vigorous and heavy cropping variety I know. When I saw it in Middlesex the fruit was white, but here it is tinged with pink; the flavour is good. Our next in vigour and productiveness is The Laxton, which took some years to get accustomed to our heavy, clayey loam. *John Edwards, Sylfaen Gardens, Welshpool.*

Fig. 44.—the red sunflower.
(R.H.S. Award of Merit, July 29, 1913.)

Poterium obtusatum.—The few species of Poterium hitherto cultivated have been of little horticultural value, and the genus is one from which little has been expected. This new Japanese species, however, is a noteworthy exception, and no more attractive border plant has been introduced for many years. P. obtusatum in habit of growth differs but little from P. sanguisorba, but the flower scapes are of a delightful shade of carmine pink—a tint most uncommon in herbaceous plants. It is a continuous blooming plant, throwing up several relays of leafy flower-stems during summer and autumn. The flower-stems reach the height of about 4 feet, are much branched, slender, and, if skilfully staked, present a charming and graceful picture. For the herbaceous border or for large groups this plant will take a prominent place. It flowered for the first time in this country in 1910, in the nurseries of Messrs. Barr and Sons, who are to be congratulated on introducing a plant of so much merit. The stock, I am informed, is still small, but no doubt it will soon be available in quantity, and at a price which will permit of extensive planting. *T. Hay, Superintendent, Greenwich Park.*

Late Flowering Iris.—We are sending you herewith a few blooms of an Iris now in flower with us. The variety is Mrs. Alan Gray, and is one of the many beautiful hybrids raised by the late Sir Michael Foster. It is not uncommon for some of the varieties of Iris germanica to throw an occasional bloom in late summer, but we have noticed in regard to this variety ever since it has been in our nursery that it flowers regularly twice a year, not here and there a spike, but nearly every plant. We have a bed containing some five or six hundred plants, and the effect at the present time is quite beautiful. *R. Wallace and Co., Colchester.*

Early Cultivation of Grapes for Market.—I was much interested to read in your last issue of the progress of Mr. Geo. Monro's business at Covent Garden, but there is one point in his address to his guests which is an error, and I am quite sure he will be glad if I correct it. He said, "The first person to undertake the growing of Grapes for market on serious lines was Mr. William Thomson, of Clovenfords." This is not so, as Mr. Joseph Meredith, of Garston Vineyards, Liverpool, was flourishing in business on the same lines long before Clovenfords was bought for a vineyard. I may say that Mr. Meredith, when a boy, was employed on a brickfield and attended the village church. The vicar gave him some employment in his garden for some time, and later took him to the late Mr. G. Fleming, of Trentham, and paid Mr. Fleming a premium to employ him in the gardens and prepare him for a good position. He remained there for several years, and then took charge of a place in Gloucestershire, and afterwards removed to Cliveden, and later to Liscard. Whilst at Liscard he purchased the land at Garston. He told me he was assisted by Mr. Littledale in developing the land as a vineyard, where he grew Pines, Grapes, Peaches, Nectarines, Melons, and Cucumbers for sale either to private people direct or to retailers. For some time he flourished beyond all expectation, and had he continued to stick tight to business he would have flourished until the end. He exhibited at all the leading shows, not only in this country but also on the Continent, and had the honour of presenting to many royal personages some of his produce, for which he held flattering letters and diplomas of which he felt justly proud. This is well known to the gardening fraternity of that time. I shall never forget the first time I saw his place, particularly his house of Muscats and his so-called "elephant" house full of splendid pot vines, a sight worth remembering by any young gardener. In 1869 I left Trentham to take charge of Kellermont Gardens and grounds, Glasgow. At that time Clovenfords was in its infancy, and in 1871, through a death in the family, Kellermont was closed. I visited a number of the leading places in Scotland, including Clovenfords, and found it rapidly developing. With all fairness Mr. Joseph Meredith was the pioneer of Grape-growing for market purposes in this country, and Mr. Thomson followed in his footsteps. *J. Ollerhead, Wimbledon.*

THE RED SUNFLOWER.

The Red Sunflower, exhibited by Messrs. Sutton and Sons at the last meeting of the Royal Horticultural Society, and illustrated in Fig. 44, shows a remarkable colour variation in Helianthus, and promises to provide a splendid new plant for the hardy flower border.

It is the result of a cross made between Helianthus annuus (the common annual yellow Sunflower) and Helianthus lenticularis (a wild Sunflower of North America) by Professor Cockerell, of Boulder University, Colorado, who handed over his stock to Messrs. Sutton and Sons for development. The colour of the band on the floral segments is a chestnut brown.

Prof. Cockerell has continued his work with the flower, and is said to have produced another hybrid of a brighter tone.

Publications Received. — ***University of Cambridge School of Forestry: Second Progress Report on Timber Research Work,*** by E. Russell Burdon, M.A., and A. P. Long, B.A. (Cambridge: Printed at University Press.)

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

July 29.—*Present:* Mr. E. A. Bowles, M.A., F.E.S. (in the chair), Sir J. T. D. Llewelyn, Prof. Boulger, Messrs. Fraser, Shea, Odell, Hales, Hooper, Bennet-Poë, Hooper Pearson, Fawcett, Holmes, Cotton, Rolfe, and Chittenden (hon. sec.).

Plum-boring Moth.—Mr. E. M. Holmes showed examples of the work of the larvæ of this moth, and commented upon the damage done and the differences he had observed (particularly in the amount of spotting) in the larvæ in life and as described.

Hybrid Pelargoniums.—Mr. A. Langley Smith showed a number of variations obtained from self-fertilising the plant obtained as a result of crossing P. crispum with an old hybrid fancy called the Shah, and by recrossing the forms among themselves. A summary of the results will be published in the *Journal* of the Society.

LEAMINGTON AND COUNTY HORTICULTURAL.

(*Concluded from page 96.*)

Sweet Peas.

The most important Sweet Pea class was one for a display of flowers to occupy a space of 20 feet by 4 feet. There were only two exhibits, but both of them contained flowers of great merit. The 1st prize was won by Mr. T. Jones, Ruabon, whose display was much admired. Many of the varieties were arranged in big bunches at irregular heights, relief being afforded by sprays of Asparagus and Smilax. The varieties of outstanding merit were Dobbie's Lavender, R. F. Felton, Sunproof Crimson, Elfrida Pearson, Edrom Beauty, and Hercules. Messrs. Bides, of Farnham, had splendid flowers of Edith Taylor, Lady Knox, Thomas Stevenson, Prince of Wales, and Blue Bell. The 1st award in this class was a Silver Challenge Cup.

Table Decorations.

Table decorations are always a feature at Leamington. Of the 8 exhibits in the 1st class (no restriction as to the kind of flowers used), the one that pleased the judges most came from Sir George H. Kendrick, Edgbaston (gr. Mr. J. V. Macdonald), and was composed of choice Orchids and sprays of Selaginella artistically arranged. 2nd, Mr. W. T. Mattock, Headington, Oxford.

Prizes were offered by Robert Sydenham, Ltd., for table decorations limited to two colours of Sweet Peas. The 1st prize was won by Mrs. Batchelor, Hampton-in-Arden, for a very charming arrangement of pale pink Peas and sprays of Selaginella.

Plants and Cut Flowers (Amateurs).

The class for a group of plants in a space of 13 feet by 10 feet is always well contested. The 1st prize—a Silver Challenge Cup, value 10 guineas, and £6—was secured by the Misses Robinson, The Newlands, Leamington. Orchids, Gloxinias, Streptocarpus, etc., were beautifully mingled with Caladiums, Ferns and Codiæums. A rustic bridge clothed with well-coloured foliage and flowering plants was much admired. As the Misses Robinson won the Cup in 1911 and 1912, it now becomes their property; 2nd, Alfred Holt, Esq. (gr. Mr. J. Fisher); 3rd, C. C. Shaw, Esq. (gr. Mr. W. Bartlett). The last-named exhibitor was awarded 1st prizes for (1) 3 Liliums; and (2) 6 miscellaneous plants in pots not exceeding 10 inches diameter.

Frank Dennison, Esq., Cranford, Leamington, had the best exhibit of 12 Roses, distinct, with flowers of superb quality. J. Booth, Esq., Claverdon, was awarded the 1st prize for 6 Tea Roses distinct.

Fruit (Open).

In a class for 8 dishes of fruit, distinct kinds, there were two splendid exhibits. The schedule required each collection to be decorated with foliage plants, moss or cut foliage. The 1st award was gained by the Earl of Craven, Coombe Abbey (gr. Mr. H. Chandler), who had Waterloo Strawberry, Royal George Peach, Pineapple Nectarine, Black Hamburgh and Muscat of Alexandria Grapes, James Grieve Apple, Brown Turkey Fig, and a seedling Melon. The other exhibitor, Hugh Andrews, Esq., Winchcombe (gr. Mr. J. R. Tooley), introduced cut flowers among his decorations which were not required by the schedule for which reason the 2nd prize was withheld and an extra prize substituted. His Brown Turkey Figs, Pitmaston Orange Nectarine, and Black Hamburgh Grapes were meritorious. In the next class, which was for 4 dishes of fruit, distinct, the last-named exhibitor was awarded the 1st prize with a handsome collection.

The Earl of Craven won the Silver Challenge Cup, value 15 guineas, and £2 offered as 1st prize for 4 dishes of distinct kinds of fruit; 2nd, W. E. Everett, Esq., Sherbourne Hall, Leamington (gr. Mr. E. Allaway).

His Grace the Duke of Marlborough, Blenheim (gr. Mr. G. Hunter), had the best exhibit of 2 bunches of Black Grapes with well-shouldered bunches of Madresfield Court.

The Earl of Craven (gr. Mr. W. Chandler), excelled in classes for (1) 2 bunches of White Grapes with Muscat of Alexandria; (2) 6 Dessert Apples; and (3) Black Currants. Mr. P. Lucas, Esq., The Oaks, Leamington (gr. Mr. W. Wright), had the best dish of Peaches, and W. J. Gresson, Esq., Pershore (gr. Mr. T. Parry), showed the winning dish of Nectarines. The Rev. F. H. Hodgson, Clopton House, Stratford-on-Avon (gr. Mr. W. Nicholls), had the best-flavoured Melon; 2nd, Hugh Andrews, Esq. (gr. Mr. J. R. Tooley). The best 3 dishes of cooking Apples were sent by the executors of Mr. Thos. Marsh, Warwick, and the leading dish of cooking Apples came from The Manor Fruit Farm, Knowle (gr. Mr. W. Wilkins). There were 10 excellent exhibits of Red Currants. 1st, Lord Willoughby de Broke, Compton Verney, Kineton (gr. Mr. J. Lloyd). The same exhibitor took the lead in a class for Cherries. Gooseberries were represented by 11 dishes.

Vegetables (Open).

In a class for 6 kinds of Vegetables, Lord North (gr. Mr. E. R. Jones), won the 1st prize. He had handsome specimens of Perfection Tomato, Ailsa Craig Onion, and New Red Intermediate Carrot; 2nd, Mr. J. Hudson, Leicester.

The last-named exhibitor gained the 1st prize in Messrs. Sutton's class for 6 kinds of vegetables with superb A1 Tomato, Magnum Bonum Dwarf French Beans, Gladiator Potato, Centenary Marrowfat Peas, Magnum Bonum Cauliflower and Ailsa Craig Onion; 2nd, Lord North. Messrs. Webb and Sons offered prizes for 6 kinds. 1st, Hugh Andrews, Esq. (gr. Mr. J. R. Tooley), with grand Tomatos, Celery and Cauliflowers; 2nd, Mr. J. Hudson, Leicester.

Messrs. Dickson and Robinson's prizes were offered for 6 kinds. 1st, W. J. Gresson, Esq. (gr. Mr. T. Parry); 2nd, Lord North.

Non-Competitive Exhibits.

Messrs. James Carter and Co., Raynes Park, exhibited a thoroughly representative collection of vegetables beautifully arranged. (Gold Medal.) Messrs. Webb and Son, Stourbridge, also had an extensive collection of vegetables. (Gold Medal.) Mr. P. J. Perry sent floral designs. Messrs. Pipers, Bayswater, showed border flowers, aquatic and bog plants, and clipped Box bushes. (Gold Medal.) Messrs. Hewett and Co., Solihull, had a large bank of hardy flowers and Roses. (Silver-Gilt Medal.) Mr. T. Smith, Newry, sent a very interesting collection of hardy border flowers, including many rare species and varieties. (Silver-Gilt Medal.) From The Clury Nurseries, Langley, Bucks, came an artistic arrangement of Carnations. (Gold Medal.) Mr. G. W. Miller, Wisbech, sent an extensive display of hardy flowers. (Silver-Gilt Medal.) Messrs. White and Co., Worcester, had a large exhibit of hardy flowers. (Silver Medal.) Messrs. Hinton Brothers, Warwick, showed rock garden plants. (Silver Medal.) Mr. D. Leigh, Hampton-in-Arden, sent miscellaneous flowers. (Silver Medal.) Messrs. W. H. Simpson and Sons, Birmingham, exhibited Sweet Peas and Antirrhinums. (Silver Medal.) Miss Smith, Stratford-on-Avon (gr. Mr. R. T. Law), was awarded a Gold Medal for a nicely-constructed rock garden. The finest exhibit of Phloxes in the Show came from Messrs. Wells and Co., Merstham.

The Silver Challenge Cup, value 30 guineas, offered for the most meritorious exhibit not entered in any class, to occupy a space of 250 square feet, was won by Messrs. Lane and Son, Berkhamsted, whose exhibit, consisted of Grapes and Roses.

ROYAL LANCASHIRE AGRICULTURAL.

July 31-Aug. 3.—The annual exhibition under the auspices of the Royal Lancashire Agricultural Society was held at Burnley on these dates. The number of entries was slightly below the average, although the quality of the exhibits was not less good than formerly.

Four classes were provided for plants in pots, including one for a group of miscellaneous plants arranged in a space not exceeding 300 square feet.

Messrs. J. Cypher and Sons, Cheltenham, won the 1st prize with a charming group. Codiæums (Crotons) formed the apex of numerous small pyramids, the ground work of moss and ferns being furnished with Odontoglossums, Cattleyas, Ixoras, Caladiums, Humeas, and other flowering plants; 2nd, Mr. W. Holmes, Chesterfield.

For twelve stove and greenhouse plants, not fewer than seven in bloom, the leading award was again secured by Messrs. J. Cypher and Sons, with admirable plants of Croton Sunset, C. Countess, C. Warrenii, three good Kentias, Clerodendron Balfouri, Statice intermedia, S. profusa, Stephanotis floribunda, and Bougainvillea Sanderiana; 2nd, Mr. R. Simpson. Messrs. J. Cypher and Sons were the only exhibitors in the class for twelve stove or greenhouse plants in pots not exceeding ten inches, and were worthily awarded the 1st prize, and they also excelled in the class for six Orchids in not fewer than three varieties, having Disa grandiflora, Cattleya aurea, Lælia Cattleya calliostoglossa, Odontoglossum Hallio-crispum, and Cypripedium gigas; 2nd, J. Butterworth, Esq., Burnley, (gr. Mr. J. Wilson).

Mr. W. J. Garner led in the class for a table of cut flowers with fine-coloured Crotons, Ixoras, Carnations and Roses; 2nd, Mr. J. Saul, Preston.

Sweet Peas, etc.

For eighteen distinct varieties J. R. Herron, Esq., Freshfield (gr. Mr. W. Bond), had the best of five exhibits. Royal Purple, a new variety, of distinct colour, was noteworthy in this exhibit; 2nd, A. E. Troop, Esq., Blackburn (gr. Mr. R. H. Jones).

Messrs. Dickson, Brown and Tait offered prizes for twelve bunches, and Messrs. J. Byers and J. T. Proctor were placed 1st and 2nd respectively in this competition.

For twelve varieties, open to amateurs, the Rev. A. R. Tomlinson, Carnforth, excelled with fine bunches of Aggie Elder, Mrs. E. Cowdy, Royal Rose, and Doris Usher. In the class for six varieties, distinct, Mr. T. F. Portnell showed the best exhibit of 21. Mr. R. Bolton offered prizes for six varieties, and there were 23 entries. C. E. Taylor, Over Kellet, was the winner of the 1st prize.

For a collection of Tree Carnations, occupying a space of 10 feet by 5 feet, Messrs. Young and Co., Cheltenham, won with grand blooms, including a new scarlet variety named Miss Hardcastle; 2nd, Mr. W. H. Dutton, Iver.

The best hardy perennials in a group measuring 15 feet by 5 feet were shown by Messrs. E. Gibson and Co., Bedale; 2nd, Messrs. Harkness and Sons, Bedale.

For twenty-four Roses Messrs. A. Dickson and Sons won with grand blooms of George Dickson, Mildred Grant, A. K. Williams, H. V. Machin, and others; 2nd, E. F. Harrison, Esq., Ulverstone. Messrs. A. Dickson and Sons also excelled in the class for twelve Roses, open to all growers.

In the amateurs' class for twelve Roses, G. Garnet, Esq., Lancaster, showed best of 17 entries.

Fruit.

For a collection of twelves dishes, not fewer than nine kinds, J. Brennand, Esq., Thirsk (gr. Mr. J. Hathaway), was placed first with excel-

lent bunches of Black Hamburgh, Foster's Seedling, and Madresfield Court Grapes, Bellegarde and Dymond Peaches, Humbolt Nectarines, and Royal Sovereign Melon; 2nd, G. Wilson, Esq.

For two bunches of Black Hamburghs R. A. Tatton, Esq., Clitheroe (gr. Mr. G. Marr), was placed first. Mr. Tatton also showed the best two bunches of any other black Grape. Mr. G. Wilson showed the best Muscat of Alexandria Grapes, and Mr. J. E. Newman the premier bunches of any other white Grapes with Foster's Seedling.

J. Brennand, Esq., had the best scarlet-fleshed melon, and R. A. Tatton the best white or green-fleshed Melon.

J. Brennand, Esq., led in the classes for Peaches, Nectarines, Apples, and Pears.

Vegetables.

For a collection of nine kinds, the Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. E. Beckett), led with magnificent produce; 2nd, T. Henshaw, Roby (gr. Mr. J. George).

In Messrs. Sutton and Sons' class for a collection of six kinds, E. R. Dickson-Nuttall, Esq., Prescot (gr. Mr. J. W. Barker), won the premier award.

In Messrs. E. Webb and Sons' class for a collection of six kinds, J. E. Battersby, Esq., Blackburn, was successful.

Messrs. Clibrans offered prizes in a class for a collection of eight kinds, and Mr. Battersby was again successful.

Non-Competitive Exhibits.

Messrs. Sutton and Sons, Reading, planted flower beds on either side of the entrance to their pavilion with Gloxinias and Begonias of their fine strains, and they also showed Melons and Sweet Peas.

Messrs. Dickson and Robinson, Manchester, showed vegetables, including nearly fifty varieties of Peas. (Gold Medal.)

Messrs. E. W. King and Co., Coggeshall, showed Sweet Peas. (Gold Medal.)

Messrs. Dickson, Brown and Tait were awarded a Gold Medal for Gladioli.

Messrs. A. Dickson and Sons, Newtownards, staged Roses. (Gold Medal.)

Silver Medals were awarded to Messrs. S. R. Compton and Sons for Violas and Pansies; Mr. S. Broadhead for a rockery exhibit; Mr. E. A. Le G. Starkie for stove and greenhouse plants; Messrs. Caldwell and Sons, Knutsford, for hardy flowers and Roses; and Mr. H. N. Ellison for Ferns.

Bronze Medals were awarded to Mrs. Hodgkins and Mr. W. Edwards.

Messrs. Dobbies and Co., Edinburgh, showed hardy flowers in variety.

Messrs. Dicksons exhibited Liliums, Gladioli, and other hardy flowers.

ROYAL ENGLISH ARBORICULTURAL.

Northumberland and Durham Branch.

July 5.—The annual summer meeting of the Northumberland and Durham Branch of the Royal English Arboricultural Society was held, by permission of the owner, Mr. Hector Christie, on the Jervaulx Abbey Estate, when a special forestry demonstration was given by Mr. J. F. Annand, of Armstrong College, Newcastle-on-Tyne, Adviser in Forestry for the Six Northern Counties, and his chief assistant, Mr. J. McLaren. The party numbered nearly 50, and were received by the agent, Mr. John Maughan, and his assistant, Mr. J. W. Mackay.

The following report of the proceedings appears in *The Darlington and Stockton Times*:—

Prominent attention has been drawn to the forestry operations on this estate by the successes obtained in the plantation competitions held in connection with the Royal Show at York last year. Previous to the purchase of the estate by the late Lord Masham in 1887 the Jervaulx Woods were managed purely with a view to æsthetic effect. A better system was then introduced, and the woods now form an excellent object-lesson in modern forestry. They are treated in two classes, those in which it is sought by the application of purely sylvicultural and commercial principles to obtain the most profitable crops of timber, and those devoted mainly to sporting purposes, the shelter of agricultural lands, and scenic effect.

Japanese Larch in Witton Fell.

The first plantation visited was a compartment of Japanese Larch on Witton Fell, three acres in extent, which was awarded the Silver Medal of the Royal Agricultural Society in the class for Exotic Conifers, and it is believed to be the finest of its kind in this country. The soil is a deep light loam on the millstone grit formation, and the altitude 850 feet. Attention was drawn to the fact that while young plantations of the European species on other parts of the estate are suffering more or less from stem canker, there is no sign of such disease here. The trees are growing vigorously, and special notice was taken of the excellent condition of the surface soil and the perfect canopy attained. Japanese Larch in this locality gives great promise of producing a valuable crop of timber, and in its younger stages the Japanese Larch is much superior to the European Larch as a soil improver. The adjoining compartment, consisting of a mixture of Scots Pine, Tyrolese Larch, and Silesian Larch, was next inspected. Canopy was formed somewhat more slowly in this plot than in the former, but the trees are very healthy, and the Larches comparatively free from canker. The Silesian Larch appears to be a much more vigorous grower at this stage than the Tyrolese. A newly planted area on a steep slope at an altitude of 950 feet to 1,000 feet was next visited. The trees used there are European Larch, raised from Scotch seed, and Corsican Pine, in alternate lines. Mr. Maughan's opinion is that although European Larch cannot be depended upon as a pure crop, it would be a mistake to give it up altogether, as, if it does succeed, it is such a profitable crop. If Larch does not become the final crop, there should be at least a proportion of healthy stems as a result of its association with the soil-improving Corsican Pine. Passing thence to the old wood on Witton Fell, planted about 100 years ago, at an altitude of from 800 feet to 1,200 feet, it was found that at the higher elevation the Scots Pine has reached a height of 50 feet, and has attained to good dimensions, but judging from the size of the Larch and Spruce it was suggested that these two species would probably have produced a heavier, and perhaps a more valuable, crop. At high altitudes Scots Pine often suffers from snow-break. The Beech had also attained to large dimensions, and it was considered that this species might have been introduced as pure groups with the Conifers, to the great advantage of the latter. At Thirsting Castle and Lamb Hill some very fine Larch, about 90 years old, were seen. Some of the largest trees growing here at an elevation of about 800 feet have a volume of from 150 to 200 cubic feet per tree, and it was understood that Larch timber from this part of the estate was always found to be perfectly sound, and the trees are still making considerable increment.

Grey Yaud Woods.

In the woods at Grey Yaud, at an altitude of about 1,000 feet, Mr. Maughan has laid down three fine experimental plots of Corsican Pine, Scots Pine, and Spruce, which were awarded a Bronze Medal in last year's competitions. The soil here is deep and light, and highly suitable for Pines. On the other hand, the altitude is high and the exposure severe, so that the Scots Pine may not give quite such good results as Spruce or Corsican Pine. The cooler atmosphere and the heavier rainfall are conditions suitable for Spruce. These woods should, therefore, be in the future a valuable object-lesson. They were laid down side by side in practically-identical conditions as to soil, and the future should show which species is capable of producing the heaviest and the most valuable crop of timber. The Adviser in Forestry expressed the opinion that the Corsican Pine would very likely prove to be much the better tree in the end. It is a much slower growth for the first few years than the Scots Pine, but the general experience is that it afterwards catches up to it, and maintains vigorous height growth for a longer period. The Spruce plot is now 16 years old, and the trees have established complete canopy, the average height of the dominant stems being 21 feet.

Mr. Annand suggested that planting distance was a question on which there was now such differences of opinion that it was a fit subject for experiment. Although he personally preferred close planting, there was no doubt that money might be needlessly spent on too close planting. Another point was the time and extent to which thinning should be carried out, and this wood provided favourable opportunities for experiments in that direction. Mr. Maughan thought that Scots Pine required closer planting than Spruce, as the latter clean themselves more readily.

The Estate Nursery.

A very interesting half-hour was spent in the estate nursery, which gained the Silver Medal in the competition for nurseries over one acre in extent, and Sandy Flat Plantation, which was awarded the Silver Medal of the Royal Agricultural Society in its class, was shown to the party on the way to the station. Here Mr. Annand raised the question of the advisability of pruning. The cost of pruning this plantation, it was stated, was 10s. per acre, which at the end of 80 years at 3 per cent. compound interest represented a sum of £2 3s. 8d. per acre. The question whether the improvement in the quality of the timber as a result of this operation would be such as to command a sufficiently higher price to make the outlay profitable needed careful investigation. Many arguments might be used for and against pruning. Pruning the whole of the stems was fairly costly. To select, say, 300 of the best stems for special pruning treatment, and leave all the others untouched, would save expenditure, and the unpruned trees would better serve the function of soil shading.

MIDLAND CARNATION AND PICOTEE.

July 30, 31,—This society's annual show was held at the Botanical Gardens, Edgbaston, on the above dates in delightfully fine weather, and attracted a good number of visitors on both days. The weather has been very trying to Carnations in the Midland counties, for which reason self-coloured varieties were below their usual standard of excellence, but yellow-ground fancies left little to be desired. The flowers shown naturally in vases with buds and foliage associated with them found many admirers among the flower-loving public not familiar with the "points" added by the aid of tweezers to dressed flowers. Nevertheless, the Carnation flowers shown with neat white paper collars on boards delighted the heart of the old-fashioned florist. With the exception of two exhibitors, Messrs. Mathias and Morton, from the South, all the Carnation competitors were Midland growers. Competition in the amateur classes was very satisfactory.

Sweet Peas of excellent quality and in great quantity were exhibited in the classes in which handsome prizes were offered by Robert Sydenham, Ltd. They made a show in themselves. A vote of condolence was passed with the relatives of the late Mr. Robert Sydenham, one of the founders and a good friend of the Midland Carnation Society, of which body he was chairman at the time of his lamented decease.

First Division (Open).
Flowers Shown on Cards.

Twelve Self Carnations.—1st, Mr. Hayward Mathias, Medstead, with a very even lot of flowers, in which the undermentioned varieties were meritorious: Titan, Daffodil, Mrs. G. Marshall, Etna, Crystal, Lilian and Elizabeth Shiffner. 2nd, Messrs. A. R. Brown, Ltd., King's Norton.

Twelve Fancy Carnations.—Mr. Hayward Mathias secured the 1st prize with shapely specimens of Lord Steyne, Linkman, Mrs. Leo Hunter, Devonian, Vandyck, D. O. Connor, Hercules, Skirmisher, Hecla, Pasquin, Bombardier, and Erl King. 2nd, Mr. A. W. Jones, Yardley, whose exhibit included large, fresh blooms of Linkman (Premier).

Twelve Yellow-ground Picotees.—Here again Mr. Hayward Mathias had the winning exhibit with clean, refined flowers of the following varieties: Togo, Esquisite (Premier), Alpha, Gloria, Puck, F. W. Goodfellow, Beta, Santa Claus, Corona, Dago, Jewel, and Gamma. 2nd, Messrs. A. R. Brown, Ltd.

Twelve White-ground Picotees.—Mr. C. H. Herbert won the 1st prize with grand blooms of the following varieties: Mrs. F. W. Twist, Mrs. Hammond, Ganymede (Premier), Fortrose, Mrs.

Gorton, Amy Robsart, Lady Sybil, Mrs. Openshaw, Beatie, Favourite, Mrs. Sharp, and Thos. William. 2nd, Mr. C. F. Thurston.

Twelve Flake or Bizarre Carnations. — The last-named exhibitor was placed 1st in this class with superb flowers of Master Fred, Gordon Lewis (Premier), Rowena, Cleopatra, Sportsman, J. S. Hedderley, Flamingo, Claude Lorraine, Mrs. T. Lord, Ophelia (Premier), Merton, and Robert Houlgrave. 2nd, Mr. C. H. Herbert.

Flowers Shown in Vases without Cards. Blooms Staged in Threes.

Six varieties were required in each of the four following classes. No wires except a mere support, which must not come beyond the base of the calyx, no paper collars, and no splitting or turning back of the calyx allowed. Carnation buds and foliage only permissible.

Self Carnations.—The 1st prize was won by Mr. Hayward Mathias. The varieties exhibited were: Titan, Wyatt, Sunproof Scarlet, Daffodil, Elizabeth Shiffner, and Mrs. G. Marshall. 2nd, Messrs. A. R. Brown, Ltd., who had splendid blooms of Mrs. C. Marshall alba and Britannia. 3rd, Mr. C. H. Herbert.

Fancy Carnations.—All the six exhibits in this class were excellent. 1st, Messrs. A. R. Brown, Ltd., with exquisite flowers of Becky Sharp, Forester, Skirmisher, Lord Steyne, John Ridd, and Linkman. 2nd, Mr. Hayward Mathias, with Queen Eleanor, Hercules, Pasquin, Father O'Flynn, Linkman, and Lord Steyne.

Yellow-ground Picotees.—1st, Mr. Hayward Mathias, with handsome specimens of Togo, Libra, Ariel, Santa Claus, Dago, and Exquisite. 2nd, Messrs. A. R. Brown, Ltd.

White-ground Picotees.—1st, Messrs. A. R. Brown, Ltd., with rather small but good quality flowers of the following varieties: Dorothy, Janet, Lavinia, Edmond Shorthouse, Mrs. Cooper, and Myra. 2nd, Mr. Hayward Mathias.

Second Division (Amateurs).

There was spirited competition in the classes reserved for amateurs, flowers shown on stands.

Six Self Carnations, dissimilar.—Mr. Robert Morton, Woodside Park, London, beat ten contestants. He showed unusually large, substantial flowers of Daffodil, Etna, Elizabeth Shiffner, Rosy Morn, Attraction, and Miss Willmott. 2nd, Mr. W. H. Parton, Moseley, whose specimens of Hadzor, John Knox, and Furthest North were very fine.

Six Fancy Carnations, dissimilar.—The 1st prize in this class was won by Mr. A. H. Birchley, Bournville. He had grand flowers of Linkman, Hercules, Queen Eleanor, John Ridd, Sam Weller, and Billy Barlow. 2nd, Mr. F. Bayliss, whose blooms of Linkman and Forester were noteworthy.

Six Yellow-ground Picotees, dissimilar.—The last-named exhibitor excelled in this class. His flowers were large, fresh, and of good form. The varieties exhibited were Margaret Lennox, John Ruskin, Onward, Togo, Gloria, and Mrs. J. J. Keen. 2nd, Mr. G. D. Ford, Acocks Green, who had excellent blooms of Gloria, Togo, and John Ruskin.

Six white ground Picotees, dissimilar.—The Rev. C. A. Gottwaltz, Hadzor Presbytery, Droitwich, was placed first in this class with rather small but refined flowers of Pride of Leyton, Lottie, Dorothy, Agnes Helen, Thos. William, and Lady Sybil. The 2nd prize was gained by Mr. G. D. Ford, Acocks Green, for a very handsome set of flowers.

Six Flake or Bizarre Carnations, dissimilar.—Two local exhibitors, Mr. E. J. Price, Bournville, and Mr. R. Bruce Waite, Harborne, were placed as named. Included in the 1st prize stand were splendid blooms of Gordon Lewis, Master Fred and Peter Pan.

Flowers Shown in Trebles (Amateurs).

Mr. Robert Morton was successful in a class for Self Carnations. His flowers of Rosy Morn, Elizabeth Shiffner and Etna were much admired; 2nd, Mr. E. J. Price, who had exquisite flowers of Solfaterra.

Mr. R. Morton again led in the next class, which was for yellow-ground Picotees. His vase of John Ruskin was particularly good; 2nd, Mr. W. H. Parton.

The last-named exhibitor had the best of ten exhibits in the class for Fancy Carnations; 2nd, Mr. R. Morton.

The best white ground Picotees came from the Rev. C. A. Gottwaltz, who had Margaret, Dorothy and Agnes Helen in superb condition; 2nd, Mr. E. J. Price.

Third Division.

Nine classes, i.e., three for flowers on boards and six for flowers in vases, were reserved for amateurs who do not grow more than 300 plants, who do not employ a gardener regularly, nor advertise plants for sale. The most successful exhibitors were:—Mr. J. Goody, Handsworth; Mr. F. E. Holland, Bearwood; Mr. P. J. Brookes, Bearwood; and Mr. R. Bruce Waite, Harborne.

Premier Flowers (Dressed).

Bizarre Ophelia, shown by Mr. C. F. Thurston; Flake Gordon Lewis, shown by Mr. C. F. Thurston; Heavy-edged white-ground Picotee Ganymede, shown by Mr. C. H. Herbert; Light or wire-edged white-ground Picotee Fair Maiden, shown by Mr. E. J. Price; Heavy-edged yellow-ground Picotee Dago, shown by Mr. Hayward Mathias; Light-edged yellow-ground Picotee Exquisite, shown by Mr. Hayward Mathias; yellow-ground Fancy Linkman, shown by Mr. A. W. Jones; Self Titan, shown by Mr. F. W. Goodfellow.

Premier Flowers Shown in Vases.

Self Furthest North, shown by Mr. W. H. Parton; Fancy Linkman, shown by Mr. F. W. Goodfellow; yellow-ground Picotee John Ruskin, shown by Mr. Robert Morton; white-ground Picotee Fair Maiden, shown by Mr. E. J. Price.

First-Class Certificates.

Picotee Dago.—A heavy red-edged, yellow-ground variety.

Picotee Jewel. — A yellow-ground Picotee marked with rosy scarlet.

Both shown by Mr. Hayward Mathias.

Winners of Medals.

The Silver Medal offered to the most successful exhibitor in the First Division was won by Mr. Hayward Mathias with 172 points. Messrs. A. R. Brown, Ltd., secured the Bronze Medal with 150 points. Mr. Robert Morton was awarded the Silver Medal, offered in the Second Division, with 89 points. The Bronze Medal was won by Mr. G. D. Ford with 56 points. The above medals were given by the Birmingham Botanical and Horticultural Society.

The W. Waters Butler Silver Medal, offered to the most successful exhibitor in the Third Division, was won by Mr. A. Goody with 68 points.

The "Carnation Brown" Medal, offered to the most successful exhibitor in the novice classes, was awarded to Mr. T. M. Tranter, who gained 52 points.

Sweet Peas.

Sweet Peas occupied nearly the whole of the sunken part of the Exhibition Hall. The vase classes were arranged along the sides of the "well," and the decorated tables on the remaining floor space. The prizes were offered by Robert Sydenham, Ltd.

There were ten competitors in a class for 12 varieties. The 1st prize was well won by Mr. Thomas Jones, Ruabon, whose handsome flowers—four on a stem—were unusually large, and possessed of great substance; 2nd, Mr. J. Haycock, Wrexham.

Mr. R. E. Fowler, Bournville, excelled in a class for six varieties, reserved for local growers; 2nd, Mr. James Dorell, Acocks Green. The class for decorated tables, 6 feet by 3 feet, was a good one, and although the exhibitors followed the usual style of arrangement, the effect as a whole was very pleasing. 1st, Miss F. Jenks, Codsall; 2nd, Mr. E. Deakin, Hay Hall.

Honorary Exhibits.

Messrs. Gunn and Sons, Olton, exhibited a collection of Roses (Gold Medal); Messrs. W. H. Simpson and Sons, Birmingham, display of Antirrhinums, Sweet Peas, and Gilia coronopifolia (Silver-Gilt Medal); Robert Sydenham, Ltd., Birmingham, Sundries, and Messrs. A. Welham and Son, Bridgnorth, Annuals.

BISHOP'S WALTHAM HORTICULTURAL.

July 16.—The thirty-ninth annual show of the above society was held in Swanmore Park, an ideal place for the holding of a flower show. On the whole, the entries were fewer, but the quality of the exhibits was good, and the show was a success. The sum of £5 was offered for the best decorated table, 6 feet by 3 feet, orchids excluded. Five contested, and the first prize was awarded for an arrangement of Rose Mrs. Alfred Tate in a low bowl centre piece, with corner vases filled with buds and blossoms associated with trails of Selaginella, tinted Rose foliage and Asparagus Sprengeri. The exhibitor was Miss Gertrude Saunders, Crumpherne, Fareham. The 2nd prize was awarded for a low arrangement of Irish Elegance Rose, most effectively arranged by Mrs. Edgar M. Burnett, Holly Lodge, Westwood Road, Southampton.

For a decorated dinner table of Orchids with any natural foliage, Miss Saunders was again successful with a low silver bowl and corner vases filled with Odontoglossums, Cattleyas, Oncidiums, with splashes here and there of Odontiodas and suitable greenery; 2nd, Miss Taylor, Bemerton Rectory, Salisbury.

For a similar-sized table arranged with Sweet Peas, Miss F. M. Molyneux, Swanmore Farm, excelled with Melba, effectively arranged in two low silver bowls and four small silver trumpet vases filled with suitable foliage; 2nd, Mrs. A. Bide, with mauve and pink flowers.

For the best arranged vase, Mrs. Burnett won the 1st prize with Rose Mme. Melanie Soupert, interspersed with young Rose shoots.

Mrs. Burnett, with a daintily-arranged exhibit of Lady Pirrie Rose, won the 1st prize in the class for a basket of flowers; 2nd, Mr. G. Ellwood, Swanmore Park, with a light arrangement of Bougainvillea, Gloriosa and Orchids.

Miss G. Saunders had the best vase of Carnations, and staged good blooms of R. F. Felton; 2nd, Mr. Ellwood. Miss Taylor, with the variety Barbara, won the 1st prize offered for a vase of Sweet Peas. Exhibits of bowls of Roses were numerous and good. Mrs. Bide, with the varieties Lady Pirrie and Lyon, was easily 1st; 2nd, Miss Molyneux, with Lady Hillingdon.

Roses were an important feature of the show. For six bunches, distinct, W. H. Myers, Esq., Swanmore House (gr. Mr. G. Ellwood), secured the leading place with good blooms of Liberty, Mme. A. Chatenay, and Kaiserin Augusta Victoria; 2nd, Miss Bashford.

Fruit was not shown largely, but the quality of the few exhibits staged was good. For a collection of four kinds Mr. Myers was placed 1st with Melon, Peaches, Figs, and Strawberries; he also won in the class for four dishes of fruit grown in the open. Cottagers contributed excellent Currants, Gooseberries, and Raspberries.

Vegetables made a fine display. Mr. Myers was unassailable in Messrs. Toogood's, Sutton's, Carter's, and Webb's classes, all of which were for six dishes. Mrs. Macrae was placed 2nd in each of these classes.

Mr. E. J. Wootten, Fair Oak, Eastleigh, had a fine exhibit of Carnations.

HAYWARDS HEATH HORTICULTURAL.

July 23.—The summer show of this society, held on the foregoing date in the Victoria Park, was a great success. There were a large number of exhibitors, and the plants shown attained to a high standard of excellence. Several of the leading nurserymen sent large exhibits of a highly decorative character, and Roses were especially well shown. In the class for cut Roses and herbaceous plants Messrs. J. Box, Lindfield, were successful in winning the Gold Medal, and they also gained a similar award for Sweet Peas. Some very creditable exhibits of hardy perennials were shown, the Rev. T. J. Wyatt (gr. Mr. Shirley) being the winner of the 1st prize, a Silver Cup. The Silver Cup for a table of fruit was awarded to W. A. Sturdy, Esq., of Lindfield; and for tables decorated with flowers Miss Prendegast Vereker, of Haywards Heath, won the 1st prize, her table being prettily dressed with climbing Roses. The Silver Cup for a collection of vegetables (given by Messrs. Sutton and Sons) was

awarded to L. E. Smith, Esq., of Handcross (gr. Mr. Manton), and this exhibitor also gained Messrs. Cheal's prize in a similar competition. Messrs. W. Wood and Sons, Ltd., gave the prizes for a competition for six bunches of climbing Roses in vases.

DUMFRIES SWEET PEA AND ROSE.

July 26.—A successful Sweet Pea and Rose show, organised by the *Courier and Herald* newspaper, was held in the Drill Hall, Dumfries, on this date. Lady M'Innes Shaw opened the show. Trade exhibits were of high quality. Messrs. Dobbie and Co., Edinburgh, exhibited Sweet Peas (Silver Cup); Messrs. Fairbairn and Sons, Carlisle, Sweet Peas and other flowers (Gold Medal); Messrs. T. Kennedy and Co., Dumfries, Sweet Peas (Silver Medal); Messrs. Barr and Hunter, Dumfries, plants; Mr. W. Smellie, Busby, Violas and Pansies; and Mr. H. Eckford, Sweet Peas. The exhibits of Sweet Peas in the competitive classes were of splendid quality. In the open class Mr. J. Smellie, Busby, was awarded the 1st prize. The silver cup offered for a display of Sweet Peas was won by T. Rankine, Esq., Dalswinton (gr. Mr. R. A. Grigor). Mr. J. Shaw was placed first for 12, and also for 6 and 3, and in the single vase classes. Messrs. T. Smith and Sons, Stranraer, won the chief prizes in the Rose classes.

Obituary.

W. Holmes. — All gardeners, and particularly Orchid growers, will learn with regret of the death, after a prolonged and painful illness, of this well-known Orchid grower. He will be best remembered as Orchid grower to the late Mr. George Hardy, of Pickering Lodge, Timperley, Cheshire, where his success as a cultivator and exhibitor was renowned. For some years past Mr. Holmes has been Orchid grower to J. McCarthy, Esq., of Hey House, Bolton, in whose service he ended his days. *P. W.*

F. Cooper. — We learn with regret of the death, on the 27th ult., of Mr. Frederick Cooper, of Birdhyrst, Upper Norwood. The deceased gentleman, who was seventy-three years of age, was a member of the Committee of the Gardeners' Royal Benevolent Institution. He was also a member of the Committee of the Royal Blind Pension Society, the Old Folks' Home, Norwood, and other kindred societies. The funeral took place at Elmers End Cemetery on the 31st ult. The first portion of the burial service was conducted at All Saints' Church, Upper Norwood, the large attendance, including representatives of the firm of Messrs. T. J. and T. Powell, of which the deceased was formerly a partner, the Gardeners' Royal Benevolent Institution, and Sir Harry J. Veitch.

Answers to Correspondents.

Book: *A. T.* There is no work dealing specially with the Orchids of the locality you mention. H. N. Ridley in the *Flora of the Malay Peninsula* (Orchids) enumerates the Orchids of the region generally, with such of those as were recorded from Negri Sembilan specified. However, it is doubtful whether this would help you.

Carnation Injured: *H. C. M.* The stem has been eaten by the mining larva of an insect. Dress the soil with sulphate of potash.

Caterpillar Feeding on Stinging Nettle: *H. R. Twickel.* The caterpillars are those of the Peacock Butterfly (Vanessa Io).

Culinary Peas: *W. R.* There is no fungus disease present in the plants sent.

Gooseberry Shoots Diseased: *A. W.* Both English and American Gooseberry mildew are present on the shoots received. The English mildew is not very harmful, but the American mildew is serious. You will find particulars of this disease, with a coloured plate of the same, in the issue for December 7, 1912, p. 421.

Grapes: *J. E. W.* The brown colour of the berries is not caused by a fungus disease, but is the result of some wrong cultural treatment.

Grapes Diseased: *R. B.* The trouble is due to grape rot, caused by Gloeosporium ampelophagum. The only thing that can be done now is to remove the diseased berries. In the winter thoroughly drench every part of the vine with sulphate of iron—1lb. in 25 gallons of water. Give two dressings at intervals of a month before the buds commence to swell.

Insect on Larkspur: *A. J.* The specimens were too dry and damaged to name. The fly sent could not bore its way into the buds. Some buds showed numbers of dead aphis—the Black Aphis (A. rumicis)—quite enough to kill the buds.

Insects in Mushroom Beds: *Grower.* It is a difficult matter to destroy the pests, as the spring tails and other insects are present in the soil, and their eggs will continue to hatch out. Sprinkle a little crushed sulphate of ammonia over the bed.

Laxtonberry: *C. M.* A good method of propagating this Bramble is by suckers, and November is the best time to sever them from the parent for planting. Those that grow close up to the base of the old stool will need to be separated with a sharp tool, taking care no injury is done to the bud, which is formed at the bottom of this year's growth, and on which depends next year's cane. The plantation can be made at the same time as division takes place. Brambles may also be raised from seed obtained from ripened fruit. The seed should be washed clear of pulp and dried. These will germinate in the spring if sown in pans of light soil, and be ready for transplanting next autumn.

Leaves Unhealthy and Curling: *A. M. D. Wiston.* The leaves are injured by insects. If the trouble continues, spray with an insecticide; Quassia extract would be suitable.

Melon Leaves: *R. H.* The spotted appearance of the Melon leaf is caused by an excess of moisture. Admit more ventilation.

Mildew on Vines: *T. M.* Flowers of sulphur will destroy mildew on Vines while there is sufficient sun heat to raise the temperature occasionally to 80° in the shade. There are several ways of applying the sulphur. It is not sufficient to merely dust it on the bunches, for the mildew attacks the leaves and stems as well as the bunches, and although very easy to destroy when it first appears, it is more difficult to combat when it becomes firmly rooted in the skin of either the berry, the stem or the leaves, and marks of it cannot then be effaced. Sulphur may be mixed with water, using a little soapsuds first to make it into a paste. Apply the sulphured water through the nozzle of a syringe, placing the finger against the nozzle to form a spray. Half-a-pound to one gallon of water is not too much, and the mixture requires to be kept well stirred from the bottom. Or sulphur may be applied in a dry state with the Malbec bellows; but both of these plans leave some sulphur in the bunches which can scarcely be washed out. The best plan is to use Campbell's Sulphur Vaporiser, the larger size will do for a house up to 6,000 feet, using 1 ounce of sulphur to each thousand cubic feet, and attending otherwise very strictly to the directions sent out with the machine. This quantity is not likely to cause any injury if used after stoning has commenced. A coating of dust will be left on the berries, but this can be easily removed early in the following morning with a pair of strong, ordinary bellows, or it can be washed off by a thorough drenching of soft water. If the dust remains for moisture to be condensed on it by rapid changes of temperature it cannot then all be removed. If the fruit is cut not later than the first week in September, a fresh treatment with sulphur should then be given, and the house closed while the sun is powerful during three or four days. When pruning is completed dress the Vines with soft soap, half-a-pound to a gallon of water, and as much sulphur as will make a thick paste. The Vines must not be syringed during the following spring or the sulphur will be washed off.

Names of Plants: *Roses T. V.* 1, Duchesse d'Auërstadt; 2, Kaiserin Friedrich; 3, Queen Mab.—*H. A.* 1, Prunus Pissardii; 2, Verbascum Chaixii; 3, Inula Helenium; 4, Eryngium Bourgatii; 5, Smilax sp.; 6, Ceanothus americanus var. opacus; 7, Aconitum volubile; 8, Campanula rapunculoides; 9, Cannot name without flowers; 10, Ranunculus Lingua.—*O. W., Windermere.* Campanula rotundifolia var. soldanelliflora.—*F. Zoebel.* 1, Spiræa palmata; 2, Spiræa japonica; 3, Galium verum; 4, Mimulus cardinalis; 5, Erythræa Centaurium; 6, Meconopsis cambrica.—*R. T.* 1, Send when in flower; 2, Spiræa Menziesii; 3, Thuya plicata; 4, Hypericum calycinum; 5, Euonymus japonicus variegatus; 6, Escallonia rubra.—*Blue Jay.* Probably a species of Verbascum. Cannot identify such a scrap. *B. H.* Hoya carnosa.—*Hops.* (1) Asparagus procumbens; (2) Origanum Tournefortii.—*Anxious.* Selaginella uncinata, more commonly known in gardens as S. cæsia. It is not a Fern, and, with the Asparagus mentioned, may be shown as foliage plants, unless the schedule contains any stipulation to the contrary.—*F. P. S.* (1) Cassinia fulvida; (2) Veratrum nigrum; (3) Berberis stenophylla; (4) Elæagnus pungens; (5) Linaria Cymbalaria; (6) Clerodendron Bungei.

Nectarines Shrivelling: *H. G. B.* Assuming the tree of Lord Napier Nectarine to be in a healthy condition, we attribute the cause of the trouble to excessive forcing. This variety is not suitable for forcing with Early Rivers, which, as its name implies, is an early variety. Overcropping would also cause the trouble; also a sudden change in the temperature when the fruits were swelling. We advise you to try the variety Lord Napier as a second early, to follow Early Rivers and Cardinal, which do well together, and bear hard forcing.

Peaches Splitting: *H. G.* The trouble is due to an excess of moisture at the roots. Keep the soil drier, and increase the amount of ventilation whenever the weather is favourable.

Peas: *W. H. W.* No fungus is present. The plant suggests injury by green-fly.

Potato Diseased: *E. C.* The injury is due to "corky scab," caused by the fungus Spongospora scabies. Treat the soil with quicklime.

Primula Hybrid: *R. S.* The failure of your plants of Primula japonica is partly due to the dry weather, but to a greater extent to the fact that they were old specimens. P. japonica usually dies after flowering, and even if some plants survive they seldom attain to the vigour of young plants. To obtain this Primula at its best seedlings must be raised annually. But where it is growing in moist positions it is not necessary to sow, for self-sown seedlings come up quite freely and take the place of the older plants. With regard to your query respecting seedlings, a mulch of dry manure and leaves would be beneficial, followed by a thorough soaking with water.

Roses Diseased: *H. W. F.* The Rose leaves are affected by the Orange rust fungus (Uredo rosæ). The only thing that can be done to check the disease is to burn infested leaves and shoots and spray the plants with potassium sulphide.

Rotting in Stems of Zonal Pelargonium: *J. L.* The injury is caused by the fungus Botrytis, which was present either in the cuttings or in the soil in which they were rooted.

Sulphate of Copper: *J. E. W., Northants.* Sulphate of copper in lump form is suitable. Place the chemical in a sack and draw the latter through the water. Sufficient of the copper sulphate will dissolve and answer the purpose.

Withering of Phlox: *W. W.* The Phlox is withering owing to the presence of eel worms at the root. For this pest there is no cure. Treat the soil with quicklime.

Communications Received.—J. T. R.—Hart—J. C. A.—C. E. F.—P. H. R.—P. R.—A. A. C.—C. S.—G. E. B.—W. B.—M. D.—W. N. W.—Troubled.

Photograph by W. J. Vasey

BEGONIA "FLORENCE NIGHTINGALE": FLOWERS WHITE.

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THE

Gardeners' Chronicle

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CONTENTS.

ILLUSTRATIONS.

THE MARKET FRUIT GARDEN.

AFTER the drought of June a great excess of rain fell in our district, 2.37 inches having been registered in eleven days up to July 19 inclusive. Then drought returned, only 0.01 inch having fallen in the rest of the month. Previous to the 20th the sky had been almost constantly overcast, and the temperature was unseasonably low, but the remainder of July was generally sunny, with some approach to summer heat during the last few days. This drought has been common throughout Great Britain. Indeed, for the eight weeks preceding July 26 a considerable deficiency of rainfall is reported for every division of the United Kingdom named in the weekly and seasonal report of the Meteorological Office.

One effect of the June drought, together with the aphis blight, was to cause early varieties of Apples to be very small. Beauty of Bath, Mr. Gladstone, Lady Sudeley, Domino, and Lord Grosvenor with me set a great abundance of fruit, which was thinned as much as usual, but failed to come to the full size. Except on some young trees of Lord Grosvenor, indeed, these Apples were not half the usual size. Never before has there been so great a proportion of seconds and smaller fruit as there was this season. [The past tense is used, as these varieties will have been gathered by the time these notes are printed.] Consequently the return from the varieties named will be small in relation to the great number of fruits borne by the trees. Early Julians were both thin and small, and so were Golden Spires. There is grave reason to fear that the July drought will have a similar effect upon late Apples, though these have still some time to grow. Lane's Prince Albert is much smaller than usual for the date of season, and even Bramley's Seedling is not so big as a good sample in an average year. Turning to mid-season varieties, Queen, usually a remarkably fine Apple in my orchards, is not more than two-thirds of its usual size. Royal Jubilee, on the contrary, is bearing a great crop of fine fruit after a somewhat severe thinning. By the way, Royal Jubilee has the habit of bearing four or five Apples in a cluster, and thinning itself almost sufficiently, but it does not do this until the fruits have become large enough to crowd each other off the shoot. This season, as soon as the dropping of fruits of fair size began with the variety, I had the thinning done, and made as much of the thinnings as I made last year of the best of my culinary Apples before Christmas.

Neglect to Thin Apples.

Many market growers of fruit do not thin their Apples at all, and others thin them only when those they take off the trees are large enough to be sold as "scrumps." The entire neglect of thinning is a great mistake, and the late thinning prevents the fruits left growing from swelling to the size they would attain were the operation done when the fruits are quite small. I find it difficult to induce my woman pickers to thin severely enough. They are instructed to thin to singles, except on some varieties where two Apples may be left if they look like growing to a good size. This they interpret as singling the fruits on each spur, and where the spurs are only an inch or two apart, as they often are on free-cropping varieties, the pickers leave one on each, instead of denuding one spur out of two. Some of the best growers in the United States make a regular practice not only of thinning to singles but further of relieving every alternate spur of its burden of fruit. The results are fruits of fine size, and a good or fair annual crop, instead of only one crop in every other season. This severe thinning, it may be assumed, is done only when there is a thick setting of fruit.

Apples Dropping.

For the second season in succession half-grown Apples are, or have been, dropping extensively, particularly from early varieties. Beauty of Bath is one of the worst varieties for dropping, while Mr. Gladstone and the old Striped Joaneting are nearly as bad. This season, after every fairly-coloured Apple had been picked off the first two of these varieties, the ground was strewn with fruits by the following morning, and this occurred repeatedly. These Apples sell well, but require a great amount of labour in the picking, as they need to be gone over many times, which is slow and expensive work when the trees are high enough to necessitate the use of step-ladders. As the dessert Apples are of little value unless well-coloured, it will not do to strip the trees until nearly all the fruit is ripe. At the time of writing fruit from mid-season and late varieties has begun to drop, though not as badly as it did last year.

The Spread of Silverleaf.

In all the parts of the country which I have visited this season the spread of silverleaf among Plums, Victorias particularly, is extraordinary. Never before have I seen any approach to such a great extension. In one of my orchards nearly half my very fine and robust-looking Victorias, four to six years from the planting, have been attacked for the first time. Previous to this year there were only two trees attacked in the orchard, and these were recovering as the result of profuse manuring with a dressing containing nitrogen, phosphoric acid, and potash. The spreading obviously could not have been caused entirely by pruning, as infection could not have been carried on the knife up even one long row of trees, because the knife would have been cleansed of any infective matter upon it by the numerous cuts made on two or three trees. Moreover, I have some young Victorias affected in a field where there was not one silverleaf case before this season, so that there was nothing to infect the knife when the trees were pruned. In my opinion the epidemic of silverleaf is due to the extreme wetness of the late part of last summer, and the autumn, winter and the early part of the spring following. The silvered branches of the affected trees have been cut off, and 7 pounds of a mixture of two parts of superphosphate to one part each of sulphate of ammonia and muriate of potash has been spread around each tree to the extent of its branching. This treatment has caused the partial or complete recovery of several trees in an older plantation.

American Gooseberry Mildew.

Some idea of the extent to which this terrible disease prevails may be gained from the fact that every Gooseberry plantation which I saw in Kent or Worcestershire was more or less infested. Whether or not I brought infection home in my clothes I cannot say. The idea seems improbable, and yet there is no more plausible explanation of an outbreak in a young plantation of my own, which did not show a sign of the disease when it was pruned in the spring. The nurseryman who supplied the bushes assured me that he had never had the disease in his nursery, and my fruit farm is miles away from any other, so that there is no near source of infection, unless the disease exists in some cottage garden near by, which does not seem probable, as the hamlet in which the cottages are situated is an isolated one. The day after the disease was detected the bushes were profusely sprayed with lime-sulphur of summer strength, and they will be sprayed again as often as the inspector recommends, if he thinks that there is any chance of suppressing the disease. If not, the bushes will be grubbed up shortly. They were planted in the autumn of 1911, and have not been allowed to fruit because they were small, and it was desired to give them every chance of growing into good bushes.

Fungous Diseases.

The prevalence of brown rot, not only on Plums, but on Apples also, has been mentioned on a previous occasion. Never before has it been so extensive in my Apple orchards. As to scab, it shows on many varieties which have never been attacked to any serious extent. Irish Peach, as usual, is crippled with scab, the crop being almost without value. All the trees will be cut back and top-grafted with some other variety next spring. Irish Peach is not a profitable variety as a rule. Lady Sudeley also is badly affected with scab this year, instead of slightly as usual, and some very

fine fruits on young specimens of Lord Grosvenor is spotted to a considerable extent. Even Charles Ross, a variety that has been free from scab in previous seasons, has some of its fine fruit disfigured by the malady. Cox's Orange Pippin is almost entirely free from the disease, possibly in consequence of the immense amount of trouble taken in cutting off scabby shoots and winter and summer spraying with lime-sulphur.

Reverted Black Currants.

A good many of my Boskoop Giant Black Currant bushes in a plantation in the fourth season from the planting showed reversion to a worthless state this summer. They have been trodden down as a sign that they are to be dug up and replaced by fresh bushes. The reversion seems to show up at its worst in the fourth or fifth season from the planting, after which time, according to my experience, comparatively few bushes have to be dug up.

The Fruit Estimates.

As I understand it, the grand summary of the fruit estimates given in the *Gardeners' Chronicle* of August 2 indicates that all crops, except small fruit and Strawberries, are, or were, under the average, Pears, Plums, Cherries, Peaches and Nectarines, Apricots, and Nuts being very greatly under that standard. Even for Apples, the crop is put below average in 106 places, and over average in only 29, clearly showing that it is under average on the whole. But this is not all that is to be said on the subject, for there are vast differences in the values of the returns from different counties as indications of the total yield of the country, and still greater differences in relation to prospective market supplies. Some of the cider counties count for little in market Apples in comparison with their large acreage of that fruit. For example, Kent, with about 14,000 acres of Apples, probably sends to market four times the quantity of Apples that Devon supplies from nearly 26,000 acres. Taking Kent, Worcester, Hereford, Gloucester, Norfolk and Cambridge as the most important contributors of market supplies, there are 17 reports of under-average and only 2 of over-average crops. The first four counties contribute 16 under-average estimates and not one over. That the Apple crops of Kent and Worcester are very much below average I know from my inspection of many of the principal orchards, and from local reports on many others not seen. The general verdict in each county, so far as I could learn, was half an average. Moreover, the drought of the latter part of July and the beginning of August is likely to reduce the yield much below estimates made when the returns were collected.

Returns for Fruit.

Up to the present time the prices of fruit have been from fair to very good. Gooseberries, Strawberries and Cherries sold well throughout their respective seasons. Black Currants made good prices, except at a time when the markets were glutted with a sudden and liberal supply of French and Dutch fruit. But they did not make as much as in 1912. This year I had 200 half-sieves more than last year, but got no more money for them. Plums have started at prices fully 50 per cent. higher than usual rates, and Apples at quite one-third more than they made a year ago. The latter fact seems to support my contention that the crop is much below average in the country as a whole, at least so far as early varieties are concerned. *A Southern Grower.*

NEW OR NOTEWORTHY PLANTS.

LILIUM SUTCHUENENSE.

In the *Gardeners' Chronicle* of August 2 *W. W.* expresses the unqualified opinion that "enough is now known of the character and habits of this Lily to settle the question of its name and dispose of the several incorrect names that have been given it, such as Willmottiæ, pseudo-tigrinum and Thayeræ."

W. W.'s conclusions are apparently based on his observations of a batch of plants raised at Kew from seed of a Lily reputed to be L. sutchuenense (Franchet). The plant in question was obtained from Messrs. Veitch, of Chelsea, and was one of a parcel of wild bulbs they received in 1904 from E. H. Wilson, who was collecting for Messrs. Veitch at that time. Wilson gathered the bulbs in the country round about Tachienlu, in Western Szechuan, where, by the way, this Lily is grown by the natives as a vegetable, very much as the Tiger Lily is grown in parts of China and Japan, and L. speciosum magnificum in some of the Loochoo Islands.

The authorities at Kew appear to have been responsible for the original identification of the Lily in question as L. sutchuenense, and it has now been in commerce for seven or eight years bearing the Kew name. If the classification is correct there is nothing more to be said about the matter, but there seem excellent reasons for doubting the accuracy of the identification; indeed, it is difficult to understand how anyone giving the subject serious consideration could ever regard Wilson's plant as identical with L. sutchuenense.

Fig. 45.—Lilium sutchuenense (Franchet) showing creeping growth of stem.

When both Lilies are cultivated under identical conditions, the typical sutchuenense of Franchet is seen to be a comparatively dwarf and delicate plant with slender, dark-coloured stem, now and again perhaps a yard high, but commonly a couple of feet or less. A reference to fig. 46 shows that it is but sparsely leaved—an important point—and not floriferous; in point of fact, though five or more flowers have been recorded in cases where this Lily has been highly cultivated, it is usually content with three. The mature bulb is small—about the size of a peewit's egg—and the stem, which is only slightly pubescent, has a curious way of creeping about under the earth before pushing through (see fig. 45), a peculiarity it shares, so far as is known at present, only with L. Leitchtlinii, L. neilgherrense and L. philippinense.

The Lily collected by Wilson, on the contrary, far from being a pigmy, is a fine, upstanding plant from 4 to 4½ feet high and very floriferous; in fact, in ordinary seasons and without the stimulus of any special cultivation, it will usually carry at least sixteen or seventeen blooms. These are borne on pedicels a good deal longer than those of the true L. sutchuenense, and, though the point is not of importance, the pedicels are a different colour. The stem is green, and as often as not is noticeably covered by minute white hairs after the fashion of L. tigrinum Fortunei; it is clothed as densely as L. pomponium with long linear leaves, and this is the most characteristic feature of the plant; the stem rises straight from the bulb, which is from 2 to 2¼ inches in diameter, ivory in colour, and not at all unlike a small edition of L. tigrinum.

There are other differences of a botanical nature between the two Lilies, but it is unnecessary to refer to these in detail, as I understand the conclusions Mr. Wilson has arrived at in the matter, after an exhaustive analysis, are shortly to be published in the *Kew Bulletin*, along with the synonymity. Suffice it to say that one has only to have the two Lilies in cultivation to appreciate the difference between them.

Whatever the identity of the Tachienlu Lily may ultimately prove to be, Wilson considers it a good species and has named it L. Thayeræ. Time will show whether he is justified in separating it from L. papilliferum (Franchet), chinense (Baroni), his own Willmottiæ and pseudo-tigrinum; but for the present the proper course will no doubt be to defer any attempt at definite identification till the four Lilies named and L. sutchuenense can be cultivated alongside each other.

The feelings of regard and respect the amateur must perforce have for Kew are so great that one may perhaps be permitted an expression of regret that it should not have been possible to secure accuracy in the identification of several of the Lilies sent home by Wilson during his expedition. Apart from the confusion in regard to the Lily which forms the subject of this article, one remembers that for many years the Lily now known as Sargentiæ was in commerce as Brownii leucanthum, having been identified as such at Kew; while it has been evident for some time that the beautiful plant familiar to so many of us as L. myriophyllum has no right to the name given to it at headquarters. *A. Grove.*

A WINE-RED SUNFLOWER.

On July 16 we obtained our first wine-red or "old rose" Sunflower in the F_2 generation from a cross between the "primrose" Sunflower and our red strain. The red Sunflowers now being grown in various parts of England, derived from our Colorado stock, show chestnut-red on orange, but the red is due to an anthocyan pigment, and only appears chestnut on an orange background. We planned to bring out the true colour of the anthocyan by a cross with the very pale yellowish (primrose) variety sent out by Messrs. Sutton and Sons as "Primrose Perfection," but as red and orange are dominant to primrose (*i.e.*, their absence) the F_1 generation was not distinguishable from the ordinary "reds." In the F_2 the theoretical expectation is that out of every 16 plants 9 will be red (chestnut) on orange, 3 yellow, 3 wine-red, and 1 primrose. We have obtained all the expected forms, and so far as can now be judged the proportions may be expected to agree sufficiently with the expectation. The wine-reds vary like the chestnut-reds, some having exceedingly rich and beautiful colours. We call the wine-red variety, var. vinosus. *T. D. A. and W. P. Cockerell, Boulders, Colorado.*

ORCHID NOTES AND GLEANINGS.

TRIGONIDIUM OBTUSUM.

Sir Fred. W. Moore, Royal Botanic Gardens, Glasnevin, Dublin, the home of so many remarkable Orchids and other plants, sends flowers of this old but rare species from a plant received from Nicaragua several years ago, and which flowers regularly at Glasnevin. The habit of the plant is similar to some of the Maxillarias, the rather slender-sheathed inflorescence bearing a single erect flower at the apex about an inch and a half long. The spathulate sepals, which are the showier feature, are curved back, and coloured pale yellow tinged and veined with purple, the shorter petals similarly coloured, but bearing at the tips a metallic-looking bronzy-purple blotch. It was originally collected by Colley for Mr. Bateman in Demerara, in 1834, and is figured in the *Botanical Register*, tab. 1923.

DENDROBIUM LAMELLATUM.

A pseudo-bulb and two-flowered inflorescence of this singular species comes from the gardens of Sir Marcus Samuel, Mote Park, Maidstone (gr. Mr. Bacon), the specimen, with a number of other pretty species, having been imported from Borneo last year. The pseudo-bulb, which is three inches in height and over an inch wide, is curiously compressed and scarcely one-sixteenth of an inch thick; the colour is brownish-green, and the nodes are furnished with silvery sheaths, from which the dark-green leaves two or three in number had proceeded. The flowers are one inch long, waxlike in substance and yellowish-white tinged with buff on the outsides of the lateral sepals and mentum. The lip, which is shorter than the sepals, has a broad, rounded front, the margin of which is fimbriate and curved back, the centre having an orange-coloured bar of five keels. It is a very singular species, and the flowers are both curious and attractive. *J. O. B.*

Photograph by A. Grove.

Fig. 46. Lilium sutchuenense (Franchet).

CANADA.

POSSIBILITIES FOR GARDENERS.

Some details regarding the prospects which Canada holds out to horticulturists and market gardeners emigrating from this country may interest the readers of the *Gardeners' Chronicle*, especially as these notes are the result of actual experience. Although the present writer has only made his home in Toronto for a little over a year (after a period spent on an Ontario farm), exceptional opportunities of acquiring knowledge and experience have presented themselves to him. In the first place it may be said that it seems strange that Englishmen are not more inclined to spend their holidays in Canada. Canadian men and women of position, such as Sir Edmund Osler, Sir William Mackenzie, Sir Henry Pellatt, and Sir Donald Mann think no more of a trip to England than Englishmen do of visiting Scotland; yet Britons often spend much more on a holiday in Germany or the South of France than would enable them to pass a month in the beautiful and healthful surroundings of the St. Lawrence River.

Starting at Quebec, going on to Montreal, Toronto, Niagara, and extending the tour, if desired, to the "Golden West," there would still be time to spend a week or more in the great Niagara fruit belt, a marvellous extent of Peach and Grape orchards beneath the shelter of the mountain range which stretches from Hamilton to Beamsville, and is bordered by the waters of Lake Ontario. Of the vastness of Canada it

Photograph by A. Grove.

Fig. 47.— Lilium thayerae (Wilson).

is unnecessary to say much; an atlas and a few figures will convey a sufficient knowledge of its size. Its possibilities are boundless, for the right man or woman; and though emigration, even under the easiest circumstances, is a serious undertaking, it should be remembered that intelligent, industrious labour is always rewarded. Of course, there are some who, expecting to find the land "flowing with milk and honey," or with dollar bills, are disappointed, but those who come out with a knowledge of their craft, and a determination to work steadily and undauntedly in the face of difficulties, reap an abundant harvest. Canada needs the stout heart, the strong arm, the cheerful spirit, the intelligent understanding. Those who fail in this country, do so because they do not possess these qualifications. Only a few months ago a well-known Covent Garden florist, with a fair business in a suburban neighbourhood, emigrated to Canada with his wife and two little girls. He is thirty-five years of age, and has had a hard life. He spent a few days in Toronto, and then pushed on to Edmonton, in the West. Here several misfortunes came upon him; his children fell sick, and a position he had been promised fell through. He is now, however, in a fair way to succeed. He had the sense to take any job which offered itself when he first settled down; fastidiousness in this matter is often fatal. He possesses both skill and knowledge of his trade, and it was only the keen competition which prevails in the Old Country which drove him from the English markets. A young English University graduate came out to Canada not long ago with an introduction to one of the Canadian railway magnates. He was given a note to one of the superintendents of the line, who placed him in a somewhat menial position—which the young man wisely accepted, thereby laying the foundation of ultimate success. It is difficult to lay too much stress upon the point that what Canada wants is workers—intelligent workers certainly, but always workers.

Some of the first questions which may be expected from intending emigrants of the horticultural profession are: "What is the climate of Canada like? Is it favourable to health, and to the successful raising of flowers and fruits?" To these questions a fully satisfactory answer can be returned. At first the extremes of heat and cold may seem somewhat trying; but many an emigrant whose health was indifferent in the Old Country has gained a fresh lease of life in the clear, bracing air of Canada. The freedom of thought and will which prevails in the Dominion has also much to do with the physical and mental health of its inhabitants. The summer sun is often blazing; 1911 was wonderful, the thermometer often registering 104° in the shade. Many people slept in tents, pitched in the coolest spots they could find but nevertheless the mosquitos tormented them. 1912 was cooler, more like an English summer. The winter in Canada is long and cold, but splendidly dry and bracing. It is, however, a time of enforced idleness to those whose occupation is mainly out-of-doors, as everything is frost-bound. The winter before last the temperature in Toronto fell more than once to 23° below zero. The winter scenery is very beautiful: woods, fields and hills are covered with a mantle of soft, white snow, over which the moon sheds a clear, bright light.

Horticulture is practised to a considerable extent even on farms far distant from any town. The desire for a garden—at the least, a homely plot of vegetables and flowers—is deeply ingrained, not so much in the old settlers, but in the newly-arrived immigrants from England. The want of efficient labour is a great drawback to the pursuit of horticulture as a profession; but the true Canadian seems quite satisfied with his "homestead," solitary, treeless, exposed to

every wind that blows, without a single plantation or even flower bed to provide colour and beauty to the scene. In one farm, on which acres of Peaches and other fruits were grown, there were not enough vegetables to supply the table; and the only flowers near were those of the wayside bushes. To a farmer from the Old Country the contrast between such a scene and the Rose-covered cottage he has left is depressing in the extreme, but already the influence of British emigrants is becoming felt in this direction. Nearer to the towns, parks and gardens are springing up all over the Dominion wherever they are needed, and beautiful flowers, among which the Canna is conspicuous, reward the labour of the cultivator with their brilliant colours and luxuriant growth. Plants which can grow only in the hottest of English summers come to perfection under the clear, bright Canadian sun; and the authorities of the larger cities have realised in time the importance of proper town-planning and park-making before the land shall have become absorbed by the builder. Winnipeg, Calgary and Edmonton are good examples of cities where the open spaces are a triumph of gardening enterprise and skill. Toronto—the second city of the Dominion in point of size—is the most important from a horticultural point of view. Its rate of progress is astonishing, even in Canada, and it is estimated that within a few years the population will number a million. The establishment of the Ontario Rose Society, a notice of which appeared in these pages (Vol. LIII., p. 362), is a great success; already it numbers many growers among its members, and collections of considerable interest have been "discovered." In two gardens the new H.T. British Queen finds a place; and in Mr. Moore's garden the collection of Roses of all kinds is so extensive and representative that it reminds one forcibly of the Rose gardens of Waltham Cross and Cheshunt. It would be difficult to find better blooms of Betty, General McArthur (a great favourite here), and several of the Ramblers. One house here is approached by a little avenue of fine standard Roses, with a groundwork of crimson Chinas.

It is interesting to know that Canadian nurserymen frequently obtain their seeds from England, on account of their being high in quality and low in cost. British nurserymen as a whole have a good name in the Dominion, both for quality of stock and for integrity of business character. In a future article it may be possible to deal in detail with the prospects of horticulturists emigrating from Britain. *E. T. Cook, Ontario (late of London).*

DESTRUCTIVE INSECTS AND PESTS SCHEDULED BY THE BOARD OF AGRICULTURE AND FISHERIES.

XII.*—THE MEDITERRANEAN FRUIT FLY.

(*See Coloured Supplement.*)

A NUMBER of related flies are known as Fruit Flies, and of these perhaps the worst and most widely distributed pest is that known as the Mediterranean Fruit Fly (Ceratitis capitata, Wiedemann). It occurs as a pest in Australia, New Zealand, Tasmania, South Africa, St. Helena, Algeria, Tunisia, West Indies, Brazil, Hawaii, Spain, the South of France, and along the Mediterranean to Italy and Malta. As long ago as 1900 it reached the neighbourhood of Paris, where it attacked Peaches and Apricots, and has since been rather troublesome. Among fruits attacked are the Peach, Nectarine, Apricot, Orange, Lemon, Fig, Quince, Apple, Guava, Plum, Loquat, Mango, Banana, Pine-apple, Persimmon, South Africa Granadilla and many others. In a pamphlet issued this year by the Department of Agriculture for Bermuda a list of 45 fruit trees subject to attack by this fly is given, and the Grape and Mulberry must occasionally be added. French states that the Tomato and Pumpkin are attacked in Victoria.

The damage is done by the larvæ, which hatch out from eggs deposited in the fruit by the fly and subsist on the flesh of the fruit, which is rendered unfit for food. Very great damage has been done in the past, and at the present day widespread and serious loss is caused by this pest. Thus it was described by Wiedemann as an Orange pest in 1826, under the name Citriperda capitata, and a few years later Macleay stated that fully one-third of the Oranges shipped to London from the Azores were rendered unfit for use before reaching their destination owing to the presence of the maggot of this fly when they were packed, and for this reason Oranges were proportionately dearer than they might have been had the fly not existed. It would be difficult to estimate the damage done in all the countries mentioned above, but it must be very considerable.

It would appear that the fly has actually been found in England, as Froggatt says there are specimens in the Oxford Museum, and these were recorded by Westwood in the *Gardeners' Chronicle* in 1848 as "captured in Thames Street, London, 1848," while others were bred from maggots in imported Oranges. Even at the present day the maggots can be found in Seville Oranges in England, while recently the pupæ containing fully-developed flies were found in the paper wrappers of ordinary Oranges. There is reason to believe, therefore, that the fly may breed out naturally from cases of imported Oranges, though this does not imply that it is capable of becoming a pest in Britain.

There is some doubt as to the original home of this fly, but in 1903 Mr. G. Compère was commissioned by the Government of Western Australia to discover the native home of the pest, and to see if there were any parasites which would tend to limit its propagation; his researches appeared to show that its source is Brazil, where it is kept in check by a predatory beetle. Froggatt, however, writing in 1909,† says that "the original home of Ceratitis capitata is, probably, Spain, one of the great homes of the Orange."

The appearance of the fly, maggot and pupa, is shown in the Coloured Supplement. Following Froggatt's description, it may be said that the fly is about the size of an average House-Fly, the general colour being ochreous yellow, lighter on the sides of the thorax, with eyes of a reddish-purple tint, a blackish blotch in the centre of the forehead, with a number of black bristles about the head, fine white bristles on the lighter portions of the dorsal surface of the thorax, and black bristles on the black blotches. There are various ochreous to brownish blotches and bands on the broad semi-opaque wings. The upper surface of the abdomen is clothed with fine scattered black bristles. The male bears "a pair of stalked appendages standing out in front of the head in a line with the front margin of the eyes." "The living fly is an active little creature, running about over the foliage or fruit on the trees, with its wings drooping down on the sides of the body. When disturbed it has a short flight, seldom flying more than a few yards at the most, and it often returns to the same spot."

The larva is a dirty white, legless maggot, and the pupa is reddish brown and oval.

As regards the life-history, the females deposit their eggs in the flesh of green, ripening, or quite ripe fruit; the larvæ hatch out, feed for a time till full grown, leave the fruit, and enter the soil to pupate, and in a very short time the flies emerge. The period needed to complete the life-history is quite short. French quotes‡ various experiments conducted to ascertain the life-history of this fly. A number of eggs may be laid in a single fruit beneath the skin by the sharp ovipositor of the female, and indications of the presence of the maggots are not well marked, even when the maggots have fed for a few days, the fruit showing little or no signs of the infestation. The attacked spot, however, discolours as the larvæ become well grown. Farrell's experiments showed:—

1. That from the time the egg is laid until the larva is fully grown is 12 days.
2. That the pupa stage is 13 days.
3. That the life of the perfect insect when fed is 24 days.
4. That from the time the egg is laid until the insect which it contains dies of old age is 50 days.
5. That when the fly is not fed the 50 days are reduced to 29 days.

In French's experiments 60 flies were hatched from two Seville Oranges, and the perfect flies lived 10 days without food. French says that "the larvæ of the fly curl up and by a muscular movement jump fully 1 foot." Fruits which ripen in succession are attacked in turn in Victoria. The flies feed on fruit juices.

A Fruit Fly Destruction Act was passed in Bermuda in 1907, and £500 was granted for the purpose of combating the fly, the general plan being to collect and destroy all the mature fruits of all kinds known to be punctured throughout the country. The pest is doubtless often spread by means of marketed fruit, and, once it has obtained a footing, prevailing winds may assist. The most obvious means of combating this fly lies in destroying the maggots in the fruit and the pupæ in the soil, and in trapping the flies. Infested fruit should at once be destroyed. Digging in the soil fairly deep did not kill the pupæ in South Africa, but turning the surface soil 9 or 10 inches under, accompanied by heavy rolling, seemed likely to be effective. In South Africa netting has been used to place over the trees to prevent the females laying their eggs, but is expensive, costing about 3s. per tree. It appears that cold-storage of fruit proves fatal to the maggots. Imitation fruits covered with "tanglefoot" have also been employed to trap the flies.

The latest proposals for combating Fruit Flies, however, consist in spraying the trees every few days with a sweet liquid containing a poison, the idea being that in feeding on the sweet liquid the flies would be killed. Some mixtures suggested are:—(1) 5 gallons of treacle, 25 gallons of water, and 1 lb. arsenate of lead; (2) molasses 65 lb., honey 31 lb., glycerine 2 lb., and arsenate of potash 2 lb., the mixture being dissolved in water before use at the rate of 10 parts to 90 parts of water. It is stated that the most effective means for combating this pest consists in placing about the orchards small lots of pure kerosene, which was discovered to be very attractive to the flies in dry weather. (*Kew Bulletin*, No. 1, 1908, pp. 8-10.) *H. C. Long.*

* The previous articles appeared on September 27, October 12, November 2, and December 7, 1912; and on February 1, March 1, March 15, April 26, May 3, May 24, and June 7, 1913.

† *Farmer's Bulletin*, No. 24 (Fruit Flies), Dept. of Agric., N.S. Wales, 1909.

‡ *The Jour. of Agric. of Victoria*, May 8, 1907.

ALPINE GARDEN.

PRIMULA PINNATIFIDA.

THREE plants of Primula pinnatifida were planted out last autumn, one in a bog, one in an ordinary border with heavyish loamy soil, and the third against a wall, facing north, in a mixture of loam and leaf-mould. The first two came through the winter (not a severe one, but marked by severe late frosts on two occasions) quite happily; the one in the Rose border flowered, but that in the marsh, although a fine healthy plant, has given no bloom; the one against the wall died. As this is at present a rare and very beautiful species, perhaps some readers may be glad of this information. In its native haunts P. pinnatifida grows in company with P. sikkimensis and P. secundiflora. *B., Reading.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking

Cattleyas and Brasso-Cattleyas.—Plants of Cattleya Rex, C. Dowiana, and its variety aurea, also the hybrids, C. Hardyana, C. Enid, C. Fabia, C. Maggie Raphael, Brasso-Cattleya Leemanniæ and B.-C. Mdme. Chas. Maron have their flower sheaths well advanced, and should be well exposed to the light and air. When grown in comparative shade and a close, stuffy atmosphere, an excess of moisture in the growths may cause the flower buds to decay. If the sheath encircling the base of the current season's growth becomes dark brown it should immediately be slit open to allow the moisture to evaporate, keeping the plant extra dry at the root for a few days afterwards. Should decay set in, nothing but the removal of the part affected and dryness at the root will save the plant. C. Rex, C. Dowiana and the others mentioned all require very similar treatment to that advised for C. Warscewiczii.

Terete-Leaved Vandas.—Such Vandas as V. teres and the hybrids Miss Joaquim and Marguerite Maron are rooting freely from the old roots and from the uppermost part of the stems, and it is a suitable time to attend to specimens that have grown to an inordinate length. Such plants should have the tops of their stems cut off to about 2 ft. 6 in. or 3 ft. and the young portions fastened to new teak rods from 5ft. to 6 ft. in length. Place about five of these rods with a stem attached to each in a 12-in. pot, keeping the rods several inches apart to allow the air to circulate freely. The rods may be fixed in the pot by means of clean crocks, covering them with a thin layer of Sphagnum-moss. As each young root attains to a sufficient length let it be tied carefully so as to press flat on the surface of the wood, to which it will quickly become firmly attached. Where there are no facilities for growing the plants by this method, or where space is limited, the severed stems may be inserted thickly in beds of living Sphagnum-moss, placing a strong stake to each plant to keep it in an upright position. The old, or lower stems, if afforded plenty of heat and moisture, will soon produce fresh growths, and in this way the stock may be further increased. These terete Orchids should be grown in direct sunshine, and syringed copiously overhead several times daily when in active growth, but the young portions that are now being divided should be shaded lightly until the roots have taken a firm hold of the new wood, when they may be exposed gradually to direct sunlight. Grow the plants at the lighter and warmer end of the East Indian house or plant stove. The present is the flowering season of V. Hookeriana, and as soon as the spikes are cut the plants should be treated similarly to the above. Plants of the pure white V. Watsonii, V. Kimballiana and its rare variety alba are growing freely in the cooler and more airy part of the Cattleya house. Continue to afford these species plenty of water at the roots, especially when the weather is warm and bright.

Dendrobium.—Several species of Dendrobium including D. Phalænopsis, D. superbiens, D. bigibbum, D. Goldeanum, D. taurinum, D. lineale, D. stratiotes, D. secundum, D. undulatum, and D. strebloceras, are growing actively and require plenty of light, heat, ventilation and moisture. In affording water, particularly to plants that are well rooted in small pots, the compost should be made moist throughout, but water should not be afforded until the rooting-materials have become dry. These species require plenty of sunshine and a hot, moist atmosphere.

Schomburgkia.—Schomburgkias require similar cultural treatment to the Dendrobiums enumerated above, especially in the matter of exposure to sunshine. Such species as S. tibicinis, S. Kimballiana, S. Sanderiana, S. Thompsoniana, S. Humboldtii, S. Chionodora, and its rose-coloured variety, are commencing to form roots freely from the bases of the young growths, and, if necessary, may be afforded fresh materials at the roots. These Orchids do not require much compost, a layer of about 3 inches of coarse Osmunda-fibre being sufficient. In potting it is advisable to make the compost firm about the base of the plants, which should be grown close to the roof-glass. Such distinct growing species as S. crispa, S. undulata, S. Lyonsii, and S. gloriosa require similar treatment as is afforded plants in the Cattleya house.

Lælia.—Such dwarf-growing Lælias as L. præstans, L. Jongheana, and L. pumila and its varieties that have been resting in the cool house are commencing to grow again, and it is advisable to remove the plants to a lighter position in the intermediate house. These Orchids need plenty of water at the roots until the new growths are matured. Plants that require larger receptacles or fresh compost should be attended to as soon as new roots appear at the base of the current season's growth. They are best grown in shallow Orchid pans that can be suspended close to the roof-glass. Weakly plants are almost always attacked by scale and mealy bug, and measures must be taken to destroy these pests.

Oncidium.—Such pretty-flowering Orchids as Oncidium Phalænopsis, O. cucullatum, O. olivaceum, and O. nubigenum require fresh compost. They thrive best when grown in small pots containing a shallow layer of Osmunda-fibre and moss. Grow them in a cool and shady position in the Odontoglossum house.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Garden Nets.—When the nets have served their purpose for the season they should be dried and stored where they can hang clear of each other, away from floor and wall, if this be possible. Each net should have a label attached giving its dimensions.

Small Fruits.—Red and White Currant bushes intended for furnishing a supply of Currants late in the season should be cultivated in the more sheltered positions of the garden, and secure protection from birds provided in the shape of finely meshed tiffany. Stakes, weeds, and other rubbish which may have accumulated during the busy season should be removed, leaving the plot clear and tidy. Young bushes that are making strong growth should have the surplus shoots removed to expose the centre to the light and air. If time permits this treatment may be applied to older bushes with beneficial results, and cut out the old fruiting canes of Raspberries. The young rods also should be thinned, cutting clear away all weakly and deformed canes. Where the Raspberry is cultivated in rows and trained to a permanent wire or other trellis the canes should be tied out singly a few inches apart, leaving the tie secure to the wire but loose around the stem. This will prevent the shoot rubbing against the wire, which might cause it to become deformed. Similar remarks apply to Raspberries grown in clumps. Always prevent overcrowding of the young canes. It is not advisable to pinch or in any way shorten the cane at this stage. When the pruning, tying, and training of the plants is completed, and the rubbish cleared away, the mulching materials may be forked into the soil, but never allow the fork to be inserted more than a few inches deep, or the roots may be damaged.

Autumn-Fruiting Raspberries.—These plants are at the flowering stage. Soak the soil between the rows, thoroughly loosen the ground with a fork, and apply a mulch some few inches thick of well decayed manure. Secure the young, brittle growths to the trellis.

Loganberries and Newberries.—These brambles are now cleared of their fruits, and may be treated in much the same way as advised for the Raspberry. These plants, and especially those of the Newberry, send up strong side growths. Both these brambles will cover a large area of trellis work, and the growths should on no account be shortened. Where space does not allow for their extension, they may be twisted backward and forward along the wires. They make admirable subjects for covering pergolas or rustic arches in or about the kitchen garden, where the nets placed to protect the fruits are not considered unsightly.

Japanese Wineberry and American Blackberry.—These later brambles are only just ripening their fruits, which require protection from the birds. The scarlet, sweet fruit of the Wineberry is particularly attractive, and the plant forms a handsome bush with its red, spiny wood and silver-grey reverse of the leaves. Let the roots receive a good soaking of clear water, afterwards forking into the ground a little artificial manure and lightly watering the soil to soak the manurial properties to roots.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Pelargonium.—In many establishments Pelargoniums have been almost discarded for bedding purposes, other and more useful subjects having taken their place. Like many other kinds of plants, these old-fashioned garden flowers have been improved, and some of the newer sorts are well worthy a place in any garden. They have flowered well this season; a bed of the variety Paul Crampel interspersed with standard plants of Veronica Andersonii is at the present time making a brilliant show in these gardens. This variety is also very useful for furnishing garden vases, and probably there is no more suitable plant for the purpose. It is time to commence propagating cuttings for next season's stock. Take care not to spoil the beauty of the flower-beds when obtaining the cuttings, which may be inserted in a sandy compost in pots or boxes and rooted in the open.

Propagating Bedding Plants.—The work of propagating summer bedding-plants should be proceeded with as circumstances permit The stocks of Heliotrope, Iresine, Mesembryanthemum, Gazania, Lantana, Lobelia and Coleus may all be increased from cuttings inserted now either in pans or pots, preferably the latter. Cuttings of Heliotrope inserted now should not be soft in texture, as they will not root so readily as those inserted in the spring. In gardens where only a few plants of Heliotrope are required the best plan is to retain some of the old plants for stock purposes and place them in heat early in the year to produce shoots for cuttings. Such cuttings will furnish good plants for bedding out if they are kept growing actively. Plants may also be raised from seeds sown early in the year. Madame de Bussy and President Garfield are two excellent and distinct varieties. Iresines, Lantanas, Ageratums, Alternantheras and Coleuses may all be propagated from cuttings inserted in pans filled with light, sandy soil. A shallow, heated pit furnished with a hot-bed of moderate warmth on which to place the cutting pans is an ideal place for rooting the shoots. Artificial heat will only be necessary during wet or cold weather.

Hollyhocks.—The Hollyhock disease has not been so prevalent this season as usual. This would seem to suggest that the fungus spreads much more rapidly in cold, wet conditions than in a season like the present. Much may be done to prevent the disease by sowing seeds annually. The seeds may either be sown early in the year and the seedlings grown on in heat until they have made good-sized plants, to be hardened subsequently and planted out in April; or they may be sown at the present time and the seedlings kept in cold frames until planting them out in their flowering quarters in spring.

Violas.—Remove the seed-pods from Violas daily and, in order to assist the plants to flower freely all through the summer, feed the roots occasionally with some mild stimulant. Keep

the growths pegged to the soil where they are required to furnish the ground. Cuttings inserted in cold frames in a sandy compost will form roots in two or three weeks. After that date remove the lights so that the plants may become hardened thoroughly before winter arrives.

The Water Garden.—At this time of the year the plants in the water garden should be examined frequently with a view to the removal of dead flowers and leaves. Ponds containing choice aquatic plants infested with water weeds should be cleared of the weeds early. See also that rank-growing plants do not smother smaller-growing species. Seeds of Primula japonica, P. pulverulenta and P. sikkimensis may be sown as soon as they are ripe. It is possible that some of the stronger seedlings of these Primulas will flower next season; all the species are excellent subjects for planting in moist, shady situations. Aponogeton distachyon is one of the most useful water plants for furnishing small pools or shallow streams. The plant is worth a place in any scheme of water gardening for the fragrance of the blossoms alone.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire. Chatsworth. Derbysbire.

Gloxinia, Achimene and Gesnera.—These plants have finished or are on the point of completing their flowering, and water should be withheld gradually until the bulbs or corms are matured, when the pots should be placed on their sides under a stage in a cool house.

Winter-Flowering Plants. — By this date the principal batches of winter-flowering indoor plants should be established in their flowering pots. Such subjects as Salvias, Pelargoniums, Heliotropes, and Chrysanthemums will be greatly benefited by applications of manure water made from sheep or deer dung. The manure water may be made by placing the materials in a bag and soaking the latter in a tank of water. Soot water may also be made in the same manner. If these plants are standing out-of-doors where the wind may injure them, they should be secured to stakes. Keep the pots free from weeds. Chrysanthemums should be fed with artificial manure on frequent occasions, and kept clear of earwigs, as these pests may spoil the work of a whole season in a single night. Earwigs may be trapped by the old-fashioned method of pots filled with hay. The pots should be inverted on the tops of the stakes, and some of the hay should be placed on the tops of the pots, which should be inspected every morning for the pests. Richardias (Callas) planted in trenches as advised in a previous calendar should be afforded liberal supplies of water, supplemented by liquid-manure made from cow dung. The long, vigorous growths should be afforded supports. Pot Roses that have been neglected during the busy season should be overhauled, the drainage put in order, the weak shoots cut away, and a top-dressing applied. Plants of tuberous-rooted Begonias that have finished flowering should be placed out-of-doors and hardened gradually, to be ultimately placed under a greenhouse stage, or in a shed where frost will not be likely to injure them.

Violets in Frames.—Let the frames be prepared for the planting of Violets, arranging the soil so that the plants when set may be quite close to the glass. The soil should consist of good loam, old potting-materials and leaf-mould in equal proportions. Remove the runners from Violets growing in the borders, and keep the plants well watered, syringing them both night and morning, taking care to wet the undersides of the leaves as well as the upper parts. Loosen the soil frequently by means of the Dutch hoe.

Cleansing the Glasshouses. — At this time of the year many of the glasshouses are practically empty of plants, as the stocks of most winter flowering subjects are growing either in frames or out-of-doors. The present, therefore, affords a suitable opportunity to cleanse and wash the houses thoroughly in preparation for housing the various subjects in the autumn. Wash all the woodwork with soft, soapy water to which a little paraffin has been added, as this will destroy any insects that may be present. The gravel on the stages should be washed clean of dirt by means of a sieve and a tub of water. This will not only give the house a smart appearance, but will also be the means of destroying many insects. It will be an advantage to give the hot-water pipes a coating with some black material, or, if this is not necessary, they may be merely rubbed with a greasy rag. If this is done, the glass cleansed, and the walls lime-washed, the house will be clean and ready for a fresh start.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Celery.— The early plants require earthing up, but before commencing this operation all side shoots and small leaves should be removed. The bed should then be watered thoroughly, as nothing is more harmful to this crop than insufficient moisture at the roots. The leaves should be drawn together carefully and tied with some soft material which may be removed after the soil has been carefully placed around the stems. See that none of the soil gets in between the leaves or into the centre of the plants, as this would result in deformed growth. While it is necessary to press the soil around the stems, it must not be made so tight as to retard growth. Do not place too much soil in position at one time, but leave the centre of the plants quite open. Later plantations should be watered freely, and the soil stirred to promote a free growth. If slugs are troublesome apply a good dusting of soot before the soil is placed about the plants

Lettuce.— Make frequent sowings of Lettuce during August to ensure a full supply of heads through the autumn. Much of the success with this crop depends on the weather during the next two months, and it is advisable to make small sowings at frequent intervals in order to have a selection of plants so as to choose those most suitable for planting. The seedlings should be transplanted when large enough to handle in a sheltered situation, and where the plants can be protected from early frost. Hardy White Cos, Brown Cos, All The Year Round, and Maximum, are good varieties for present sowing, as they will not be harmed by a few degrees of frost.

Endive.—If seeds were sown a month ago the young plants should be ready for planting, choosing a sheltered situation. Afford the roots plenty of water to favour a quick growth. Another sowing of this vegetable may be made now to furnish plants for wintering in cold frames. Let the bed on which this batch is grown be raised to within 18 inches of the roof glass, and when the young plants are transplanted from the open border to the pit make the soil moderately firm, planting at a space of 1 foot apart each way.

Cabbage.—Another sowing of Cabbage seed should be made with as little delay as possible. Sow in an open situation so that the plants may grow sturdy. After the seeds have been sown cover the bed with netting to protect them from birds.

Radishes.—Make sowings of Radishes at intervals of 10 days on rich soil, and give the crop a liberal supply of water to promote quick growth. If cold frames are available a sowing of this salad may be made at the end of August to furnish roots for use late in autumn.

Mustard and Cress.—This salad may be sown weekly in a cold pit, shading the seedlings from strong sunshine.

Winter Greens.—The work of planting all kinds of winter greens should be finished as quickly as possible. Every available space should be filled with something useful for winter supplies. The plants may be placed close together after this date, as it is not to be expected that they will grow as large as those planted a month ago. One of the hardiest green vegetables is Drumhead Hearting Kale, which will form compact heads and grow for a long time without running to seed. The soil between the plants should be hoed frequently in order to promote healthy growth and keep weeds in check.

Winter Spinach.—Make a good sowing of Spinach at once and another a week later to provide for a full supply of leaves throughout the winter. There should be no delay in sowing, especially in gardens in late districts.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace. Midlothian.

Late Vineries.—The berries are colouring in late vineries, and the borders must be kept moistened with manure water. If not already applied cover the surface with a mulch of short manure. In districts where the rainfall is usually excessive it will be an advantage to cover the outside borders with either sheets of corrugated iron or wooden shutters. Warmth may be allowed in the water-pipes whenever the temperature is likely to fall below 65°. Artificial heat may also be employed at night-time to permit of the top ventilators being opened, as a constant circulation of air is essential. Directly red spider is detected sponge the foliage with a nicotine preparation, or sulphur mixed with water may be smeared on the hot-water pipes. Ripe bunches of Muscat Grapes that are required to hang for some time yet should be shaded, covering the glass lightly with some suitable material. Keep the ventilators open, but adopt some means to prevent wasps and flies entering the house. After the Grapes are cut it may be found that red spider is present on the foliage, but the leaves of Muscat vines being easily injured by insecticides only soft water should be used for syringing them, mixing a little soft soap in the water occasionally. At that stage the top and bottom ventilators should be thrown open, and should the inside border be dry, the soil should receive a soaking with clear water. The temperature should not be allowed to fall below 70°, but when artificial heat is employed the fire should be stopped early on bright days. If the roots are confined to inside borders it will be a less difficult matter to get the Grapes ripened. Expose the bunches fully to the sunlight, remove the surplus laterals, and draw on one side any of the foliage that may be shading the berries.

Fig Trees.—When the second crop of fruit is at the swelling stage the trees should be fed with manure water. Syringe the foliage frequently at that stage, but when the fruits commence to ripen keep the atmosphere drier and allow the air to circulate freely. Early trees from which the second crop of fruits has been gathered should be thinned of useless growths, and they may be syringed frequently. If the borders are not in a satisfactory condition early autumn is a suitable time to overhaul them. Fig trees need only a very limited root run, and the borders should be narrow and shallow, but ample drainage is necessary. The soil should not be too tenacious in character, but plenty of lime rubble should be mixed with it, for the Fig requires abundant supplies of water, and it is imperative that the surplus moisture shall be able to pass freely away.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Nursery Beds.—Make a sowing of spring Cabbages within four or five days in beds previously well dug and copiously watered. Sow the seeds broadcast, very thinly, and mulch the bed with either black soil or well-broken manure. Keep the ground moist by light and frequent waterings during the period of germination. Where only a few thousand plants are needed they may be raised in frames, as it is an advantage to protect the seedlings during times of heavy rains or storms. Endive sown some time ago is well through the ground, and the seedlings should be thinned where they are too thick to make sturdy plants. It will soon be time to make preparation for a winter supply of Lettuces from November till Christmas. Cloches are the more suitable for the purpose, but as they are also needed for the Lettuces a well-sheltered and well-drained corner should be chosen for setting frames and lights instead. The frames should be overhauled and repaired; if necessary, the lights painted and washed.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, AUGUST 18—
Pitsmoor (Sheffield) Hort. Soc.'s Sh., in conjunction with Artindale's Sweet Pea Sh.
TUESDAY, AUGUST 19—
Brighton and Sussex Hort. Soc. summer sh. (2 days).
WEDNESDAY, AUGUST 20—
Shropshire Hort. Soc. Summer Sh. at Shrewsbury (2 days). Wallingford Fl. Sh.
THURSDAY, AUGUST 21—
Aberdeen Hort. Soc. Sh. (3 days).
SATURDAY, AUGUST 23—
Hawick Hort. Soc. Summer Sh. in Town Hall.
Burnley and District Hort. Soc. sh. in the grounds of Bank Hall.

AVERAGE MEAN TEMPERATURE for the ensuing week deducted from observations during the last Fifty years at Greenwich—61.7°

ACTUAL TEMPERATURES :—
LONDON.—*Wednesday, August* 13 (6 p.m.); Max. 68°, Min. 57°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Thursday, August* 14 (10 a.m.); Bar. 29.7, Temp. 66°.
PROVINCES.—*Wednesday, August* 13, Max., Aberdeen, 64°, Min., Dumbarton, 57°.
Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY NEXT—
Dutch Bulbs, at 10. By Protheroe and Morris. At 67 and 68, Cheapside.
WEDNESDAY NEXT—
Dutch Bulbs, at 10. By Protheroe and Morris. At 67 and 68, Cheapside.
THURSDAY NEXT—
Dutch Bulbs, at 10. By Protheroe and Morris. At 67 and 68, Cheapside.

Partial Soil Sterilization.

The increased yields both of flowers and fruits which are obtained by the partial sterilization of the soil, at all events in the cases of such plants as Tomatos, Cucumbers and Chrysanthemums, suggest that this simple expedient will come more and more into general use. In the hope that those who have the facilities will carry ont experiments in partial soil sterilization we give briefly an account of some of the most recent observations which have been made by Messrs. Russell and Petherbridge* at Rothamsted, and we would suggest that among the plants in which similar experiments might be tried with advantage are pot Roses and Carnations. In suggesting cautions experiment with these plants we are influenced by the fact that in the case of Chrysanthemums partial sterilization appears to result undoubtedly in the production of larger and earlier flowers. If similar results are to be obtained with Roses under glass a definite encouragement will be given to the cultivation of these popular flowers. The advisability of attempting the application of the method to the cultivation of Carnations is also evident. In many places these plants suffer very considerably from an obscure leaf disease, apparently due to a bacterium. If the plants respond to partial soil sterilization by a more rapid growth in their earlier stages it may be that, as happens often when they are cultivated under favourable conditions and in the open ground, the Carnations will "grow out" of the disease. The more cautious experimenter may prefer to work with soil which has been only very partially sterilized—for example, by heating to 55° C. (= 131° F.). When plants are grown in soil previously heated to this degree the initial retardation which occurs frequently in the growth of plants in soil heated to boiling point is either nothing at all or only slight. But the final result is less remarkable than that obtained with plants grown in soil heated to 100° C. (= 212° F.). The increase of yield obtained in either case appears to be due to an accumulation of ammonia in the soil. The partial sterilization serves to destroy the nitrifying bacteria, and in the absence of these organisms ammonia is not oxidised to the form of nitrate. This reserve of ammonia may be held to act in two ways, first as a plant food and second as a stimulator of growth.

Since, however, heating to 55° C. suffices to destroy the nitrifying bacteria, it is not at present clear why heating the soil to the higher temperature should have such a much more marked effect on plant growth. No doubt the higher temperature causes more drastic changes in the chemical composition of the soil, but the way in which the changed chemical constituents affect growth is at present a subject only of conjecture. The experimenter must be prepared to discover an initial checking of growth in the plants grown in soil sterilized at 100° C.; but this check does not endure, and is succeeded by a phase of remarkable activity on the part of the plant. Moreover, instead of this activity leading to "leggy" growth, it results in the case of Tomatos, Cucumbers and Chrysanthemums in the "stocky" habit which the grower associates always with perfect condition.

So far none of the antiseptic substances, toluene, formaldehyde, etc., have given such striking results as are obtained by sterilization by heat at 100° C. Speaking generally, it may be said that the effects of these substances are between those of heat at 55° C. and at 100° C. Finally, as illustrating the advantages of soil sterilization in the case of the Tomato, we may mention that the authors cited already have demonstrated that these plants flower sooner, continue in flower longer, and bear more, earlier and sweeter fruit than the controls grown in untreated soil. Analyses of the plants show that these differences are not to be attributed solely to differences in the rate of absorption of nitrogen, for the plants grown in partially sterilised soil are richer not only in this element, but also in prosphoric acid than are those cultivated in the ordinary manner. To what this increase in intake of phosphoric acid is due is not clear, though it is by no means improbable that it is the result of the large production of fibrous feeding roots which occur in sterilized soil. This may in turn be the resnlt of the earlier check in growth, for we remember observing that when leguminous plants are grown in soil containing the nodule organism, their roots, becoming infected, suffer a check which is followed very soon by a very rapid and luxuriant formation of lateral roots. The physiology of partial sterilization is, however, still obscure. What is patent is that those who are concerned with practical horticulture can do a notable service by carrying out and recording experiments on partial sterilization with a large variety of the plants in general cultivation. To make snch experiments of general value it is necessary to grow plants in untreated soil side by side with others in soil which has been treated, to compare them with one another, and to put on record any noteworthy differences. Above all, it is necessary in carrying out such experiments for the operator to have no prejudice either for or against the method, for it is a commonplace that nothing is so readily seen as that which the mind wants to see.

* *Journal of Agric. Sci.* V., 3, June, 1913.

SHREWSBURY FLOWER SHOW. — The annual show of the Shropshire Horticultural Society, which will be held in the Quarry Grounds, Shrewsbury, on Wednesday and Thursday next, promises to equal the best of these famous exhibitions. Over £1,200 is offered in prizes, and the schedule includes no fewer than 198 classes. The presentation to the late Hon. Secs., Messrs. ADNITT and NAUNTON, will be made by the President, Mr. E. B. FIELDEN, in the Committee tent, on the first day of the show, at 3 p.m.

AUSTRALIAN KENTIAS.—An important industry in Lord Howe's Island is the gathering and sale of seeds of Kentia Belmoreana and K. Forsteriana, which Palms are indigenous to the island. The Government of N.S. Wales has, according to a note in *Le Jardin* (July 20, 1913), undertaken recently the regulation of the sale of these seeds, and has fixed a price for the current year. Communications on the subject should be addressed to the Administration of Lord Howe's Island, and sent to Sydney, Australia.

INTERNATIONAL HORTICULTURAL COMMISSION.—As an outcome of the International Horticultural Congress held at Brussels in 1910, it was resolved to found a permanent International Horticultural Commission, and two preliminary meetings have been held, one in Brussels, under the presidency of the Baron KERCHOVE D'EXAERDE, and the other in Paris, where M. VIGER presided. The Commission, at present only existing in a provisional state, will deal chiefly with international horticultural congresses, and will be composed of about sixty members of various nationalities, each country having representatives in proportion to its horticultural importance. The Commission will meet on every occa-

sion of an international congress relating to horticulture. Its duty will be to decide the date and place of the following congress. It will deal with scientific, practical and economic questions. A provisional meeting was held at Ghent on the 7th inst., and we await with some interest the news of the definite foundation of the Commission. The following countries have already nominated representatives:—Germany, Austria, Belgium, France, Great Britain, Italy, Holland, Duchy of Luxembourg and Russia.

Antwerp Exhibition.—On August 24 to 31 the Antwerp Society of Horticulture and Agriculture will hold a show of fruit, flowers and vegetables to celebrate the twenty-fifth anniversary of its foundation. Medals of honour, works of art, and other prizes are offered by the King and Queen of the Belgians, the City of Antwerp and others. The show will be held in the newly erected Orangery belonging to the Commune of Antwerp. The programme, printed in French and Flemish, includes some twenty-nine classes in the various sections. In addition to the purely horticultural classes there are others comprising apiculture, garden tools, manures and art exhibits. The secretary is M. Emile Nagels, 218, Chaussée St. Bernard, Antwerp.

"The Botanical Magazine."—The issue for July contains illustrations and descriptions of the following plants:—

Podachænium eminens. tab. 8,502.—This is the plant commonly grown in gardens as Ferdinanda eminens, to which genus it was referred by Lagasca. It is a useful subject for greenhouse decoration in the early spring, when it produces its lax terminal corymbs of Daisy-like flowers with white ray florets.

Sedum pilosum. tab. 8,503.—This species is illustrated and described in *Gardeners' Chronicle*, June 3, 1911, p. 347, Fig. 160. The species should prove an exceptionally good garden plant, as the head of rosy flowers are as handsome as those of a Crassula.

Cunonia capensis. tab. 8,504.—This South African tree is sometimes met with in conservatories, but it is not grown so frequently as formerly. The fragrant flowers are borne in dense axillary racemes and are of a yellowish tone. The material for the *Botanical Magazine* plate was obtained from a specimen in the Botanic Garden of Trinity College, Dublin, where it is grown in a cool greenhouse in a mixture of loam and peat.

Crotalaria agatiflora. tab. 8,505.—In common with most of the Leguminosæ the flowers of this plant are very showy. They are produced in terminal racemes from 8 to 14 inches long, and are coloured pale greenish-yellow, the keel being tipped with dull brownish-purple. The species was discovered growing in this country in a greenhouse at Pylewell Park, Lymington.

Vinca difformis. tab. 8,506.—This species of Periwinkle is a native of the Western and Central Mediterranean region, but is extremely rare in cultivation. The plant grows well in Canon Ellacombe's garden at Bitton, but it is not quite hardy. Specimens out-of-doors at Kew were taken up and potted and grown in the greenhouse, where they flowered freely during the winter. The flowers are solitary in the axils of the leaves, and, as shown in the plate, are pale mauve, although described in the text as blue.

—— The number for August contains the following:—

Stanhopea convoluta. tab. 8,507.—This Orchid is a native of Columbia, and first flowered in cultivation at Etterbeek, Brussels, in 1909. The species resembles S. tricornis, but it has larger flowers and there are differences in the structure of the lip.

Centaurea crassifolia. tab. 8,508.—This Knapweed is found only in Malta, and was introduced to this country by Professor George Henslow, who sent a plant to the Cambridge Botanic Garden in 1894. But this plant was lost, and was replaced by one from the gardens at La Mortola. The flowers are of a purple shade, and have the characteristic appearance of the Knapweeds. At Cambridge the species has been cultivated in the succulent house, under conditions such as are afforded Sempervivums.

Cytisus supranubius, tab. 8,509 (see also figs. 49, 50, pp. 121, 122).—This plant is endemic in the Canaries, where it forms a bushy shrub about 5 feet in height and nearly as much through. When in bloom the branches are covered with creamy-white blossoms that show just a tinge of rose. Although not quite hardy in this country the species would probably succeed against a sunny wall out-of-doors.

Grevillea bipinnatifida. tab. 8,510.—G. bipinnatifida may be regarded as the most ornamental of all the Grevillias, for in addition to its attractive inflorescences of reddish blossoms the foliage is beautifully dissected. The plant is a native of the Swan River, Western Australia, and forms a spreading or prostrate shrub some 3 feet high.

Solenostemon Godefroyæ. tab. 8,511.—This Labiate has some resemblance to a Coleus, to which it is allied. The species is a native of Angola, and was first discovered in 1873. Specimens at Kew have thriven well in company with Begonias in a house having an intermediate temperature. The flowers are described as blue, but in the *Botanical Magazine* plate they are coloured a shade of mauve or violet-purple.

Fig. 49.—Cytisus supranubius in Glasnevin Botanic Garden.

Potato Restrictions in Argentina.—The Board of Agriculture and Fisheries desire to give notice that they have received through the Foreign Office a copy of a decree governing the importation of Potatos into Argentina. The decree, which will come into force on August 29, 1913, provides that all Potatos imported into the Republic shall be accompanied by (a) "Sanitary-origin," and (b) "Sanitary" certificates, duly legalised by an Argentine Consular officer. Certificates issued by duly qualified persons who are authorised by the Government of the country of origin will be recognised as "certificates of sanitary origin," provided that they certify to the satisfactory sanitary condition of the land as regards the following diseases and pests.—Synchitrium endobioticum (wart disease), Phytophthora infestans (ordinary potato disease, or "blight"), Rhizoctonia solani, Heterodera radicicola (eelworm), Lita solanella (Potato moth), scabs and "dry rot" attributable to bacteria and fungi. The certificate must also show the date of the crop, the quantity or weight of the Potatos, the name of the grower and of the person to whom they will be shipped. In the event of any of the above diseases being discovered the affected consignment will be reshipped or destroyed. Certificates will be recognised as "sanitary certificates" which are issued by the foreign authorities referred to above, or by a technical officer of the Directorate General of Agriculture, provided that they state (1) That the Potatos appear to be free from the diseases and pests specified above; (2) the quantity or weight of the Potatos and the marks of the boxes in which they are packed; (3) the name of the steamer by which they will be shipped, the name of the person to whom they are consigned, or representative in the country of destination; and (4) the date of issue of the certificate. The necessary inspection for this certificate must not be made for at least a month after the date of issue of the certificate of sanitary origin. These certificates will suffice for Potatos landed at Buenos Aires, but if consignments are entered through any other port further certificates are required, particulars of which will be supplied by the Board on application. Persons desirous of exporting Potatos to Argentina should communicate with the Board in order that arrangements may be made for the necessary inspection of their crops.

CYTISUS SUPRANUBIUS.

This uncommon species of Broom (see figs. 49 and 50) is a native of Teneriffe, and coming from there one would scarcely expect it to be thoroughly hardy. Five or six years ago it was planted in the open ground in the Glasnevin Botanical Garden, and has never received any protection. During this time it has passed safely through severe winters when we have had 22° or

more of frost. The shrub is a quick grower, and has formed a bush 8 feet high by about the same through, growing in our ordinary garden soil. Rhododendrons and many Ericaceous shrubs are not a success here on account of the lime in the soil. Mr. Smith, of Newry, states that Cytisus supranubius is about 7 feet high with him, and is growing in an elevated part of the nursery in shallow, poor soil on the top of rotten granite; so apparently it will thrive in different kinds of soil.

This species resembles Spartium junceum in its leafless winter state, but the branches are stronger and a lighter green. In the seedling stage, and when making free growth in summer, the shoots bear tiny trifoliate leaves,

Fig. 50.—Cytisus supranubius : flowers creamy-white.

whereas the Spartium bears simple leaves, but in neither case are they borne very freely.

This Cytisus has also been known to botanists under the name of Spartium nubigenum and Cytisus fragrans. It is one of the most fragrant species, the creamy-white flowers having an almond perfume. Last year and this year about the end of June it flowered with unusual freedom, and was a most attractive shrub, and last autumn a fair crop of seed was produced. The pods are small, about three-quarters of an inch long, and usually contain only one seed. Down to the present cuttings have been a failure, but seeds germinate freely, and they provide the best means of propagation.

Like the Spartium and other almost leafless shrubs this Cytisus breathes and transpires through the numerous pores or stomata found in the epidermis or skin of the younger branches. As the shrub comes from a warmer climate than ours some protection in winter may be needed when it is planted in colder places than Glasnevin. *C. F. Ball.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Hampton Court Gardens.—Although the palace and its famous picture galleries have for some time been closed to the public, there is no apparent diminution in the great numbers of persons who visit the grounds and gardens. If illustration were needed, this significant fact would suffice to show how general is the love of gardening. A decade and more ago the greater proportion of visitors would spend much more time in the picture galleries than in the gardens, but now the flower gardening is the attraction, and not only are the floral effects admired, but it is a common occurrence for visitors to take notes of favoured plants, and in this the praiseworthy practice of freely placing legible labels is of great assistance. It is generally assumed that the Londoner's favourite summer-flowering plants are scarlet "geraniums" (Pelargoniums), blue Lobelias and white Marguerites, and, as large numbers of the great holiday crowd were apparently from the metropolis, the present writer noted with interest the schemes which attracted most admiration. The "Long Border," with its wealth of flower, for the most part set out in colour blocks and decorously bordered with the variegated Dactylis glomerata, was freely admired, but the feature over which most people lingered was the pair of large circular beds which are planted with the soft pink-coloured Begonia Major Hope, rising from a groundwork of Alyssum maritimum and relieved by occasional little bushes of the silvery-foliaged Leucophytum Brownii—a pleasing and dainty mixture. There were passed in review other charming combinations of Lantanas and Heliotropes rising from the white, star-like blossoms of Bouvardia Humboldtii corymbiflora or Swainsonia galægifolia and the floriferous Salvia splendens Glory of Zurich, and a very large rectangular bed, 50 feet long by 12 feet broad, wherein the tall feathery plumes of Humea elegans half-veiled the gorgeous crimson and yellow spikes of Cannas intermixed with white and blue Campanula pyramidalis, and bordered by a broad band of white Violas. This display received its full meed of admiration, but it was another "pink and white bed" further on in which the Major Hope Begonias were replaced by taller plants of the same shade, and pegged-down Leucophytums supplied the groundwork with even greater effect, which arrested most attention. Although there is a magnificent bed of Sweet Peas containing fully 1,000 plants in full bloom, and averaging 7 feet in height, it received but scant notice; a fate which also befell the excellent herbaceous border. As is proper in a public garden, the planting is done in various styles, and, in addition to the charming combinations above noted, flower beds may be seen filled with only one kind of plant, as, for examples, Empress Pansy, Verbenas, Pelargonium Paul Crampel and Aubrietia Dr. Mules, which is even now a mass of flower, but the average visitor cared nothing for these, preferring the tasteful admixture of several distinct kinds. One of the most pleasant features of the gardens is the spacious lawns, where one may walk unchided, surrounded by old Yews, with dense rounded heads and clean, sturdy tree trunks, and the intervening flower beds of ample proportions. A visit to Hampton Court would not be complete without an inspection of the famous "Great Vine," which London records as having produced an annual crop weighing 2,200 lb. The present crop falls far short of that weight, but the bunches and berries are much larger than was the case twenty and more years ago. *A. C. B.*

The Prevention of, and the Artificial, Ripening of Fruits.—In Sir W. T. Thiselton-Dyer's remarks (*Gardeners' Chronicle*, August 2, 1913, p. 88), in speaking of the two processes of plant life, photosynthesis and respiration, he does not emphasise the necessity of light in the former, which brings about the development of the fruit while green. This first process involves the absorption of carbon dioxide with the giving off oxygen, but only under light. Darkness, therefore, will stop the ripening process, if the temperature be relatively low, as will be explained. If, therefore, unripe green fruits be surrounded by CO_2 in light, it would seem that the process of photosynthesis might be, perhaps, somewhat enhanced, provided the temperature be suitable. If, however, the fruit be enveloped in carbonic acid gas (CO_2) in total darkness, all further natural development is stopped. Then the fruit would probably be at once affected by enzymes (oxidases), thereby making its own oxygen for respiration, by the decomposition of starch, etc. The result would be a hastening of those chemical changes we call ripening; but a danger might follow by a rapid "bletting" or "over-ripe" condition may occur, especially if the temperature rises, internally by respiration, or externally by the weather. I suggested to a fruit-grower that this might have been the cause of his apples bursting when packed or heaped together and confined in a more or less darkened place—the rupture being due to an accumulation of CO_2 by internal respiration. My gardener once packed in a closed box some Jargonelle Pears, when on the verge of ripening. They travelled by rail for several hours, but they were uneatable on their arrival. They had reached and past the stage of ripening. As temperature stimulates respiration, the amount of CO_2 emitted increases proportionately to the number of degrees of temperature, till death ensues. There must be a circulation of cool air, as respiration itself increases the temperature within the fruit, and a rise of temperature hastens the

bletting process. If, therefore, total darkness be tried as an experiment for artificial ripening, the temperature must be comparatively warm, but accompanied with a circulation of air, for all parts of plants must breathe, and therefore need oxygen. The above suggestion is, of course, purely hypothetical, and therefore experiments alone will show whether total darkness and warmth would be sufficient to hasten the process of ripening. The above would seem to be, to some extent, the exact converse to that of Sir W. T. Thiselton-Dyer's, for the opposite process of arresting ripening. He says: "As far as I can see, the only mode of arresting ripening is by keeping fruit in a cold storage." Such arresting is presumably desirable for transmission of fruits from foreign countries and the Colonies. As the writer of the original article observes: "Picked green and packed [presumably in darkness in the hold of the ship and in cold storage], they may be shipped without danger, and then be ripened when wanted." So that the first requirement is that they should not ripen on the voyage. This appears to be secured by darkness, cold, and with some circulation of air—the darkness stops photosynthesis, and the cold checks a too rapid respiration. If experiments be made, I would suggest that they should be comparative, thus:—(1) In total darkness, and (2) in light, with the same temperature in each case. (3) If the carbonic acid gas (CO_2), or any other acid vapour be used to envelop the fruit, some should be in darkness and others in light, with the same temperature. Of course, I repeat all this is only suggestive and hypothetical. *George Henslow.*

The Future of the N.E.H.S.—I am asking myself where are the N.E.H.S. members who should have replied to the Rev. Bernard Hall's note on p. 70? Fourteen days go by and our old and valued friend, "Yorkshire Gardener," answers firmly and well. No doubt there is need for a Northern Garden Institute for experimental purposes, but surely we want no school, for there are plenty of such places. Let us deal with deeper things that cannot be touched upon in private gardens or trade establishments because of the expense. The future of the N.E.H.S. should be with this Horticultural Institute, but are not we travelling too fast? One fact must be faced: without our monthly show we shall go down, for it is the fortnightly meetings that make the R.H.S. what it is. Our monthly meetings, which should be addressed by a specialist, should be our chief consideration, for the intelligent horticulturists of the North would rally to it. I agree with the writer in a contemporary horticultural paper that we need no more committees, departmental rock gardens or side shows. Those who read the notice about the Garden Institute on page 252 of the *Journal* of the N.E.H.S. and the letter on page 70 of your paper may ask which was written first? The Council of the N.E.H.S. would be wise to give every fellow a vote (proxy), even though he were not able to be present at the meeting, for this would be a means of obtaining the opinion of the members. Mr. Hall will no doubt think of the parable of the sheep that was lost when he looks at the names of those who have, I hope only temporarily, left us, and use the powers he possesses, and which his northern friends value so much, to encourage them to return once again to the fold. *Another Yorkshire Gardener.*

Rose Edward Mawley.—In appreciative amplification of the notes by "White Rose" on the variety Edward Mawley as a red Rose, I would say that when the plant has regained a vigorous constitution I think it will be found one of the most splendid Roses ever grown. I was disappointed with it at first, but this summer I have had one bloom of the most exquisite beauty it is possible to imagine. The name is all right, and the Rose is all right, I feel sure. *F. Kitley, Bath.*

Pea Sticks.—It is asserted by some that Peas will not cling to certain kinds of sticks. I recently saw a row of culinary Peas that were staked with Ash branches, and the grower informed me that the tendrils refused to cling to the Ash, and that he had noticed the same thing on a previous occasion. The appearance of the plants seemed to support his statement. *Observer.*

REMARKS ON CONDITION OF THE FRUIT CROPS.

(*Continued from page* 101.)

(*See Tables and Summaries, ante, pp.* 80-85.)

3, ENGLAND, E.

Cambridgeshire.—Strawberries have been extra large and the quality very good; some of the berries weighed 5oz. each. On April 13 we registered 13° of frost, which damaged the Pear and Plum blossom considerably. Strawberries and Apples escaped injury from this cause. *R. Alderman, Babraham Gardens, Cambridge.*

—— Of stone fruits we have scarcely any. Pears also are very thin and of bad quality. Many Apples dropped, and we have only an average crop of this fruit. Our soil is heavy and low lying, with a chalky subsoil. It is sometimes very wet. *T. Spooner, Meldreth.*

—— Frost effected considerable damage to the Apple, Pear and Plum crops, early Plums alone escaping injury. Wall fruits, although protected, suffered from the same cause. The damage was not due so much to the severity of the frost as to the moisture-laden atmosphere. Small fruit seemed to have escaped the early and late frosts, and we have average crops of these. The soil generally around here is of a light nature. *A. Sewell, Palace Gardens, Ely.*

—— Trees of Lord Derby Apple, which missed cropping last year, have a good sprinkling of fruit, but the crop of Bramley's Seedling is a very sparse one, except on trees that cropped light last year. Trees of Lane's Prince Albert are almost barren. We do not grow dessert varieties of Apples, except Mr. Gladstone, and this has failed us. Early Rivers Plum is a failure, whilst Czar and Monarch are only lightly cropped. Raspberry Superlative is the best variety for this district. We have the county boundaries of Norfolk, Cambridgeshire and Lincolnshire in our own lands, a straggling farm of more than 100 acres. Bulbs do well here. Our wheat is specially fine, and oats are good. Beans for seed purposes are very promising. Clover and hay is heavy in weight, and was well harvested. The crops of Mangolds and Kohl Rabbi require rain. Cabbages have done well, Sutton's Harbinger being especially good. *Stephen Castle, Walpole St. Andrew, Wisbech.*

Essex.—The fruit crops are, on the whole, disappointing. Most of the Apple trees have set a large crop, but many of the fruits will fail to mature. Plums are a good crop. Peaches and Nectarines, as well as Apricots, are a failure. Small fruits generally are fairly good. Aphides have been very prevalent. The prolonged drought following on a wet winter and early spring has had a marked effect on fruit as on most crops. The damp, sunless summer of 1912 was responsible for unripened wood, which is, no doubt, a contributing cause of the poorness of the fruit crops. Our soil is a stiff, yellow clay. *Arthur Bullock, Copped Hall Gardens, Epping.*

—— Although the show of blossom on all kinds of hardy fruit trees gave early promise of bountiful crops of fruit, adverse weather conditions at the time the flowers were open are responsible for the failure of the good prospects, with the result that there are average crops of Apples, Pears, Plums, and Cherries. Here and there, trees of such varieties as King of the Pippins, Norfolk Beaufin, Bramley's Seedling, Hambledon's Deux Ans, Lord Grosvenor, and Early Victoria Apples, are bearing fairly good crops of clean fruit. Beurré d'Amanlis and Williams' Bon Chrêtien Pears are bearing only light crops, though in favourable situations as regards aspect and soil. *H. W. Ward, Lime House, Rayleigh.*

—— The crops of Apples in this district are not at all regular: in some places there is an abundant yield, whilst in other gardens there is only an average crop. Cox's Orange Pippin and Blenheim Pippin seem to have better crops than usual. Pears are very unsatisfactory; there was plenty of bloom, but the fruits did not set. What fruit we have seems to be of very good quality. Of Plums only the variety Victoria is satisfactory. Cherries are almost a failure, with the exception of Morellas, which were very good. Few Peaches, Nectarines, and Apricots are grown out-of-doors here. Strawberries were an abundant crop of very fine berries. Small fruits were abundant in places, and the fruits were of very good quality. Gooseberries seem to be the most irregular crop, there being large numbers in some places and very few in others. Of nuts there are scarcely any. *William Johnson, Stansted Hall Gardens, Stansted.*

Lincolnshire.—All kinds of fruit trees blossomed freely with the exception of Apricots. Peaches and Nectarines set but new fruit. Pears developed scarcely any blossom, and most of the few fruits that did set dropped later. The Apple crop is very uneven; some trees have liberal crops, whilst others have none. Much damage has been done by aphides. Strawberries were a heavy crop, especially the variety Given's Late Prolific. Gooseberries also were a heavy crop, especially on bushes in the open. The soil is a heavy loam overlying a clay subsoil. *F. J. Foster, Grimsthrope Castle Gardens, Bourne.*

—— The fruit crops are unsatisfactory. There was plenty of blossom, but the flowers were small and weak, which I attribute to an absence of sunshine in 1912. Ten degrees of frost when Pears and Peaches had just set accounts for the scarcity of these fruits. The Plum crop is a variable one; some trees are laden, whilst others are barren. Apples are an average crop, but the trees were much injured by blight. *H. Vinden, Harlaxton Manor, Grantham.*

—— Apple and Plum trees are much blighted, both green and black aphis being very troublesome, notwithstanding syringing with insecticide. Potatos, both early and late varieties, are suffering from drought. We are lifting tubers of fair table quality of the varieties Duke of York and Midlothian Early, but the yield is much under average. The soil is a dark loam, resting on clay. *Harry Louth, Boothbys Hall, Grantham.*

Norfolk.—Apples, generally, in all parts of the county are promising well. A few Plum trees are bearing heavy crops, mostly those growing on light soils, but in the majority of gardens the Plum crop is a very light one. Pears, generally, are a failure. There was a fine show of Pear blossoms in spring, but scarcely any fruits set. Gooseberries and Red Currants were good average crops of fine fruit. Black Currants were good in places. Raspberries were a poor crop on heavy soils. A number of growers complain of the fruiting canes dying back. Strawberries were satisfactory. *H. Goude, Myosotis, E. Dereham.*

—— Pears are the worst crop of the season, and in many gardens the crop is almost a failure. Small fruits, with the exception of Red Currants, were good. White Currants, especially, were both plentiful and good. Peaches, with the exception of those on trees growing on a south wall, are very scarce, and Apricots are a complete failure. Strawberries were plentiful and fine in flavour. *William Orr, Stow Hall Gardens, Downham Market.*

Hampshire.—Stone fruits are, on the whole, a very thin crop, whilst Pears are a failure, except on some of the older trees. The excessive rainfall of 1912 caused the trees, and especially the young ones, to make rank growth and develop plenty of fruit spurs, for I never remember seeing the trees flowering more abundantly. But the flowers were very thin and most of them dropped. *Lewis Smith, Cadland Park, Southampton.*

Suffolk.—Apples are an average crop, and the Pear crop also is not a bad one considering the wet, sunless autumn of 1912 and cold spring of 1913. Several severe frosts occurred whilst the Pear and early Apple trees were in blossom. But the nights were dry, and, consequently, no great amount of damage resulted. Apricots and Cherries are the worst crops. These fruits set freely, but many dropped at the stoning stage owing to drought. Small fruits and Strawberries have given abundant crops, and especially Black Currants. The American Gooseberry mildew has been very prevalent in this district, and many small market growers have been forced to destroy their bushes. The disease has not made its appearance in these gardens. Peaches out-of-doors have been badly attacked by blister, but, happily, the disease has disappeared, and the trees are looking healthy again. *Thos. Simpson, Henham Gardens, Wangford.*

(*To be continued.*)

SCOTLAND.

EFFECTS OF THE DROUGHT.

THE long-continued dry weather in Scotland is having serious effects in many gardens, while it has also been the cause of much loss to growers of Raspberries and other fruit crops. In gardens the effects of the drought are being experienced severely. The rainfall during July was exceptionally small, and none of the stations reporting to the Scottish Meteorological Society recorded as much as 2 inches, while many of them had less than an inch rainfall. In some parts there was less than half an inch of rain, and at Braemar the fall of about a quarter of an inch was the lowest for fifty years in the same month. In August up to the time of writing, the 9th inst., hardly any rain has fallen. Bedding and other plants have made but little progress, and lawns in many places are brown from drought.

PHORMIUM TENAX AS A COMMERCIAL CROP.

THE cultivation of the New Zealand Flax, Phormium tenax, on a commercial basis is being followed with much interest in some parts of Scotland. On the estate of Mr. J. A. Wallace, Lochryan, Stranraer, where the climate is exceptionally mild, the Phormium grows rapidly. Several acres were planted some time ago, and although at first difficulties were experienced in treating the fibre so as to make it suitable for manufacturing purposes, these appear to have been overcome, and the crop is being utilised for the market and is manufactured into rope and binder twine. The leaves are first treated by Wright's decorticator, and the fibrous matter is afterwards washed in pools for an hour or two previous to being bleached. After bleaching for some days the fibre is returned to the mill, in which the decorticator is placed, and scutched to make it ready for baling. It is believed that the crop will be a profitable one.

GLASGOW PARKS.

THE magnitude of the work of the Parks Department of the City of Glasgow and the amount of responsibility resting on the head of the department, Mr. James Whitton, V.M.H., may be gathered from the accounts submitted at a recent meeting of the Glasgow Town Council. The total revenue amounted to £108,301, as against £89,712 in the previous year. The expenditure was £108,364 as compared with £89,708. A revenue of £95,634 was received from a rate of 3.7d. per £, and other sources of income included the Queen's Park, £1,092; public bowling greens, £2,285; golf courses, £1,629; and Rouken Glen, £649.

PRIZES FOR COTTAGE GARDENS.

THE Countess of Selkirk has again given prizes for the best cottage gardens on the St. Mary's Isle estate, Kirkcudbright. The judges, Mr. W. Hutchinson, gardener to C. E. Galbraith, Esq., Terregles, and Mr. D. Hunter, of Messrs. Barr and Hunter, Dumfries, recently made the awards. *Correspondent.*

INCREASED RAILWAY RATES.

IN a recent issue we reported certain concessions gained by the Horticultural Trades Association through their opposition to the increased railway rates which the South-Eastern and Chatham Railway Companies sought leave from the Railway and Canal Commissioners to increase, so far as the clog imposed by the South-Eastern, London and Chatham and Dover Railway Co.'s Act, 1899, was concerned.

Those who are accustomed to forwarding small parcels of goods not exceeding 3 cwt. in extent by passenger train will be glad to hear that since the report in question further advantages have been gained in their favour.

Before the order was drawn up the legal advisers to the Horticultural Trades Association took the precaution of investigating the question of whether the increased rates proposed for small parcels would exceed the maximum fixed by the Act of 1899 referred to above, and it was found that such would, in fact, be the case. The attention of the Court was therefore called to the matter, and it was pointed out that the railway companies were, in fact, asking the Court to authorise them to charge more than the maximum fixed by Parliament, and that such an order would be obviously ultra vires.

To make the matter clear, it should be explained that the maximum charges which can be demanded by the railway companies for the conveyance of small parcels by passenger trains (at company's risk) are as follows:—

Distance.	For any Parcel not exceeding in Weight:—							
	7 lbs.		14 lbs.		28 lbs.		56 lbs.	
	d.		s.	d.	s.	d.	s.	d.
Not exceeding 20 miles ..	3		5		7		9	
,, ,, 30 ,, ..	5		7		9		1	0
,, ,, 50 ,, ..	7		9		1	0	1	6
Exceeding 50 ,, ..	9		1	0	1	6	2	6

And for any parcel exceeding 56 lb., but not exceeding 500 lb. in weight, the two companies, or either of them, and the managing committee acting on their behalf, may demand any sum they think fit; provided always that articles sent in large aggregate quantities, although made up in separate parcels, such as bags of sugar, coffee, meal, and the like, shall not be deemed small parcels, but that term shall apply only to single parcels in separate packages.

The following schedule shows the increased small parcels rates which the South-Eastern and Chatham Companies asked for power to charge, and we give in italics all those rates which would be illegal as being in excess of the maximum set out in the schedule shown above (no question arises as to parcels over 56 lb. in weight, as in such cases the Act of 1899 has fixed no maximum, but permits the companies to charge any reasonable sum):—

NEW GENERAL PARCELS RATES.

Distance.	2 lbs.	3 lbs.	4 lbs.	5 lbs.	6 lbs.	7 lbs.	8 lbs.	9 lbs.
	d.	d.	d.	d.	d.	d.	d.	d.
Not exceeding 20 miles ..	4	4	4	4	4	4	*6*	*6*
,, ,, 30 ,, ..	4	5	*6*	*6*	*6*	*6*	6	6
,, ,, 50 ,, ..	4	5	6	6	6	6	8	8
Above 50 ,, ..	4	5	6	7	8	9	10	11

Distance.	10 lbs.	11 lbs.	12 lbs.	14 lbs.	15 lbs.	16 lbs.	18 lbs.	19 lbs.	21 lbs.	22 lbs.	24 lbs.	28 lbs.	29 lbs.	30 lbs.	32 lbs.	36 lbs.	40 lbs.	42 lbs.	44 lbs.	48 lbs.	52 lbs.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Not exceeding 20 miles ..	*6*	*6*	*6*	*6*	6	6	6	6	6	6	6	7	8	8	8	9	*10*	*11*	*11*	*1 0*	*1 0*
,, ,, 30 ,, ..	6	6	6	6	6	6	6	6	6	6	6	7	8	8	8	9	10	11	11	1 0	*1 1*
,, ,, 50 ,, ..	8	8	8	9	10	11	11	1 0	1 0	*1 1*	*1 1*	*1 2*	1 4	1 4	1 4	1 6	*1 8*	*1 10*	*1 10*	*1 10*	*2 0*
Above 50 ,, ..	1 0	1 0	1 0	*1 1*	1 2	1 3	1 3	1 4	1 4	1 5	1 6	*1 7*	1 10	1 11	2 0	2 0	2 2	2 5	2 6	*2 7*	*2 9*

Distance.	56 lbs.	60 lbs.	64 lbs.	68 lbs.	70 lbs.	72 lbs.	76 lbs.	80 lbs.	84 lbs.	86 lbs.	92 lbs.	96 lbs.	98 lbs.	100 lbs.	104 lbs.	108 lbs.	112 lbs.	For every 14 lbs. or part thereof above 112 lbs.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
Not exceeding 20 miles ..	*1 0*	1 2	1 2	1 2	1 3	1 3	1 3	1 3	1 3	1 4	1 4	1 5	1 6	1 6	1 6	1 6	1 6	2d.
,, ,, 30 ,, ..	*1 2*	1 3	1 4	1 5	1 6	1 6	1 7	1 8	1 9	1 10	1 11	2 0	2 1	2 1	2 2	2 3	2 4	3d.
,, ,, 50 ,, ..	*2 0*	2 3	2 3	2 3	2 3	2 3	2 6	2 6	2 6	2 9	2 9	2 9	2 9	2 9	3 0	3 0	3 0	4d.
Above 50 ,, ..	*2 9*	3 0	3 2	3 4	3 6	3 6	3 6	3 6	3 6	4 0	4 0	4 0	4 0	4 6	4 6	4 6	4 6	6d.

In order, therefore, to ensure that the sanction of the Railway Commissioners to increase rates shall not enable the South-Eastern and Chatham Companies to charge more than the maximum fixed by the Act of 1899, the Court has included in the order a provision to the effect that all the above charges for any parcel not exceeding 56 lb. in weight shall include services beyond conveyance. In other words, where any excess is charged by the railway companies beyond the maximum rates set out in the first of the above two schedules, they must be prepared to perform extra services, such as loading and unloading or collection and delivery, up to a value equivalent to the amount of the excess. Those who consign small parcels by passenger train at companies' risk should, therefore, carefully check the rates charged them with the first of the schedules set out above, and if the rate demanded exceeds the maximum fixed by such schedule, they should take steps to ascertain whether other services are performed by the railway companies equivalent in value to the amount of such excess, as otherwise the rate charged would be illegal.

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 12.—The usual fortnightly meeting was held on Tuesday last in the Society's Hall, Vincent Square, Westminster. The exhibition was the smallest of the year, and there were but few visitors.

The Orchid Committee recommended two Awards of Merit.

The Floral Committee granted five Awards of Merit to novelties and 12 medals to groups.

The only exhibit of importance in the fruit and vegetable section was a collection of pot fruit trees, for which a Silver Knightian Medal was awarded.

At the three o'clock meeting in the lecture room an address on "Fairy Flies and their Hosts" was delivered by Mr. FREDERICK ENOCH.

Floral Committee.

Present: H. B. May, Esq. (in the chair), Messrs. Chas. T. Druery, G. Reuthe, W. Bain, Chas. E. Pearson, J. W. Moorman, Chas. Dixon, J. T. Bennett-Poë, Arthur Turner, W. P. Thomson, E. H. Jenkins, H. J. Jones, William H. Morter, Chas. Blick, J. F. McLeod, C. R. Fielder, T. Stevenson, J. W. Barr, E. A. Bowles, B. Crisp, George Paul, John Green, and R. Hooper Pearson.

Mr. L. R. RUSSELL, Richmond, showed varieties of hardy Fuchsias, the dwarf-growing Acæna macrophylla and the silver-variegated variety of Dimorphanthus mandschuricus. The Fuchsias included the varieties Brightonensis, with large purple and scarlet blossoms, Riccartonii Enfant Prodigue, F. pumila with almost black corolla set off by scarlet sepals and F. gracilis and its variety variegata.

Messrs. W. CUTBUSH AND SON, Highgate, were awarded a Silver Banksian Medal for Gladioli and miscellaneous indoor plants. A batch of the rosy-leaved Coleus cordelia was attractive in association with the elegant-leaved Dracæna Victoria, Begonias, Caladiums, Liliums and Dracænas.

Messrs. JAMES VERT AND SONS, Saffron Walden, successors to Messrs. Webb and Brand, showed Hollyhocks. The varieties of this old-fashioned flower were all of the rosette type, and included: Lady Bailey, flesh-colour; Primrose Queen (new); Ovid, rose; Exultum, maroon; Peri Lena, purplish-maroon; and Constance, salmon. (Silver Flora Medal.)

Messrs. H. B. MAY AND SONS, Dyson's Road, Upper Edmonton, filled a large table space with varieties of indoor Ferns, showing excellent

plants of Osmunda palustris Mayi, Pteris cretica Childsii, Adiantum trapeziforme, Cheilanthus elegans, Asplenium formosum, Gymnogramme sulphurea and Microlepia speluncæ. (Silver Banksian Medal.)

Messrs. A. H. Cole Ltd., Swanley, Kent, were awarded a Bronze Banksian Medal for Zonal Pelargoniums, Gloxinias and Pentstemons.

Messrs. Dobbie and Co., Edinburgh, showed Collerette Dahlias and varieties of Scabious, the exhibit of Scabious being the most attractive in the Hall. They were arranged very lightly in vases and set off by fine foliage and plants of Kochia. The colours of these pretty border flowers were very varied, and the collection included varieties labelled Cherry Red and White, Black-Purple and White, White, Black-purple, Pompadour, Brick-red, Flesh, Lilac and Azure Fairy. Amongst the Dahlias were the following choice sorts:—Queen Anne, scarlet, tipped with gold; Holyrood, ruby-crimson, with gold tips and a yellow disc; Inchcape, chocolate-brown florets with rose and white tips; Yellow Queen, The Needles, rosy-claret with gold centre; and Princess Louise, blood-red with white tips. (Silver Banksian medal.)

An excellent exhibit of Delphiniums and Achillea Perry's White was shown by Mr. Amos Perry, Enfield. The group was arranged with excellent taste and included a large batch of the fine, semi-double form of Delphinium Belladonna. (Bronze Flora Medal.)

Mr. G. Reuthe, Keston, Kent, showed hardy border flowers and uncommon shrubby species. In the centre of the group was a large batch of Dierama (Sparaxis) pulcherrimum atropurpureum. We also noticed the new Anemonopsis californica, with white petals surrounding a cone of stamens, some of the latter being petaloid; Arctostaphylos californica in fruit, not unlike a Pernettya; and Rhododendron lepidotum obovatum, a tiny gem with flat, purplish flowers blotched with maroon on the upper petals. (Bronze Flora Medal.)

Mr. M. Prichard, Christchurch, Hampshire, was awarded a Silver-gilt Banksian Medal for hardy plants. This excellent exhibit was arranged as a floor group and included fine specimens of Achillea Ptarmica The Pearl, Delphinium Lamartine, Montbretia George Davidson, varieties of border Phloxes, Romneya Coulteri and showy Gladioli.

Messrs. T. S. Ware, Ltd., Feltham, were awarded a Silver Banksian Medal for a large exhibit of border flowers which included most subjects in season.

Messrs. W. Wells and Co., Merstham, Surrey, showed varieties of border Phloxes and Perpetual flowering Carnations. (Silver Banksian Medal.)

Messrs. Kelway and Son, Langport, Somersetshire, exhibited a large collection of excellent Gladioli spikes, which occupied two lengths of tablings. Besides a very large number of the best named varieties, Messrs. Kelway showed many novelties under numbers, and of these No. 13, a splendid, well-furnished spike of large orange-lipped yellow blooms, was especially meritorious. The dainty hybrids of G. primulinus, which are mostly of yellow and buff shades, were also very charming. Of the named varieties, Picotee (yellow, with a pink edge), Firedragon (yellow and deep orange), Field Mouse (pink suffused with purple), Marie Studholme and Peyman were especially noteworthy. (Silver-Gilt Flora Medal.)

Messrs. W. Cutbush and Son, Highgate, also contributed a large collection of Gladiolus spikes. This exhibit was displayed on a broad platform in an attractive manner. The centre of the group was composed of a very large number of the bluish-purple Baron Jules Hulot, and was flanked by large stands of Lucretia (a Brenchleyensis variety), Panama (a large-flowered pink), Europa (white), and Peace.

Awards of Merit.

Gladiolus Craiganour.—A bright coral-rose variety; the lower inner petal is of darker shade, and each of the inner segments has a white line down the middle. There is the faintest sheen of purple shading the rose, which becomes most marked on the lower petal. Shown by Messrs. Kelway and Son.

Dahlia Dungeness.—A crimson-scarlet Collerette variety, with pale-yellow collar. There are eight oval ray florets from the base of each of which spring small bunches of three to five quills, the quills being half the length of the ray. The individual flowers are 4 or 5 inches in diameter. Shown by Messrs. Dobbie and Co.

Caladium Mme. Renée Marot.—A variety with medium-sized leaves, notable for their fine colouring. The central ground colour is silver, or pinkish-white, veined brightly with carmine-crimson, but the dominant colouring is deep crimson, which towards the edge gains a sheen of bronze from the presence of green under the crimson. Shown by Mr. Hoffmann, Tower House, Streatham (Gr. Mr. Tomlinson).

Lysionotus Warleyensis.—A new sub-shrubby Gesneriad, with Foxglove or Streptocarpus-like flowers, collected by Mr. E. H. Wilson in China. The plants were dense little bushes of unbranched stems, about 9 inches high. The leaves are opposite, or more commonly in whorls of three, varying from oblong to lanceolate in shape, tapering to a short crimson stalk, and with a few irregular teeth, mostly in the blunter, upper half; generally about 2 by ½ or 1½ by ¼ inches. They are fleshy, almost white below, and with one central furrow. The flowers are white, tubular, about 2 inches long, expanding a little at the throat to ¾ inch, and with three purple guide-bands running up the tube. The corolla lobes are very small. They are borne singly on short stalks in the upper leaf axils, but the strongest stem had only five blooms and buds, so that the species is interesting rather than showy. Shown by Miss Willmott.

Agapanthus Weilligii.—A new deciduous species, which is as hardy as A. Mooreanus. The umbellate head exhibited carried about sixty flowers, which in bud were held erect, but when open drooped vertically in a characteristic manner, and gave the plant a denser head than A. umbellatus. The flowers are much more tubular, or rather sub-campanulate, than in the latter species, not exceeding ¾ in. in diameter at the throat at the end of a 1¼ inch tube, and the perianth segments are only half the length of the tube. The base of the flower is deep violet, but the rest of the perianth is a pale blue-violet, except for a dark line running up the inside of the very stout textured perianth. The bulb appears never to carry more than six leaves, which are short, rigid, erect, deeply channelled, and sub-glaucous. Shown by A. Worsley, Esq.

Other Novelties.

Mr. A. W. Chaplin showed a flowering specimen of Saxifraga florulenta which he had collected. The plant flowers every fourth or fifth year. It is found only in a very localised area on the Maritime Alps, and always on overhanging ledges, protected from drip and rain, and never exposed to the sun. It belongs to the encrusted section (Euaizoon). The plant shown had a close rosette about 3½ inches across, and a dense spike 6 inches long.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, F. J. Hanbury, W. H. Hatcher, G. Hunter, A. Dye, J. Charlesworth, A. McBean, W. H. White, S. W. Flory, W. Bolton, De B. Crawshay, R. A. Rolfe, and Sir Harry J. Veitch.

E. H. Davidson, Esq., Orchid Dene, Twyford, was awarded a Silver Flora Medal for a group of choice varieties, all very finely flowered. The best were a very handsome Odontoglossum eximium, the fine O. Helene, with its large violet-and-white flowers, and for which Mr. Davidson had previously received an award; O. Woodroffeæ (Rossii rubescens × Queen Alexandra), which obtained a First-class Certificate, September 24, 1912, and now appeared still more beautiful; good Cattleya Hardyana and other Cattleya.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Banksian Medal for a good group, the centre of which was of fine, pure-white Odontoglossum ardentissimum xanthotes, with O. Rolfeæ and other Odontoglossums; Miltonia vexillaria robusta, with large rose-pink flowers; and the small but brightly coloured M. vexillaria superba; the rare Stanhopea convoluta, Dendrobrium Sanderæ, Lælio-Cattleya Pelias and other Lælio-Cattleyas, Cycnoches chlorochilon, very fine masses of Cryptophoranthus Dayanus, Sophro-Lælia Felicia, and the new Cattleya Fauna (Chamberlainiana × Hardyana), with pretty yellow flowers marbled with violet, were also noted.

Messrs. J. and A. McBean, Cooksbridge, staged an effective group, for which a Silver Banksian Medal was voted. At the back was a very fine Vanda cœrulea, with some good Cattleya Dowiana aurea, in front being a selection of scarlet Odontiodas, including Charlesworthii, Lambeauana, Bradshawiæ, Keighleyensis, and the mauve O. Thwartesii.

H. I. Pitt, Esq., Roslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Banksian Medal for a varied group of pretty hybrids and interesting species, among which were several Cattleya Dowiana and C. Source d'Or, C. Atalanta, good Miltonia Bleuana; a selection of Odontoglossums and several species.

R. G. Thwaites, Esq., Chessington, Streatham (gr. Mr. J. M. Black), showed a very interesting and pretty selection of hybrid Odontiodas, Cattleya Caduces, C. Pittiana and other hybrids.

Messrs. Armstrong and Brown, Tunbridge Wells, showed a finely flowered plant of the new yellow, fringed-lipped Dendrobium Hookerianum. It is an old species, which received a First-class Certificate in 1870, and the committee asked for flowers for a painting for the Society's collection. Also a very richly coloured hybrid between Lælio-Cattleya Gco. Woodhams and C. Lord Rothschild, with an intensely deep claret-crimson lip.

Messrs. Stuart Low and Co., Enfield, showed a selection of showy Orchids, including Cœlogyne pandurata, with a spike of eleven flowers; Lælia crispa, with two spikes each of seven flowers, a good specimen of Miltonia Phalænopsis, etc.

Messrs. Sander and Sons, St. Albans, showed Lælio-Cattleya Phœnix var. King George (L.-C. Hy. Greenwood × C. aurea), a handsome flower with cream-white sepals and petals tinged and veined with purple and dark mauve-purple lip with yellow lines from the base.

Mr. E. V. Low, Vale Bridge, Haywards Heath, sent a finely-flowered Cattleya Atalanta and Lælio-Cattleya Ophir E. V. Low's variety, with white sepals and petals and rose-purple lip.

De B. Crawshay, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a good Odontioda Leeana (Odontoglossum crispo-Harryanum × Cochlioda Noezliana), a flower of large size and fine shape, vermilion-red with pale lilac front to the lip; and another of his very fine forms of Odontoglossum Queen Alexandra very similar to that for which he received an Award of Merit at the last meeting.

AWARDS.

Awards of Merit.

Lælio-Cattleya Wellesleyi var. Flambeau (*C. Warscewiczii* × *L.-C. Martinetii*), from E. H. Davidson, Esq., Orchid Dene, Twyford. A very handsome Lælio-Cattleya, with strong indication of Cattleya Warscewiczii in its broad and richly coloured lip. Sepals and petals of a bright purplish-rose colour with a golden tint. Lip broad and finely crimped, deep purplish-crimson in front, changing to velvety ruby-red in front of the yellow disc, to which golden lines radiate from the base.

Lælio-Cattleya Ursula (*L.-C. Ingramii* × *C. Mantinii*), from Messrs. J. and A. McBean, Cooksbridge. A very pretty hybrid, flowering for the first time, and which should, from its parentage, develop much greater beauty. The flowers borne on the dwarf, compact plant had the colours of the best C. Mantinii, but formed more nearly like L.-C. Ingramii.

Cultural Commendation.

To Messrs. Charlesworth and Co., Haywards Heath, for a large specimen of the curious Cryptophoranthus Dayanus bearing about 150 of its singular claret and cream-white flowers resembling the head of a hawk. The species

was illustrated in the *Gardeners' Chronicle*, 1886, p. 428. It was formerly called Masdevallia in gardens.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (in the chair), Messrs. W. Bates, W. E. Humphreys, Wm. Pope, J. G. Weston, A. R. Allan, J. Willard, Owen Thomas, C. G. A. Nix, A. H. Pearson, J. Jaques, J. Davis, Ed. Beckett, A. Grubb, and S. T. Wright (secretary).

The only exhibit before this Committee was a collection of pot fruit trees from Messrs. J. Veitch and Sons, Chelsea. At the back of the group there were very large, splendidly grown Peach trees (Marquis of Downshire and Sea Eagle). Dwarf pyramid trees of Jeffersons and other Plums, also bearing heavy crops of ripe fruits, were equally attractive. Apples were represented by such varieties as James Grieve, and Pears by Marguerite Marillat, Souvenir du Congrès, Triomphe de Vienne, Dr. Jules Guyot and Doyenné du Comice. At the front there were dwarf pot plants of Figs (Negro Largo and White Ischia), which bore many ripe fruits, and fruiting sprays of the "Veitch Berry," a cross between Raspberry November Abundance and a large-fruited wild Blackberry. The large, good-flavoured fruits of this hybrid so impressed the Committee that they requested that plants be sent to Wisley for trial. (Silver Knightian Medal.)

GHENT EXHIBITION.

August 9 to 17.—This horticultural show, known as the "Van Houtte" Exhibition, was held in the same building as the Ghent Quinquennial in April last, from which it differed in many respects. As at the earlier show there were many splendid Palms, Cycads, Cordylines, Pandanus, Anthuriums, and other exotic foliage plants, and of better quality even. But the show as a whole was not nearly so brilliant or imposing as the "Quinquennial," although it was one of great interest. The flowering plants consisted chiefly of Orchids, tuberous-rooted Begonias, Zonal Pelargoniums, Salvias, and Heliotropiums, and all these subjects were shown excellently well. Of cut blooms Gladioli were remarkably good, whilst Roses were better than might be expected at this season. Carnations, though staged in fairly good numbers, were not quite equal to those shown at the exhibition in April. Bay trees (Laurus nobilis) were of splendid quality, and there were many other fine evergreen shrubs shown either in pots or in tubs. Specimens of Box, trained as pyramids, were exceptionally effective, also many plants of Euonymus radicans variegata shown as dwarf specimens trained in diverse forms. There were few exhibits of fruit, and the same may be said of vegetables, including salads. The spectacular effect of the exhibition arranged in this very large building was magnificent. The taller Palms and Tree Ferns were arranged along the sides, whilst along one end a very large exhibit was arranged by MM. Van Houtte to the upper tier of the building. At the opposite end Orchids were arranged on sloping stages. In the centre was a formal sheet of water planted with Nymphæas of diverse colours, but these were grouped too formally, being arranged with mathematical precision, and the effect was further spoiled by close crowding of the individual varieties. Hereabouts, also arranged in very formal order, were tall-growing aquatics. The building was filled in every part with exhibits, and we may congratulate M. Joseph de Hemptinne and the other members of the Council on the general success of the exhibition.

Orchids.

The exhibits of Orchids were arranged in three wide tiers, each higher than the other, with wide spaces for grouping and for promenade. These could not be seen in the distance, but upon inspection, both cultivation and choice variety were evident. There was only one exhibitor from Great Britain, Sir Jeremiah Colman, Bart., whose display, though not of great extent, contained many choice plants; the best of these were good examples of Bulbophyllum grandiflorum, with two fine spikes of flowers; B. virescens; Brassia Lawrenceana longissima, distinct; Catasetum Reichenbachianum; Phaius Ashworthianus, with golden sepals and petals; and a finely-flowered example of Cypripedium superbiens with a dozen flowers. No award was placed on this group when our reporter left the show.

Other amateurs, resident in Belgium, had magnificent exhibits, notably M. Lambeau and M. Jules Hye de Crom. The premier prize in the larger class was awarded to M. Lambeau for a group that was most effectively arranged. The finer forms of Cattleya gigas were prominent, as C. gigas Deweyi with intensely-coloured lip; C. Dupreana, like C. gigas, very fine; C. Hardyana was in evidence too in C. H. ardens of a deep golden colour in the sepals and petals, and in C. H. Vogelzang with even more intense colouring; C. Gaskelliana perfecta, a fine form with lightly-coloured lip; C. Comet, with golden veins on the lip; C. Pynaertiana, with extra large flowers; also Oncidium macranthum, and Dendrobium Phalænopsis Schröderianum.

M. Jules Hye de Crom staged a splendid group of Miltonia vexillaria, and hybrids, in which the lighter forms were predominant; the plants were in the best of health, and bore a profusion of flowers. Two distinct varieties were M. Hyeana Flambeau and M. Hyeana gracilis with the colouring running into the petals; M. Bleuana was also shown well.

M. Jules Hye de Crom also exhibited three new Orchids in Cattleya Dowiana Mme. J. Hye de Crom, a fine form; C. labiata Suzanne Hye de Crom with pure-white sepals and petals, and a well-defined lip with deep golden colour and broad margin of white; also C. Dupreana var. Hyeana, like C. gigas with broad petals somewhat incurving. Dr. Baillon staged a smaller group, in which Cypripedium Memoire Alma Gevaert, one of the "albino" forms, was very fine, better in fact than C. Maudiæ; here also were Cattleya Hardyana in remarkable colouring; also C. Myra Peeters, with a pale golden lip; some fine forms, also, were those of Odontioda multiflorum, Miltonia Queen Alexandra with very large flowers; a good example of Vanda cœrulea, and several specimens of Cattleya gigas. The award here was an Objet d'Art.

M. Beheils staged a mixed group that included a very fine Cattleya Gaskelliana, a freely-flowered plant; several plants of Oncidium varicosum Rogersii; Dendrobium Dearei, one of the very best Orchids in August; others staged, not in competition, included Odontoglossum Armainvillierense, a fine spike with pure white flowers and golden labellum; Aërides Lawrenceana, a fine spike; Vanda Sanderiana; Cattleya Lord Rothschild, and other good things. M. Dietrich had set up a fine group of Miltonia vexillaria in considerable variety, more deeply-coloured than in the group by M. Jules Hye de Crom, and a fine example of cultivation; here was noted M. v. Memoria G. D. Owen, a well-known and choice variety. A very fine exhibit that included several remarkable hybrids, wherein the influence of Odontoglossum Harryanum was distinctly apparent, and in varied shades of colouring, was set up, but the entry card bore no name.

M. Verdonck had a unique exhibit, in which Phalænopsis Rimestadiana was most prominent, having no fewer than 45 fine spikes on the plants, with here and there a few examples of Cochlioda Noezliana and Odontioda Charlesworthii, added to give a touch of colouring. These were staged on a groundwork of fresh-green moss, which added to the effect. (Gold Medal.)

M. Théodore Pauwels and Co. staged probably the largest group of Orchids, and were successful in winning the Premier Prix, an Objet d'Art of 200 francs, and two other first prizes in the trade section. Taking the group as a whole, the effect was fine. The best plants were of Vanda cœrulea, several good examples; Dendrobium Phalænopsis Schröderianum, very fine, both in colour and variety, one spike bearing as many as 19 flowers, highly coloured; Grammangis Ellisii with two fine spikes; Odontioda Charlesworthii, highly coloured; Dendrobium aggregatum in good form, and D. acuminatum. To these were added several fine forms of Cattleya gigas Sanderiana, and others of Odontioda and Odontoglossum hybrids.

M. Vuylsteke, whose exhibits of hybrids of Odontoglossum and of Odontiodas are so well known, contributed a choice selection which included Odontoglossum Hisionii, of a pale creamy colour, fine; O. azureum var.; Orion, of a dark lilac-purple shade; O. Themis, of even a deeper colour; O. Ariadne, with massive flowers; and O. ornatum, O. amabile and O. Minos, all fine forms; of the Odontiodas were O. Vuylstekeana var. Carmen and O. Flambeau. This very choice exhibit had not received an award when these notes were taken.

Nepenthes.

A choice exhibit of Nepenthes was staged near the Orchids, consisting in the main of N. Mastersii with large and highly-coloured pitchers. This was an exhibit of high-class culture, but no name could be found attached thereto. In the competitive class, M. Vincke du Jardin was first with good plants, chiefly of N. Sir Thiselton-Dyer, N. Mixta, N. Lewis Bradbury and N. Mastersii rubra, all being plants of medium size, but well pitchered.

New Plants.

For the most meritorious collection of new plants not in commerce, Messrs. Sander and Sons, of Bruges and St. Albans, were an easy first. The specimens consisted of well-grown examples of Trevesia Sanderi, of Aralia-like character with the leaves lobed in irregular fashion; Chamædorea pumila, a dwarf, but distinctly fine palm with a grey glaucous suffusion over the leaves; Dieffenbachia Sanderæ, a sturdy plant; Alocasia Micholitziana, foliage arrow-shaped, colour a dark, dull green and silvery venation and Eriobotrya japonica variegata, quite distinct in its profuse silvery markings. Others were Alocasia colossea, A. Warteli, Dracæna regalis, Phœnix andamanensis, Heliconia illustris, Socratea Forgetiana, a fine palm with noble leafage, and Polypodium irioides corymbiferum. Also two new hybrid Orchids, viz., Odontioda De Hemptinneana, a brightly-coloured form, and Brasso-Cattleya amabilis with golden veinings in the lip.

Palms and Cycads.

As may be surmised, these were most conspicuous features in the exhibition. Some remarkably large and fine specimens were staged. Of these, some of the finest came from M. Francoise Spae, who had a grand plant of Areca Baueri in its true character. Also excellent plants of Kentia Forsteriana, Thrinax Chuco (grand), Phœnix Roebelinii, Cocos Maximiliana, Cocos flexuosa (fine), and Chamærops Hystris (an immense plant). With these he was an easy winner in the class for large specimens. The Flandria Co. were the winners also for 25 specimen palms, with grand plants, Kentias here being a feature; also Rhapis flabelliformis, and huge plants of Latania and Chamærops. In another class the same firm won with a set of excellent plants, some of which are rarely seen, such as Kentia Forsteriana pendula (grand), K. aurea (distinctly good), Phœnicophorium Sechellarum, Phœnix Roebelinii, Areca lutescens, Rhapis flabelliformis, Livistona Dumoniana, Ravenea Hildebrandtii (of Kentia-like character), and K. Wendlandii. The same firm repeated its success with six Kentias, showing K. Dumoniana, K. Belmoreana pendula, K. nana compacta, K. Lindeni, and others—a fine exhibit. The Flandria Co. were again to the fore for Phœnix Roebelinii with plants in the best possible health and vigour, the growth compact and dark-green in colour. M. Adolphe-Delaruye was first with Phœnix canariensis, to which the foregoing remarks apply; this is about the hardiest and most enduring of all the Phœnix family. The finest specimen of Phœnix Roebelinii came from M. La Croux, an ideal plant, and well furnished. A fine specimen of the somewhat uncommon Brahea glauca was shown by M. C. Petrick, and won for him the 1st prize in its class; as did Areca sapida for M. Joseph Spae. Cocos Weddelliana was shown in fine condition by many exhibitors; some of these won the 1st prize in the class for specimens.

The finest Cycads, Zamias and Macrozamias came from M. Jules de Cock, who was invariably first in the classes for specimen plants, showing finely-grown examples.

Araucarias.

These are always features in Continental exhibitions, and at Ghent on this occasion they were beyond praise. The best collection, by a long way, of specimen plants, splendidly furnished, came from M. Hartman; these consisted of A. Reine des Belges (a noble plant), A. Rulei glauca (distinct), A. Goldieana, A. Leopold II., A. elegans, A. elegans compacta, A. Cunninghamii corneliensis, and A. Cookii aurea. Of smaller and possibly more useful plants there were numbers shown, and by several exhibitors; some of the best were A. excelsa compacta and A. e. glauca.

Cordylines and Dracænas.

In the schedule these all appear under the latter name. The Cordylines exhibited were very fine, sturdy, compact plants, and well coloured in their varieties. Undoubtedly these, in the newer kinds, will be more sought after. The Flandria Co., of Bruges, showed a good collection in the large class for the variegated or coloured forms of D. australis, and was awarded the Premier Award—an Objet d'Art. These comprised forms of D. lentiginosa and of D. Doucettii; varieties of the latter were noted, which included C. Leopoldii and C. Flandriana. A fine collection, not for competition, of C. Doucettii was also shown, but previous remarks apply, no name could be found. The stove Dracænas—so understood by gardeners in England—were also in fine form. These stood out prominently as useful decorative plants. Some of the best of these were shown by M. J. Ed. Story, to whom a Gold Medal was awarded; the best were D. terminalis, D. Lord Wolseley, D. Bergmanii, and many others, all well furnished, and equally well-coloured. For a group of 20 plants of a new variety, M. J. Ed. Story showed D. Marguerite Story, a well-defined variety of sturdy growth with carmine markings and dark bronzy-green; the 1st prize being awarded. M. Alexis Dallière showed 20 plants of D. Père Charon, semi-pendant in habit, and sturdy, with dark-reddish colouring, and received the 1st prize.

Pandanus and Marantas.

Both are in request evidently on the Continent, and though English gardeners grow Pandanus largely, they neglect, even if they do not despise, the Marantas. The best plants of Pandanus Veitchii were shown by M. Mélanie Carden. Some finely-coloured examples of Pandanus Sanderæ were arranged as single plants for effect, but the name of the exhibitor was not in evidence. Some of the best Marantas shown were M. Closonii, a dwarf plant, distinct and somewhat new; and M. Chantrieri, a promising variety.

Codiæums (Crotons).

These were very finely shown, much better than we usually see them in England. The broad-leaved forms are preferred to any other type. Some of the best varieties were W. Stroffregen, very highly coloured; C. Mme. Florin, of golden colour, distinct; C. Comte Hugo, a variety of deep, golden colour, and C. Paul Garnot. These were awarded the 1st prize. Exhibitor, M. Ernest Delaruye.

Groups of Foliage and Flowering Plants.

The finest group of foliage and flowering plants was the large group of 40 plants staged by the Société Horticole Gantoise, to which the 1st prize offered by H. M. the King of the Belgians was awarded. These comprised, of flowering plants, a fine mass of Dendrobium Dearei, a mass of white flowers; Crossandra undulæfolia, equally as showy, a mass of rich Apricot-coloured flowers (it ought to be more grown), and Acalypha hispida. The finest of the foliage plants, which were in many cases of huge dimensions, were Croton Reidii, fine in colour and leafage; Vanilla aromatica variegata, very distinct; Pandanus Veitchii and P. Sanderæ, both alike good; Dracæna Sanderiana, a finely-grown example; D. Godseffiana, a large bush; Caladium Raymond Le Moinier, well-coloured; C. Thomas Tomlinson; Aglaonema Curtisii, distinct silvery venations; Maranta Kegeljani, silvery markings on pale-green ground; M. insignis, fine, dark olive-green and lighter markings; Dieffenbachia Jenmannii, one of the best of the giant forms; Phœnix Roebelinii, a compact plant; several fine Kentias, as K. Belmoreana and K. Forsteriana; Anthurium Hookeri, massive foliage; a fine Thrinax elegans; Dieffenbachia imperialis nobilis; Croton Countess (the only good specimen of the narrow-leaved type in the show), and a fine example of Alpinia variegata.

M. Van Houtte's exhibit in another class, specially set apart for it, was a magnificent display, and one of the features of the exhibition. In outline it was quite informal in its arrangement, and unique in its conception, some rocks of huge size, entered into its composition. Here and there were finely-grown foliage plants, each one standing out by itself; these consisted of Phœnicophorium Sechellarum, huge Crotons and Dieffenbachias; a fine plant of Phœnix Roebelinii; another of Pandanus Sanderæ, and of P. Vander Meerchi, and finely-grown Cycads, all backed up with large Kentias. The groundwork consisted chiefly of flowering plants, amongst which a very striking mass of Bilbergia rhodocyanea superba, with pale, salmon-pink spikes, was most striking at the base of the group. Gladioli in pots, several good Gloxinias, and masses of Orchids, were also employed, and Ferns in quantity.

A somewhat unique exhibit was that of Vriesia hieroglyphica variegata, a fine plant, olive-green with pale-green bars and silvery venations. (The name of the exhibitor was not placed in time to note it.) M. Vincke du Jardin showed the best plants in spathe of Anthurium Andreanum in diverse colours.

Ferns.

Of these, the Tree Ferns were a grand feature, being most effectively grouped *en masse*, thus showing their true character. The 1st prize for these was awarded to M. de Smet Freres; it was a truly grand and imposing exhibit, the plants being in the best of health and vigour; Cyathea dealbata, Dicksonia fibrosa, and D. antarctica, were the most notable. Though 54 classes were set apart for Ferns, the exhibit as a whole was not commensurate with the encouragement given. Many of the groups were made up of easily-grown varieties. One of the best was that by MM. Bier and Ankersmit; this included Cibotium Schriedei, Alsophila australis, and some of the best of the newer and larger forms of Nephrolepis, as N. Piersonii compacta, N. superba and N. elegantissima. The grouping of these dwarf Ferns was somewhat dull. A little colour would have been appreciated.

Flowering Plants in Separate Classes.

Begonias (*tuberous*).—Of tuberous-rooted Begonias a large number was shown, arranged as for beds in the open, and as individual specimen plants. To the surprise of many, Messrs. Blackmore and Langdon sent over a magnificent collection, which was far and away the finest in the exhibition. It was quite wonderful to see these in such fine condition, scarcely showing any trace of the long journey they had undergone. It was a superb exhibit and the plants fine examples of cultivation and careful packing. The plants were of large size in many cases, and the individual flowers immense, also of exquisite colour and form. The best were Lady Tweedmouth, rose-pink, delicately shaded and with crimpled edges; King Alphonse, rich scarlet; Dorothea Watson, bright orange, of fine form; Empress Marie, a large pure-white flower; Mrs. Ainslie, chrome yellow, fine; Lady Cromer, extra large pink, shading off to white; Princess Victoria Louise, large soft pink, and of great beauty; Irene Tambling, brilliant orange; Mrs. R. Caulfield, large, round-petalled rose blooms; and the Duchess of Cornwall, rich cardinal. This exhibit was inscribed by the jury, "*le prix le plus élevé possible, avec acclamations unanimes.*"

The next most noteworthy exhibit in Begonias were the 100 single varieties shown by M. Le Saffre, handsome, clean, well-grown examples, not named; also 100 doubles by the same exhibitor, and of similar merit. Another group of at least 300 plants, shown by M. Van Speybrock, was excellent, large, sturdy plants, well-flowered, and a blaze of colour. These were awarded a Gold Medal.

Heliotropes arranged as beds formed an attractive feature. The best were those of M. Rigouts, of Ghent; the best kinds were Heliotropium Syringa, a pale lilac, fine; Albert Delaux, a dark var.; and Mathide Cremieux, intermediate in colour. M. Rigouts also showed an Ivy Leaf Pelargonium called La France, of a heliotrope shade, quite attractive.

Nymphæas.—These consisted of the best-known kinds that have been in commerce for some few years; the best were Jas. Bryden Chrisantha, terra-cotta pink; delicata, rosy-white; candidissima rosea, a soft pink; La Vesuve, dark-red; Colossea, pale-pink; and fulgens, purplish-red. These came from M. Alphonse Brockman.

Some attractive groups of Zonal Pelargoniums and Salvias made a good display in beds. Of the latter, one called S. Jewel, a sturdy grower, was noted, coming from M. Rigouts.

Hydrangeas.—Of these, there were several groups, the best coming from M. Schatteman, who won two first prizes; one for a group of one variety, viz., of Mdlle. René Gallard, dwarf, well-flowered plants, with fine trusses, and of a bluish tint with white. The other was for a collection of varieties, consisting of the best of the newer forms in diverse colours.

Cut Flowers.

Of these the Gladioli stood out most conspicuously in variety and extent. Specially noteworthy was the large group staged on the ground of G. primulinus hybrids, a charming exhibit in lovely shades of colour, being both graceful and delicate. MM. Vilmorin of Paris were the exhibitors of these. The same firm also showed a few other distinct varieties as G. M. Vilmorin (new), pale blush-pink; G. Commandant Marchand, a rich crimson with large flowers, and of strong growth; G. Admiral Cervera, crushed strawberry, shading to a purple, very striking; and Comtesse de Leake, a rich cherry colour, very strong and free, flowering all up the spike at once.

Roses.—These were shown both as pot plants, none of which were very striking, save in the form of training, and as cut flowers. In this latter section a Gold Medal was awarded to M. Klettenberg for a very fresh, bright exhibit, the best varieties being Rayon d'Or, Lyon Rose, Pharisaer, Abel Chatenay, Laurent Carle, and Jonkheer J. L. Mock.

Mr. James McDonald, of Harpenden, sent some of his well-known examples of Lawn Grasses, shown in his familiar style.

NATIONAL GLADIOLUS.

August 12.—The competition for the "President's Cup," which was continued from the last meeting in the R.H.S. Hall, evoked splendid competition on Tuesday last. It will be remembered that on account of the lateness of the Gladiolus season the executive of the Society decided not to award the cup at the exhibition of late-flowering varieties on July 29 last, but to award "points" to the exhibits, and to continue the competition, awarding the cup to the exhibit which received the greatest number of points on either day. On each occasion the best exhibit was made by Messrs. G. Zeestraten and Son, Oegstgeest, Holland. At the show now under notice Messrs. Zeestraten set up 20 varieties, 3 spikes of each, in excellent condition. The large, clean blooms on the well-furnished spikes were so fresh that it was difficult to realise that they were grown in Holland. This exhibit included such sterling varieties as Glory of Noordwijk, Pink Perfection, Red Emperor, Princeps, Moonlight, Europa, and Liebesfeuer. Other competitors were Messrs. Kelway and Son, Langport, Somerset, whose best spikes were of Friendship (a hybrid of G. primulinus), Snowbird, and General Kuroki; Messrs. K. Velthuys, Hillegom, Holland; and Messrs. de Ruyter and Hogewoning, Noordwijk, Holland.

The class for 9 varieties of late-flowering Gladioli was not so well contested; the bronze medal was awarded to Mr. G. Churcher, Woodcote, Alverstoke, for a rather unequal collection, but the spikes of Sea Mouse, King of the Gladioli, and Nezin Scott were excellent.

THE WEATHER.

The Following Summary Record of the weather throughout the British Islands, for the week ending August 9, is furnished from the Meteorological Office :—

WEEKLY REMARKS.

August 12, 1913.

Weather.—Until the week drew towards its close the weather continued dry in almost all parts of the Kingdom, but showers were experienced in some localities early in the period, and on Friday or Saturday most parts of the country had a little rain, a few places a considerable fall. Thunderstorms occurred on the 7th in the Metropolitan area, on the 8th at Southampton, and on the 9th at several stations in the south and east of England.

Temperature was below the average in all districts; more than 4·5° in England E. and S.E. The highest of the maxima were registered, as a rule, on the 3rd, and ranged from 82° in England N.E. and the Midland Counties, 81° in England S.W., and 80° in Scotland W., to 70° in Ireland N., and to 69° in Scotland N. The lowest of the minima which were recorded on irregular dates, varied from 35° in Scotland W. and England S.W., to 43° in Ireland S. and to 46° in the English Channel. The lowest grass readings were 27° at Rauceby, 28° at Shrewsbury and Markree Castle, and 29° at Worksop and Birmingham. The temperature of the soil was below the normal, both at a depth of 1 foot and 4 feet, at nearly all stations except Newton Rigg.

Rainfall was less than the average in all districts. Over the United Kingdom, as a whole, the fall was very slight, and in some localities there was no rain. At Bath, however, 1.0in. accompanied a thunderstorm on the 9th, and more than 0.5in. fell at some extreme south-western, north-western, and eastern stations.

Bright sunshine was less than the normal in Scotland E., the Midland Counties, England S.E., and the English Channel, but equal to it in Scotland N., and above it in all other districts. In England N.W. the daily mean was 7.6 hours, and the percentage of the possible duration 50; in the Midland Counties and England S.E. the corresponding values were about 4.9 and 33, and in Scotland N. 3·7 and 23.

Barometer and Wind.—During the early part of the week a large anti-cyclonic system extended over these islands from the Atlantic, and the wind was light from between north-west and north-east. Later, however, the high pressure retreated westward, while shallow depressions, secondary to a large disturbance over Scandinavia, moved southward and south-eastward over the North Sea, and others developed over Great Britain. The wind remained mainly northerly in the west, but became very variable elsewhere.

THE WEATHER IN WEST HERTS.

Week ending August 13.

A welcome rain.—Throughout the past week the temperature has remained, as a rule, low for the time of year, both during the daytime and at night. On no day did the highest reading in the thermometer screen exceed 69°, and on two consecutive nights the exposed thermometer fell respectively to within 6° and 7° of the freezing-point. The ground is now 2° colder than is seasonable, both at 1 foot and 2 feet deep. Some rain fell on three days, and to the total depth of ½ inch. Nearly the whole of that amount was deposited during some heavy showers on the afternoon and evening of the 11th, or more than was recorded here throughout the whole of the previous 26 days. During the heaviest of those showers, which took place shortly before 6 p.m., the rain was falling for 10 minutes at the mean rate of nearly an inch an hour. This rain has not proved sufficient to re-start the percolation through even the bare soil gauge, through which no rainwater at all has now passed for more than a fortnight. The sun shone on an average for 5½ hours a day, which is half-an-hour a day short of the mean duration for this period in August. Light airs and calms again prevailed during the week, the direction of the light airs being principally some point between south and west. The average amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 3 per cent. *E. M., Berkhamsted, August 13, 1913.*

Answers to Correspondents.

Correction.—In respect to the Hayward's Heath show report (see p. 111), we are informed that Mr. Manton is gardener to Mr. W. A. Sturdy, who won the Silver Cup for a collection of fruit.

Diseased Culinary Peas: *P. B.* Of the six plants forwarded, one had gnawed roots, one had the chrysalis of a stem-boring fly in the collar, which was quite sufficient to account for the weakly condition of the plant; three plants showed symptoms of the new bacterial disease, for which, so far, no cure is known; and the sixth plant was unhealthy from some cause undiscovered. The plants arrived in rather a wilted condition, which made a thorough investigation difficult. —*Corres.* The variety Michaelmas shows bacterial disease in early stages; Buttercup has disease at the collar, due to eelworm and the fungus Thielavia; Harvestman—no bacterial disease is observed, and the cause of the unhealthy condition of the plants cannot be determined.—*W. B., Stone Hall.* Bacterial disease is present in the variety Prodigy, also Thielavia at the roots; Maincrop and Chelsonian are both affected with bacterial disease; the cause of the disease in Autocrat is doubtful. There is no known cure for the bacterial disease, which is a soil organism, and so far as is determined lives part of its life history in the soil. The distribution in the interior of the seed is a very serious factor. One very characteristic symptom is discoloration of the tissue at the nodes when cut across.

Grapes Diseased: *J. B.* The Grapes are injured by the Grape rot, caused by Gloeosporium ampelophagum. The only thing that can be done now is to remove the diseased berries. In the winter thoroughly drench every part of the vine with sulphate of iron at the strength of 1lb. to 25 gallons of water. Give two dressings at intervals of a month before the buds commence to swell.

Loganberries: *H. R.* The Loganberries are attacked by the Raspberry Beetle (Byturns tomentosus). There is no remedy, as the eggs are laid deep in the unopen and open blossoms, and the larvæ live in the fruit. All you can do is to jar or shake the beetles off early in the year. The pest is so destructive to Loganberries that many are ceasing to grow them, and probably cultivated Blackberries will take their place, as they flower later and so escape attack.

Names of Plants: *J. Blade.* Rhus Cotinus, Whig tree.—*Corn Cockle.* 1, Lychnis alba (perennial); 2, L. coronaria (biennial); 3, L. Githago (annual). — *A. E. Downe.* Calycanthus sp., probably C. lævigatus.—*W. and S.* 1, Phacelia campanularia; 2, Asperula azurea; 3, Lobelia Erinus.—*W. N. W.* Spergula arvensis.—*J. K. Birch.* 1, Epilobium nummularifolium; 2, Polygonum affine. — *J. T. B.* 1, Origanum vulgare; 2, Hyssopus officinalis; 3, Hyoscyamus niger.—*H. M. Butler.* 1, Clematis sp. (cannot identify without flowers); 2, Polygonum Baldschuanicum.— *X. Y. Z.* Why not number your specimens? The small shrub with yellow under-side to the leaves is Cassinia fulvida; the narrow leaf, Veronica salicifolia; the other, Olearia Haastii. —*H. G. C., Barnet.* Angræcum Ellisii.— *R. Y.* 1, Comparettia macroplectron; 2, Lælia monophylla; 3, Oncidium excavatum; 4, Odontoglossum pardinum.—*E. B., Dorset.* 1, Justicia carnea; 2, Lantana hybrida; 3, Abelia triflora; 4, Lithospermum prostratum. —*T. T.* 1, Pteris cretica; 2, Adiantum hispidulum; 3, Lastrea rigida.—*J. O.* Mimulus glutinosus.

Nymphæas Not Thriving: *Tynwald.* Provided the water basin is not in a cold, shady corner, but where the plants are exposed to the sun's rays, we can only attribute the failure of the Water-lilies to insufficient root-room, especially in view of your statement that they are growing in pots. If it is not possible to place a layer of soil about 7 or 8 inches deep all over the bottom of the basin, in which to insert the plants, build up receptacles with loose bricks, say about 2 feet across, and three bricks deep, laid on the flat. Do not fit the ends closely together, but leave a space of about ½ inch, so that roots may penetrate through the apertures. There is no necessity to raise any of the Water-lilies near to surface of the water, as all varieties will do admirably in the depth of water you mention, namely, 2 feet. We do not consider that there is an excess of lime in the water, although Water-lilies will not thrive in water that is strongly impregnated with this substance. Destroy all snails, as they are not beneficial in any way. Gold fish may be introduced. The water may be kept clear of Flannel Weed by applying the Bordeaux mixture in powder form, occasionally sprinkling three or four handfuls over the surface, say, about once in two months, or as occasion requires. This fungicide will not harm the Water-lilies or the fish. The constant flow of water and insufficient room are the causes of the Villarsia not flowering. In re-planting the Water-lilies, allow them plenty of space, and do not employ freshly cut loam. It is not advisable to use manures in any form.

Peach Leaves and Fruits Falling: *Journeyman.* We do not think the trouble is caused by fungus disease. As you state that the trees have been planted about sixteen years the borders are most probably thoroughly exhausted, with the result that the roots are in a very bad condition. Lift the trees in the autumn and re-make the borders.

Peach Stones Splitting: *G. Henley.* This defect may be attributed to imperfect fertilisation of the flowers, but is usually restricted to a few varieties only. An excessively rich soil, over-supplies of food, and a moist and close atmosphere during the last swelling of the fruit accelerates the malady. As you state that the soil is of a light nature you should lift the trees in the autumn and re-make the borders, employing good loam of a heavy nature and adding a quantity of old mortar rubble and wood ashes. See also replies to *J. H.*, Vol. LIII., p. 444, and to *F. G. W.*, Vol. LIV., p. 40.

Pears Splitting: *Broadwater.* The fruits are affected with the Pear scab (Venturia pirina). If possible, remove and burn during the winter all the diseased shoots, since it is on them and on the leaves that the fungus develops and produces spores which infect the fruit. In winter thoroughly syringe the trees with a solution of sulphate of iron, and in the spring spray them with the Bordeaux mixture at half strength when the buds are beginning to open, repeating the operation when the petals are falling from the flowers, and again when the fruits have attained to the size of Peas. If the trees are very old, it will be advisable to replace them with younger specimens.

Poplar Seeds: *J. H.* The cottony substance covering the seeds of the Poplar is of no commercial value. It has, unlike cotton, no staple —that is, length of individual fibres, which is a necessary quality for weaving purposes. By twisting or rolling a small portion of the material between the thumb and finger it will be found to break off quite short, whereas in cotton the single fibres can be drawn out, sometimes to a considerable length, and twisted into a strong thread. The substance from the Poplar more nearly approaches that known as Silk Cotton, which covers the seeds of species of Bombax, and particularly those of Eriodendron anfractuosum—a soft wooded tree belonging to the same natural order as the cotton, and widely distributed in India, Ceylon, South America, West Indies, and tropical Africa. It is from this tree that the Kapok fibre of commerce is obtained and imported into this country in large quantities at the present time for stuffing mattresses, cushions, etc., against which the Poplar could never compete, either in quality or quantity.

Water Rats or Voles Attacking Water-Lilies: *W. E.* We are well aware the great damage these pests will do, more especially when the Water-lilies are in a dormant condition. You can trap, shoot, or poison the pests. Set the traps about their runs and haunts, baiting them with a piece of fish, such as the head of a bloater. If you decide to shoot them we would advise you to place food in one or two suitable places around the margin of the pond for two or three days. After that period, by concealing yourself within shooting range many may be destroyed as they come out to feed. Sanford's rat poison will destroy the creatures, but it must be used with caution, and not placed where it is likely to fall into the hands of children or poison domestic animals.

Wistaria: *R. C.* From your description we suspect the trouble is at the roots. It is most probable that the soil is exhausted of nourishment. In the autumn remove a considerable quantity of the old soil and replace with fresh materials. In the meantime apply a mulch of stable or farmyard manure and afterwards give the roots a soaking with clear water. No pruning is necessary.

Communications Received.—G. A. C.—S. and S. —M. G. A.—J. L. W.—A. W.—J. B.—W. M. G.— J. A. B.—T. L.—Co. Longford—H. W.—Carnation— Rose—W. J. G.—Anxious—C. E. B.—G. M. T.—A. B.— H. C.—G. A.—G. K., Zurich—F. B.—R. A. M.—A. G.— R. V. and B.—T. E. W.—J. H. B.—J. G. F.—Y. E. S. —M. B., Java—J. D. H. and Co.—T. S., Budapest— H. F. E., Canada—C. E. W.—B.—A. B.

MEDITERRANEAN FRUIT FLY (CERATITIS CAPITATA, WIED)

Centre: attacked Peach (see dark spot at top of fruit). Below: female fly, nat. size and × 10. Right, above: larva nat. size and × 10, and head of male fly × 10. Right, below: cocoon nat. size and × 10.

THE

Gardeners' Chronicle

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CONTENTS.

ILLUSTRATIONS.

GOLD MEDAL ROSES.

THE subject of the National Rose Society's Gold Medal Awards to new Roses is perhaps somewhat controversial, and, like the Rose herself, is rather thorny and difficult to handle. I have no desire to plunge into any controversy or to tread on anybody's toes, even in metaphor, but my object is rather to endeavour to show that the dissatisfaction with the present system, which undoubtedly exists, is often not directed into the right channel, and that it should be directed rather against the system, if faulty, than against the men who may be doing their best to administer it.

The fact is that the Gold Medal Awards are merely a particular example of the difficulty, well known to men of science, of endeavouring to make a measurement which may be even approximately accurate where no standard of measurement capable of application is in existence.

In the ordinary classes at a Rose show the judges, in making their awards, compare one box with another, or one group with a similar group, and, testing them by fairly well-known methods, generally arrive at more or less satisfactory conclusions.

In judging new seedlings it is quite otherwise; instead of the usual number of three, there may be ten or twelve judges, each exhibit is considered by itself, and is weighed not in comparison with another similar exhibit, but with a standard existing only in the imagination of the judges. Their discretion is unlimited, and their awards may be few or many. The judges may be severe or they may be generous. There is no rule to guide them, save that no award can be given unless it is agreed to by two-thirds of the judges. The imaginary standard may be high on one occasion and low on the next, or the judges may be guided by entirely different views. The award to Colleen at Gloucester is an instance of this. It has been shown twice previously in London, and on one occasion certainly was shown in magnificent form, but the award was probably withheld because it was thought too like Killarney. At Gloucester, however, this view was not adhered to, or other considerations were thought to over-ride it. It is not wonderful that the result is to some extent unsatisfactory, rather is it matter for congratulation that the awards are so good as they are.

I am tempted to quote Miss Austen's account of the after-dinner conversation of Mrs. Dashwood and Lady Middleton:—"One subject only engaged the ladies till coffee came in, which was the comparative heights of Harry Dashwood and Lady Middleton's second son, William, who were nearly of the same age. Had both the children been there the affair might have been determined too easily by measuring them at once, but as Harry only was present, it was all conjectural assertion on both sides, and everybody had a right to be equally positive in their opinion, and to repeat it over and over again as often as they liked. The parties stood thus: The two mothers, though each really convinced that her son was the tallest, politely decided in favour of the other. The two grandmothers, with equal partiality, but more sincerity, were equally in earnest in support of their own descendant. Lucy, who was hardly less anxious to please one parent than the other, thought the boys were both remarkably tall for their age, and could not conceive there could be the smallest difference between them, and Miss Steel, with yet greater address, gave it as fast as she could in favour of each." I would not, of course, for a moment suggest that the methods of the Gold Medal judges are in any way comparable with those of the ladies I have quoted, but their task is one of similar difficulty. I suppose they are expected to test the Roses produced before them with their memory or with some mental picture of the best Roses already distributed, but not present for comparison.

It may be of interest to glance at the history of the Gold Medal Awards. The first recorded in the N.R.S. Year Book is that awarded in 1883 to Her Majesty, and for my present purposes I assume this to be the earliest award, though it is quite possible there may be others still earlier which are not known to me.

In the years 1883-1897 sixteen Gold Medals were awarded, or an average of about one a year, and the varieties thus distinguished included some of our best Roses of to-day; thus besides Her Majesty there was Mrs. John Laing (1885), Souvenir de S. A. Prince (1889), Margaret Dickson and Mrs. Paul (1890), and though the latter two are disappearing from our gardens, yet in the ten years which elapsed before the appearance of Frau Karl Druschki, Margaret Dickson was perhaps the best white H.P., while Mrs. Paul was thought at one time to be likely to lead to a revival of the Bourbons, a forecast which has so far proved to be mistaken. Then we have Mrs. R. G. Sharman-Crawford and Crimson Rambler (1893), Helen Keller (1895), a well-shaped flower of the Mrs. J. Laing type still often seen; Muriel Grahame (1896) and Ulster (1897). The remainder, Sir Rowland Hill, Salamander, and the three Marchionesses, viz., of Downshire, of Dufferin, and of Londonderry, are now but little grown.

During the next period, which is the ten years from 1898 to 1907, the number of awards was materially increased, 36 Gold Medals being awarded in the ten years, the usual yearly award being three or four. Of these 36 Roses, 19, or just over half, are still of value. These are Bessie Brown, Mildred Grant, and Mrs. Edward Mawley (1898), all Roses at the very head of the exhibition lists, Alice Lindsell (1900), Florence Pemberton, Lady Roberts and Souvenir de Pierre Notting (1902), Hugh Dickson, Mrs. David McKee, and Blush Rambler (1903), Dean Hole and J. B. Clark (1904), Betty, Mrs. Myles Kennedy, Irish Elegance (1905), Dorothy Page-Roberts and William Shean (1906), and Avoca and Harry Kirk (1907).

The year 1908 marked another change, again an increase in the number of yearly awards, for in the five years 1908-1912 we find no fewer than 43 Gold Medal awards, or nearly 9 to each year. It seems quite possible that 1913 may prove the beginning of a period in which even a greater generosity may prevail, for the awards of this year already number twelve, three at the London show and nine at Gloucester, and the autumn show is yet to come.

It is too early as yet to pronounce with any degree of certainty how many of the 55 Roses which have received awards in and since 1908 will be found in our gardens in ten years' time, interesting though the inquiry might be. We can only record the fact that the awards of these six years already exceed in number the awards of the previous 25 years.

The list is as follows:—

1908.—A. Hill Gray, Dr. O'Donel Browne, G. C. Waud, His Majesty, Lady Alice Stanley, Mrs. Campbell Hall, Nita Weldon, Simplicity, White Dorothy.

1909.—Claudius, Countess of Shaftesbury, Cynthia Forde, Ethel Malcolm, Lady

Pirrie, Leslie Holland, Mrs. E. J. Holland, Mrs. Hubert Taylor, Mrs. Maynard Sinton.

1910.—Edward Mawley, Lady Hillingdon, Mabel Drew, Mrs. Amy Hammond, Mrs. A. G. Coxhead, Mrs. Cornwallis-West, Mrs. Foley Hobbs, Mrs. Herbert Stevens, Mrs. Joseph Welch, Rayon d'Or.

1911.—George Dickson, Mrs. Richard Draper, Mrs. Sam Ross.

1912. — British Queen, Coronation (H.P.), H. Vessey Machin, Irish Fireflame, Lady Mary Ward, Mrs. Andrew Carnegie, Mrs. Charles E. Pearson, Mrs. R. D. McClure, Old Gold, St. Helena, Sunburst, H. E. Richardson.

1913. — Brilliant, Colleen, Countess Clanwilliam, Florence Forrester, G. Amedée Hammond, Gorgeous, Iona Herdman, Mrs. Archie Gray, Mrs. George Linas, Mrs. F. W. Vanderbilt, Queen Mary.

It is difficult to avoid feeling a doubt whether these awards have not become too numerous, and indeed it must of necessity be the case that when awards are made with such freedom the Gold Medal cannot be the distinction that it was in the years when only one was given as a general rule in each season.

It was probably some feeling of this kind that led the Society in 1894 to establish the Card of Commendation and, in 1910, the Silver-Gilt Medal also to be awarded to Roses not up to the Gold Medal standard. If, however, the object was to restrict the Gold Medal Awards it has been without result.

The dissatisfaction with regard to the Gold Medal Awards which, if I may judge from my own experience, is rather general, is easily accounted for. The public see that the awards are not made in competition, and therefore treat them as awards for general excellence, and they think awards of this character should only be granted to a Rose which they may purchase with some confidence that it will prove a good garden plant, or at least be reliable in the hands of amateurs for exhibition purposes. This is an ideal which, so long as the Awards are made at the Society's shows, can never be realised. Under this system the Gold Medal Roses cannot be taken as the best Roses in cultivation—Caroline Testout, Frau Karl Druschki, Comtesse du Cayla, Gruss an Teplitz, Joseph Hill, Mme. Abel Chatenay, Mme. Ravary, Pharisaër, and Prince de Bulgarie, to name only a few really first-class Roses, find no place in the Gold Medal Awards.

It is the system that is in fault; it attempts too much, and in a manner impossible of securing satisfactory results. Very much might be done, however, with a comparatively small improvement. Let the Gold Medals be awarded to the best exhibit in the class for new seedling Roses, the Silver-Gilt Medal to the second best, and the Card of Commendation to the third best. The judges would then have a task they would know how to accomplish, and would discharge with satisfaction. The award to the best new Rose exhibited at that show would be readily understood. The value of the Medal would be increased by curtailing the wholesale distribution obtaining at present. The Gold Medal Rose of such a year would become a real distinction. Perhaps at the Metropolitan show there might be two classes, one for decorative and the other for exhibition Roses, and no doubt ample power would be given to the judges to withhold the award in case the exhibits were not up to the usual standard, and to give an additional medal in case of two Roses of equal and exceptional merit. This would not only reduce the Gold Medals to a definite number each year, but since the exhibits would be compared one with another, the probability is strongly in favour of a sound decision, while the object and purpose of the award would become clear to the general public.

White Rose.

RODGERSIA.

WHEN *Genera Plantarum* was published about thirty years ago only one Rodgersia, R. podophylla, was known to science, and that had only just been introduced to cultivation. Since that time, however, several new species have been discovered in Central and Western China. The first newcomer was R. pinnata, which has large, pinnate leaves consisting of three pairs of leaflets and one terminal blade. A striking peculiarity is that the two lower pairs are set closely together, but distant from the others. R. pinnata produced its handsome panicles of rose-coloured flowers for the first time in July, 1902, and was figured in the *Gardeners' Chronicle* of that year, p. 131, fig. 44. Mr. A. Henry, who sent seeds of this species from Yunnan, at the same time gave an account of four Chinese species, three of which are now in cultivation. The fourth, R. Henrici, is only known from dried specimens, collected in the mountains between the Salwen and Mekong in Yunnan by Prince Henri d'Orléans.

Photograph by Reginald A. Malby.

FIG. 51.—RODGERSIA TABULARIS, SHOWING THE HANDSOME PELTATE FOLIAGE.

The next Rodgersia introduced to cultivation was R. pinnata var. alba, which was received in 1904. The plant was collected by Mr. E. H. Wilson in Western China, where, he states, it is very abundant. The variety differs from the type in having larger and broader panicles of white flowers, and less distinctly pinnate leaves.

R. æsculifolia was introduced from Central China in 1906. It has large, handsome foliage resembling that of the Horse Chestnut, whilst the flower stems vary in height from 2½ to 5 feet. The pure white flowers are borne in panicles nearly 2 feet long when the inflorescence is fully developed. This is the commonest Chinese species, its habitat extending from Hupeh in Central China to the Tibetan border.

One of the most distinct species is R. tabularis from Northern China and Corea (see fig. 51). This plant flowered in Great Britain for the first time in July, 1907, having been introduced from St. Petersburg.

Photograph by W. Irving.

Fig. 52.—Rodgersia sambucifolia : flowers white.

R. sambucifolia (see fig. 52) is the latest addition to the genus. It was collected by Mr. Wilson in the forests of the Yalung Valley, 100 miles west of Tatien-lu in June, 1904, growing at an elevation of some 10,000 feet. No seeds being obtainable, Mr. Wilson despatched roots to Messrs. James Veitch and Sons, and plants flowered in the Coombe Wood Nursery of that firm in 1911. The plant grows about 3 feet high, and has red stems and petioles resembling those of R. pinnata. The leaves consist of four pairs of leaflets and a single terminal one, much narrower than in R. pinnata, whilst the pairs of leaflets are all equi-distant from each other. The flowers are white, and borne early in June in panicles one foot or more in length.

All the members of this family are handsome foliage plants, especially R. pinnata, and are of considerable value for planting in the bog garden or shady corners. The Japanese species are the more liable to be injured by strong sunshine, even when supplied with plenty of moisture at the roots. All the Rodgersias form large clumps and are perfectly hardy; they grow best in rich, well-drained soils. *W. I.*

KEW NOTES.

SUMMER-BLOOMING SHRUBBY SPECIES.

The following hardy shrubs and climbers are in bloom in the Gardens :—

Hydrangea arborescens grandiflora.—This is an attractive sterile form of the Eastern United States Hydrangea arborescens. The plant is hardy in Great Britain, and produces towards the end of July and August large corymbs of creamy-white flowers. Cuttings of this variety root readily in a close propagating frame during August and September.

Eucryphia pinnatifolia.—This is a comparatively little-grown shrub from Chili belonging to the N.O. Rosaceæ. Under ordinary conditions it forms an evergreen bush, though sometimes alternate spells of frost and mild wet weather in winter cause many of the leaves to turn brown and fall. Several bushes in a bed associated with the Mediterranean Heath are flowering freely. The plant grows best in a mixture of sandy loam, peat and leaf-mould. The blossoms are pure white, resembling those of a large single Rose, and were illustrated in *Gard. Chron.*, May 16, 1891, fig. 121.

Tamarix pentandra.—The fern-like light-green foliage gives to this plant a distinct and attractive appearance, and sets off the pretty feathery pink spikes of flowers which appear at the end of July or early in August. Cuttings root readily in borders out-of-doors. They should be inserted during October or November, and treated like cuttings of hybrid-perpetual Roses. Larger spikes of flowers and stronger growths are obtained by shortening the shoots of the previous year in early spring. Unfortunately some confusion exists as to the correct name of this plant, which has received the R.H.S. Award of Merit as Tamarix hispida æstivalis, while it is also known as T. Pallasi rosea.

Hypericum patulum var. Henryi.—As a decorative subject for the pleasure grounds this is one of the most useful of the St. John's Worts. It is rather hardier and a better garden plant than either H. patulum or H. Hookerianum, which are its nearest allies. The plant grows 2, 3 or more feet in height and bears yellow flowers from July to September. The rich yellow blossoms are about 2½ inches in diameter. Propagation may be effected by seeds or cuttings, the latter inserted in a close frame during August or September.

Olearia Haastii.—This New Zealand shrub is one of the very few shrubby Composites which are hardy at Kew. Olearia Haastii is a good town shrub, and its evergreen character makes it additionally valuable. Cuttings made from half-ripened shoots root readily under a bell-glass.

Spartium junceum.—The value of the yellow Spanish Broom for planting in shrubbery borders and pleasure grounds can hardly be over-estimated. The plant is best suited for poor soils, as in rich ground it develops an abundance of gross shoots and comparatively few blossoms. Seeds are produced freely and offer a ready means of propagation. This Broom transplants badly and should be grown in pots until set out permanently. The young plants soon become straggly, therefore the points of the growing shoots should be removed several times during the season to promote a dwarf, bushy habit. An annual thinning of the growths in early spring is desirable. Spartium junceum is a good town shrub, and should be freely planted in municipal parks and gardens.

Rubus ulmifolius flore pleno.—This pretty double pink-flowered Bramble is also known as Rosa fruticosus flore-roseo-pleno, and is suitable for planting in woodlands, the more natural parts of the pleasure grounds and shrubbery borders. The readiest method of propagating is by layering the long, outer growths; cuttings inserted in the autumn will also form roots. R. thyrsoidens (fruticosus) flore-albo-pleno has double white flowers.

Ceanothus.—Of the autumn-flowering Ceanothus there are several varieties; the best of those in flower at Kew are Gloire de Versailles, pale blue; Ceres, rose, indigo and deep blue; Perle Rose; Gloire de Plantières, purplish mauve; Arnoldii, greyish mauve; and grandiflorus, light blue. These, being hybrids between C. americanus and C. azureus, are hardier than most of the spring-flowering species. To obtain freely-branched plants some 3 feet in height, similar to those flowering at Kew, the growths made the previous year should be cut back fairly hard in early spring. The plants grow best in light,

rich soils, and should be planted in warm, sunny situations. Cuttings inserted during August and September root readily in a close frame, preferably with a little bottom heat

Æsculus parviflora.—This shrubby Horse Chestnut is known in nurseries as Pavia macrostachya. A native of the South-eastern United States, it forms a spreading bush 8 feet or more in height, and with age becomes considerably more in diameter (see fig. 53). The bushes have the familiar digitate leaves of the Horse Chestnut. The long, cylindrical inflorescences are 1 foot or slightly more in length, with a diameter of not more than 4 inches their whole length. The flowers are white with long, protruding stamens tipped with red.

Clematis Viticella.—This European species is a good garden plant, and has given rise to numerous valuable garden varieties, including the ever-popular C. Jackmanii. It is one of the best of the Clematis family for draping arbours, porches, verandahs and fences, whilst in the shrubbery borders the growths may be supported with rustic poles, placed three or four together tripod fashion. The type has purple, alba white, rubra, red and flore-pleno double

Fig. 53.—Æsculus parviflora flowering in the Royal Gardens, Kew.

light-purple flowers. Durandii is a deep violet purple hybrid between this species and C. integrifolia, whilst pallida is a paler-coloured hybrid. Other hybrids are Hendersonii, a particularly floriferous plant some 6 feet in height, with graceful, drooping flowers, dark purple in colour and moderate in size; intermedia, intermedia rosea, intermedia alba, Clocheton and globosa.

Late-flowering Spiræas.—The three tall-growing species, S. Aitchisonii, S. arborea and S. Lindleyana, may be taken together, as they are similar in habit and average 10 feet in height. Distinct from these are the dwarf, shrubby species and varieties, the best-known of which is the beautiful red variety Anthony Waterer. Other distinct varieties are Bumalda, pink, and alba, white. S. pumila var. superjaponica is a vigorous, pale-pink form with large flat heads of flowers; S. concinna, white, tinted pink; and S. albiflora, white. All the foregoing have the flowers arranged in flat inflorescences. There are others with upright heads of flowers; the best of these for August flowering are S. salicifolia, white, tinted pink, and varieties; S. nobleana, rosy pink; S. microthyrsa, rosy red; S. Menziesii Billardii, pink; S. bethlehemensis rubra, rosy red; and S. Douglasii, rosy red. These dwarf species and varieties produce suckers freely, and spread rapidly over the ground. The clumps may be lifted and divided for purposes of propagation. *K.*

TREES AND SHRUBS.

ENKIANTHUS CAMPANULATUS.

This handsome Japanese plant is not grown so extensively as its merits deserve, for where it succeeds it forms one of the handsomest of the hardy Ericaceæ. In its native habitat it is said to form a small tree 30 feet or so in height, but in this country it is usually a comparatively low-growing shrub. The largest plant I have seen was about 6 feet high, but the wood did not appear to ripen thoroughly in the autumn, so that the growths the following season came from near the base of the preceding year's shoots, and consequently the plant did not increase much.

The deciduous leaves are about 2 inches long, elliptic-ovate in shape, and finely serrulate on the margins. They are arranged in clusters on the ends of the shoots, and change to a reddish tint in the autumn. The flowers are somewhat like those of an Andromeda in size and shape. They are dark-red in colour, and borne in short, pendant racemes in the axils of the leaves.

The plant thrives best in peaty soils such as Rhododendrons grow best in. It should be planted in a sunny situation sheltered from cold winds, so that the wood may have opportunity for becoming ripened thoroughly. Propagation may be effected by seeds, which are somewhat difficult to obtain, and by layering. *J. Clark, Bagshot, Surrey.*

TREES AND SHRUBS AT ALDENHAM.

In presenting a list of the dimensions of some of the more interesting trees and shrubs at Aldenham, it is not suggested that all these plants are the finest specimens to be found anywhere, as the size of some of them is only remarkable if their youth be taken into account. For instance, I know of a finer specimen of Prumnopitys than the one given below at Tortworth, belonging to Lord Ducie, and I imagine the ages of the two plants are much the same. On the other hand I doubt if larger specimens could be found anywhere of Cratægus punctata, Berberis stenophylla, and Cotoneaster Simonsii than are to be found growing here; at any rate, I have never seen or heard of any such.

The new Paulownia was only introduced into this country five years ago, when Professor Sargent most kindly sent me the seed from the Arnold Arboretum, so there can be no older plants than mine. It is possible, of course, that Kew or some private collector may have one slightly taller, as my plant has lost about a foot each year of unripened wood, through winter frost; but, even so, a height of over 20 feet and a girth of 9 inches must be regarded as an extraordinary growth, for five years, in England. The size of the Pittosporum below mentioned would be nothing out of the common if it were growing south of London in some sheltered spot such as Leonardslee, but on a cold, clay soil north of London the wonder is not only that it should be so large and well-grown, but that it should be alive at all.

If other collectors were to follow my example and give lists in the columns of the *Gardeners' Chronicle* of their more important plants, stating the approximate age, I think they would prove most valuable and interesting records. I may mention that I was led to do this by noticing that Sir Edmund Loder had adopted this course in the introduction to his admirable, privately-printed, catalogue of the plants at Leonardslee. It will be noticed that hardly any Conifers, and no peat-loving plants at all, appear in my list, as our heavy Hertfordshire clay is unsuited to their growth. *Vicary Gibbs, Aldenham House, near Elstree.*

HEIGHT, ETC., OF TREES AND SHRUBS AT ALDENHAM, 1913.

Approx. age.	—	Height.	Girth.	Circumference.
years		ft. in.	ft. in.	ft. in.
30	Abies Douglasii pendula	18 6	11½	
7	Acer Davidii	8 6	4	—
5	,, Henryi	6 9	—	—
5	,, oblongum	9 6	—	—
7	Æsculus Bushii	9 6	—	—
5	Ailanthus Vilmoriniana ..	8 6	6	—
5	Alnus cremastogyne ..	9 6	—	—
5	,, lanata	8 9	—	—
8	,, rhombifolia	27 2	1 11½	—
40	Arbutus Unedo	12 0	—	56 4
20	Aristotelia Macqui	10 6	—	36 0
50	Berberis vulgaris	12 6	—	61 0
50	,, stenophylla ..	15 3	—	62 0
4	Betula 900 Wilson	5 0	—	
25	Bupleurum fruticosum ..	6 3	—	36 0
15	Ceanothus "George Simon"	9 6	—	45 0
30	Celtis occidentalis	17 2	1 6½	—
30	,, ,, ...	17 10	1 3½	—
5	Cotoneaster Dielsiana ..	9 0	—	—
4	,, ,, elegans	9 0	—	—
4	,, divaricata ..	5 6	—	—
4	,, salicifolia ..	6 0	—	—
5	,, ,, floccosa	6 0	—	
5	,, ,, rugosa	8 3	—	—
25	,, Simonsii ..	11 9	—	83 0
4	,, Zabellii ..	8 6	—	—
70	Cratægus orientalis ..	17 9	2 8(a)	72 8
70	,, punctata ..	36 0	5 4½	142 0
70	Cydonia japonica	9 0	—	65 6
18	,, Maulei	6 0	—	48 0
12	Fagus obliqua	18 6	10	—
70	,, sylvatica pendula ..	32 0	4 0	122 0
10	Hamamelis mollis	5 8		—
30	Hippophaë rhamnoides ♀	36 0	2 5	—
15	Idesia polycarpa	12 9	9	—
25	Ilex dipyrena	5 7	—	20 6
10	,, "Golden King" ..	6 3	—	22 0
25	,, opaca	11 6	—	27 6
7	,, Pernyi	3 4	—	10 0
7	Juglans cathayensis ..	8 9	4	—
15	Ligustrum japonicum coriaceum	5 0	—	12 6
25	Lonicera involucrata ..	8 6	—	53 0
5	,, Maackii	7 0	—	28 0
5	Morus cathayensis	7 6	—	—
25	Olearia Haastii	6 0	—	40 6
5	Paulownia tomentosa lanata	20 9	9	—
20	Photinia serrulata	8 0		27 0
40	Pinus aristata	23 0	1 10	—
30	Pittosporum tenuifolium ..	12 6	—	33 6
7	Populus lasiocarpa	8 0	—	
40	Prumnopitys elegans ..	8 3	—	40 6
25	Prunus Mume	13 6	—	63 0
15	Pterocarya rhoifolia ..	15 3	9½	—
12	,, stenoptera ..	9 6	—	—
12	Pyrus betulæfolia	19 3	1 0½	59 6
35	Quercus pedunculata fastigiata	27 9	1 6	—
35	,, ,, pendula	22 0	2 2	85 0
5	Rosa rugosa repens alba ..	7 6	—	61 0
2	Salix magnifica	7 6	—	
60	,, alba cærulea (True Bat Willow)	84 0	11 2(b)	—
20	Shepherdia canadensis ..	9 0	—	39 0
30	Sophora japonica	38 0	3 9	—
30	Sorbus domestica	33 6	2 9	—
15	Syringa japonica	8 3	—	33 6
40	,, Emodii	14 0	—	65 0
50	,, persica	13 9		70 0
70	Tilia petiolaris	68 9	6 3	136 0
25	Veronica Traversii	7 6	—	48 0
5	Viburnum rhytidophyllum	7 6		—

(a) At 2 ft. (b) Girth at 10 ft. = 10 ft. 3 in.

NOVEL DESIGNS IN SUMMER BEDDING.

WOOTTON HALL, ASHBOURNE.

Some extraordinary examples of carpet bedding are to be seen this season at Wootton Hall, Ashbourne, the seat of the Hon. Mrs. Harry Bourke. One of the most striking designs represents a partly unrolled length of carpet, placed on a portion of the terrace at the end of the house, the appearance being remarkably realistic. The rolled portion is about 3½ feet in height, with a width of 4 feet, and an outspread portion of about 42 feet in length; realism is enhanced by the ground rising at a point about half-way along the outspread portion, giving a very natural undulation to the carpet, whilst at one of the extreme points the ground has been so planted that the end of the strip appears to overhang. A few details as to how the scheme has been carried out may be of interest. The design itself is simple. The chief feature is a series of circles of fairly large diameter placed down the centre, connected with one another by elliptic panels placed diagonally, and the carpet is bordered in the well-known "key" pattern. In the centre of each circle is a plant of Echeveria metallica. From this there are four radiating arms or "spokes" of curved form, composed of Begonia semperflorens Zulu and Little Gem; these are connected with a ring of Alternanthera aurea nana forming the circumference of the circle. The intervening groundwork is composed of Spergula pilifera aurea. The elliptic panels have a centre line of Echeveria farinosa enclosed in lines of Alternanthera paronychioides and aurea nana, finished off with a border of Mesembryanthemum vulpinum. The panels are laid on a ground of Leucophyta Brownii.

The "key" border is carried out in Cerastium tomentosum, filled in with a dwarf green Sedum and finished off with a continuous edge of Echeveria secunda glauca. The edging of the rolled-up portion of the carpet is done in Echeveria secunda glauca, with intervening lines of Saxifraga umbrosa.

The framework or foundation of the roll consists of two circular iron hoops comprising the ends, connected by iron rods, the whole forming a hollow drum. This is filled with soil and bound round with wire netting, the plants being pricked in between the meshes. About 10,000 plants have been used to carry out this piece of work.

Another effective bed is in the form of an unfolded ribbon, prettily undulating on the grass, and carrying the Irish motto: "Cead Mile Failte" (a thousand welcomes). The letters of the first and third words are picked out in small plants of Echeveria secunda glauca, the centre word in Echeveria farinosa, filled in with Pyrethrum aureum and edged with lines of Begonia semperflorens Little Gem, Echeveria and Sedum glaucum. The back portion of the ribbon is higher than the front, so that the design is more easily seen than if it were carried out on the same level throughout.

Another novelty is the facsimile reproduction of the handwriting of Mrs. Bourke, picked out in Echeveria on a ground of Spergula pilifera aurea, edged with Cerastium and crimson and gold Alternanthera.

A striking feature at one end of the broad walk on the upper terrace is composed of two large beehive-shaped mounds of crimson Pelargoniums. These are formed of two heaps of soil 5 feet in height and the same in width, kept in shape by an iron cage, between the bars of which the Pelargoniums are planted.

Standing as they do, at the east end of the terrace against a background of dark foliaged trees, their brilliance is shown to the best advantage. When seen by the writer they were a blaze of colour from base to summit. For spring effect, Wallflowers are planted.

A good example of sub-tropical bedding is also seen on the same terrace. Height is attained by tall plants of Eucalyptus globulus, Prunus Pissardii, Acer californicum aureum, Humea elegans and Japanese Maples. Plants of lesser height are Leucophyta Brownii (trained as pyramids), Abutilon Thompsonii, A. Savitzii, Ricinus Gibsonii, and Iresine Herbstii. The groundwork is carried out in Cerastium, Pyrethrum aureum, Fuchsia argenteum and various kinds of Alternanthera; whilst for later effects bulbs of Liliums and Gladiolus have been planted. A selection such as this will provide colour in flower and foliage throughout the entire season.

Dorothy Perkins Rose trained on chains forming a canopy in the shape of a bell tent, and sufficiently spacious to accommodate a seat inside, is another charming feature in the gardens at Wootton. The house, situated on an eminence, commands a glorious view of hill and valley; the ground itself immediately in front of the house falls away in three spacious terraces. Below, is a semi-wild portion planted with choice Conifers and other trees, interspersed with clumps of Gorse and Rosa canina. Grass walks winding at an easy gradient render access easy. This portion merges quite naturally into the valley below, the whole being an excellent example of good landscape work in perfect taste.

It may be, probably it is the case, if there is any truth in the saying "There is nothing new under the sun," that the bedding designs I have described briefly have been carried out elsewhere previously, but beyond doubt, as seen at Wootton, the designs and the method of carrying them out are the product of Mr. Cook's own brain. Many improvements have been effected since he has been in charge, and the condition of the gardens is an eloquent tribute to his zeal and ability. *C. G.*

NOTICES OF BOOKS.

Twentieth-Century Gardening.*

This is perhaps the cheapest book on gardening ever published; that is, comparatively. It runs to 311 pages in eights, is well bound in cloth, illustrated with pen-and-ink sketches throughout, and well printed on good paper. Mr. Weathers always writes well in the sense that he goes to the point, and, I had almost said "always" but "generally" will be a safer word to use, generally gives the right treatment and correct methods of growing plants. He does not fail in this book, though it is obvious that in one volume much of the material must be brief if all sections of horticulture have to be touched on. Brevity is no evil, if, as here, no superfluity of verbiage is indulged in, and so we get in each page the maximum of educative material, with the minimum of waste. Sometimes, however, one feels as if brevity were carried too far, this especially in the selections of plants which, in some instances, are too meagre to be helpful. It benefits nothing to be told that Anemone japonica is "white, purple" if we do not know which sorts to secure, and which to reject. That is one of the few faults that strikes one in its perusal. But on the whole the contents will meet the wants of the beginner in the happy art of gardening, for whom the book is primarily written. It tells him about soils and manures and how to use them, the proper methods of cultivation, the author being a believer in the old-fashioned method of superimposing the lower layer of soil in trenching on the upper; how to make walks and lawns and preserve them in fit condition; how to furnish a garden with hardy perennials, annuals hardy and little hardy, for rockery, wall garden and water garden; the Rose; trees; how to manage greenhouse plants and which to grow. The hardy and tender vegetables, herbs and fruits of the garden are duly treated, and the insect and vegetable scourges, which are one of the chief sources of harassment to gardenfolks, are named and means for their destruction recommended. The pages are illustrated with cuts elucidatory of the letterpress, and a good index furnishes a ready means of finding any subject at a glance

* *Twentieth Century Gardening.* By John Weathers. (London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 1913.) Price 1s.

REMARKS ON CONDITION OF THE FRUIT CROPS.

(*Continued from page* 123.)

(*See Tables and Summaries, ante, pp.* 80-85.)

3, ENGLAND, E.

Suffolk.—The early expectations of a good fruit year have not been realised. The trees blossomed earlier than usual, but a heavy fall of snow followed by frosts on April 11 damaged the Pear and Plum blossom considerably. Attacks of aphis have been general and severe. Apples are generally well cropped, but Pears are very scarce. Victoria Plum trees are bearing well in some places, but other varieties of Plums are scarce. Bush fruits and Raspberries were abundant crops. Strawberries have been good, and their prices were well maintained. *E. G. Creek* (*Hort. Inst.*), *Shire Hall, Bury St. Edmunds.*

—— With the exception of Apples, all kinds of fruit trees gave splendid promise during the flowering period, and most kinds set fruit freely; but, owing to long-continued easterly and north-easterly winds, the young fruits turned yellow and dropped freely. Stone fruits, with the exception of Cherries, were almost a complete failure. Insect pests have been more numerous than usual, and spraying has been practised almost continuously. *W. Messenger, Woolverstone Park Gardens, Ipswich.*

—— The Apple crop is, on the whole, a good one. Pears and Plums on walls are good crops, but there are few fruits on standard trees of these. Cherries and Apricots are average crops. Small fruits were exceptionally abundant. Strawberries also were good, but, owing to continued drought, the berries of late varieties were of small size. Nuts are a complete failure. The soil is a light, calcareous loam, resting on gravel. *Thomas Stiling, Livermere Park Gardens, Bury St. Edmunds.*

—— The fruit crops, with the exception of bush fruits and Strawberries, are very light, owing to unripened wood. Apple, Plum, and Cherry trees flowered abundantly, but the fruits failed to set. Our soil is of a very light nature, with a shallow subsoil of chalk. *B. Goodacre, Moulton Paddocks Gardens, Newmarket.*

—— The fruit trees in this district showed great promise for good crops in the spring; but, owing to the cold weather experienced when they were in bloom, Pears did not set well. Plums and other stone fruits, with the exception of a few trees, are very poor crops. Apples are abundant on most trees. Raspberries and bush fruits generally were very satisfactory; whilst Strawberries also were plentiful and good. The crops are suffering from drought, and the trees are badly infested with aphis. Our soil is of a heavy nature, with a clay subsoil. *James Hilson, Flixton Hall Gardens, Bungay.*

—— The crops of stone fruits were destroyed on April 11 and 12 by snow, hail, and ice storms. All kinds of blight have been prevalent this season. The Pear crop suffered from the same causes, and these fruits are very scarce. The show of Apple blossom in this neighbourhood was a beautiful sight, the trees being hidden in magnificent bloom, which set well. Gooseberries were rather scarce, but Raspberries and Black Currants were satisfactory. The "mite" is still troublesome on Black Currant bushes. The Strawberry crop was a good one, both quantity and quality being excellent. *R. Evans, Gt. Barton, Bury St. Edmunds.*

—— The failure of the fruit crops is due to frequent frosts and north-east winds which prevailed in April. Apples are good, both in

quality and quantity. Pears are scarce but of good quality. Stone fruits also are scarce, Peaches and Nectarines being the best of these crops, owing possibly to the trees being protected whilst in bloom. Small fruits were exceptionally good, especially Strawberries. The first 14 days of April were very unfavourable to the crops: frost was recorded on 8 nights during this period, including 9° and 10° on the 12th and 13th respectively, with intermittent storms of hail, rain, and snow from the 3rd to the 14th. *A. K. Turner, Orwell Park Gardens, Ipswich.*

—— Owing to the mild winter Pears, Currants, and Gooseberries blossomed early, but a period of cold weather about the 11th of April caused the flowers to drop. *James A. Best, Easton Park, Wickham Market.*

4. MIDLAND COUNTIES.

Bedfordshire.—In many orchards Apple trees are bearing a record crop, whilst in others the yield is a very poor one. Apples are of exceptionally good quality. Victoria Plums have, on the whole, set well, but many of the fruits dropped, owing to a bad infestation of aphis. Other varieties of Plums are practically barren. Early varieties of Strawberries were a very light crop, owing to dry weather, but late varieties, and especially Givon's Late Prolific, produced an exceptionally heavy crop on heavy soils, although those growing in light greensand were not so good. *W. H. Neild, Woburn Experimental Fruit Farm, Ridgmont, Aspley Guise.*

—— Apples and Pears are both good crops, but Apricots and Peaches were much harmed by cold weather in the spring. We had an exceptionally fine crop of Strawberries. Most of the fruit trees that have not been sprayed with an insecticide are infested with aphis. The soil is very sandy, and the subsoil also is sand. *C. J. Ellett, Chicksands Priory Gardens, Shefford.*

Buckinghamshire.—The fruit crops generally were damaged by late spring frosts and continued hot, dry weather in June, and are, on the whole, much below the average. Both Pears and Plums are scarce, and Apples are much fewer than usual. Strawberries were of good quality and above the average in quantity. Small fruits were about average crops. Our soil is a heavy loam, resting on a cold clay, and the natural drainage is bad. During times of drought the ground cracks, so that moisture evaporates freely from the soil. *W. Hedley Warren, Aston Clinton Gardens, Tring.*

Cheshire.—The fruit crops are much under the average, both in quality and quantity, which is probably due to the abundant crops of last season. Apples and Pears are the least satisfactory crops. Small fruits were good crops of excellent quality. *Alfred N. Jones, Marbury Hall, Northwich.*

Derbyshire.—There was a fine show of blossom on Apple, Pear, Plum, and Cherry trees, but with the exception of Apples the fruit crops are disappointing. The season has been a remarkable one. March and April were very wet months. The rainfall for March was 3.62 inches, and for April 4.04 inches, and our heavy clay land could not be prepared for seed sowing. Strawberries were plentiful and of good quality. Gooseberries and Currants also have been very good, and Black Currants a much better crop than usual. Raspberries are not so extensively grown here as formerly, the Loganberry being planted instead, especially in cottage gardens. Peas, Beans, Potatos, and other vegetables are looking well. *Bailey Wadds, 181, Uttoxeter New Road, Derby.*

—— Apples are above the average and promise well, but Pears are very thin and of poor quality. Plums are scarce, whilst Cherries were a light crop, but the fruits were of good quality. Strawberries and Gooseberries were plentiful and good, and Raspberries, Red and White Currants above the average. The soil is of a heavy, clayey nature, on a gravelly subsoil. *James Tully, Osmaston Manor Gardens.*

Hertfordshire.—Plums and other stone fruits promised well early in the season, but the trees were damaged by aphides. Some Pear trees (varieties not known) are carrying fair crops, but this is exceptional rather than the rule. Apple trees promised a heavy crop, but many of the fruits dropped prematurely, which I attribute to drought. A few Gooseberry bushes were well cropped, but the others were a failure. Black Currants were above the average. *J. W. Bamber, 16, Briscoe Road, Hoddesdon.*

—— With the exception of Apples, Strawberries and small fruits, the fruit crops are much under the average. Peaches and Apricots are a failure; Plums, except in a few cases, chiefly Victorias, are very thin, whilst Cherries also were bad. Apple trees are carrying heavy crops, and although many of the fruits dropped, considerable thinning has been practised. The soil is a heavy, loamy clay. Strawberries withstood the drought well, and late varieties were very satisfactory. *Thomas Nutting, Childwickbury Gardens, St. Albans.*

—— The fruit crops are the worst I have known. The exceptional quantity of blossom gave promise of a particularly good fruit year, but the flowers set badly, and many of the fruits dropped, which suggests that the flowers were weak owing to immature wood, due to the unfavourable autumn of 1912. Last spring the weather was damp and sunless, and these unfavourable conditions were followed by a bad infestation of aphides on nearly all kinds of fruit trees. Apples are an average crop, but Pears are very scarce. There are but few Peaches, whilst Plums are a failure, except on young trees. Strawberries have never been finer nor the Strawberry season longer. Black Currants were exceptionally good, but other small fruits are only average. *H. Prime, Hatfield House Gardens.*

—— The fruit crops in this district are variable and generally disappointing. During the flowering period there was a good prospect for a bountiful fruit year; though we had but few late frosts and a fine set was assured, for some reason that I am unable to explain the fruits, particularly Pears, Plums, Apricots and Peaches, failed to swell, and in the majority of cases the crops are practically a failure. Victoria Plum trees are laden with fruit, and we have a fair crop of the Czar, Early Rivers, and Pond's Seedling Plums. Apples are excellent, with the exception of a few trees which carried very heavy crops last year, the majority of the trees being clean and healthy. Tower of Glamis, Small's Admirable, Cox's Orange Pippin, Dumelow's Seedling (Wellington), Lord Derby, Bramley's Seedling, King of Tomkins' County, and Annie Elizabeth are among the best varieties. Cherries, both sweet and Morello, were very good. Small fruits, with the exception of Raspberries, which suffered much from the effect of drought, were plentiful. The Black Currant crop was the best for years, and Strawberries were quite the best since I have been at Aldenham. Royal Sovereign, Givon's Late Prolific, Waterloo, and British Queen were the best varieties. The soil is a stiff clay. *Edwin Beckett, Aldenham House Gardens, Elstree.*

—— Stone fruits are much under the average. Peaches are patchy; some trees are carrying good crops, whilst others are fruitless. Apricots on south and east walls are a total failure, and Plums are not much better. Strawberries were a magnificent crop. Nuts are a failure. The soil is a good loam on a gravel subsoil. *J. G. Walker, Oak Hill Park Gardens, East Barnet.*

(To be continued.)

FOREIGN CORRESPONDENCE.

JAVA.

Several Acacia species will flower and fruit here, but Acacia Baileyana and A. melanoxylon only make flower buds which do not open.

I should like to know from any reader cultivating these plants in the open how they behave; perhaps they are grown by someone in the Scilly Islands or in the south-western counties. *M. Buysman, Jardin Botanique Lawang, Java.*

SAXIFRAGA LINGULATA AND S. COCHLEARIS.

I have already given (*Gard. Chron.*, March 16, 1912, p. 174) a few short notes on a subject similar to my present one, with reference to the articles by Mr. Reginald Farrer and Mr. H. Correvon. Mr. Farrer's interesting notes have also met with some criticism in an elaborate paper by Mr. T. A. Sprague (*Kew Bulletin*, No. 3, 1911, XII., with a plate showing leaves of several forms of Saxifraga lingulata from the Kew Herbarium).

In my opinion a really satisfactory account of the nomenclature, variability, affinities, and geographical area of the species included in the section Euaizoonia can only be given after a thorough examination of a number of well-flowered plants growing in their natural habitat. It will probably be found that under natural conditions specific names will be neither excessively multiplied nor unusually restricted. It should be remembered that a specific name does not verify any hypothesis, however probable. Certainly, all the Saxifragas of the group seem to be nearly allied, and had most likely a common ancestor; but it is not a demonstrable fact. Moreover, as S. Aizoon is found almost throughout the whole area of the section, one would be inclined to consider it the parent type; and the same would apply to S. cochlearis, a younger form developed from S. lingulata, whose area includes that of S. cochlearis. These hypotheses, however, although they may appear logical to the monographer working with herbarium material, do not agree with the actual distribution of the plants in this country. Fiori and Paoletti, in *Flora d'Italia*, have coupled S. cochlearis as a variety with S. crustata, a native of the Oriental Alps. Undoubtedly these two types are nearer one to the other than to S. lingulata; but S. cochlearis is very variable, and its direct descent from S. crustata is more improbable than from S. lingulata. I think it is the safest plan only to give specific names to plants which are actually and constantly different from each other, without dubious intermediate forms (except of hybrid origin) and without any indications of a common origin. For the present, at any rate, we may pass on to the subject of Euaizoonias in Provence and Ligury.

Saxifraga Aizoon, Facq.—This well-known and widely distributed polymorphous species, easily recognised by its dentate leaves and rather poor panicles of small, yellowish flowers, is common in the Maritime Alps. It shows great variability, from dwarf plants with nearly orbicular leaves (f. brevifolia, Engler) to large specimens of luxuriant growth (f. robusta, Engler). It is found on all soils, to a height of at least 2,700 metres, but is especially common on limestone. On this latter ground, however, it becomes rare or non-existent in the presence of S. lingulata, probably owing to the *primus occupans* of the latter plant, since the Aizoon, by its free habit of adaptation and propagation, should naturally predominate. Near the town of Tenda a few isolated plants are found, but west of the valley it grows only on rocks of quartzite and similar material, which is unsuitable for S. cochlearis and S. lingulata. Here it descends as low as 750 metres; I have even found it in the Verdon Valley at 700 metres, but this was quite an exception. Hybrids between this species and S. lingulata, as mentioned by Mr. Farrer, must be very rare. The two species are sometimes found at a short distance apart, but very seldom together, as the soil and conditions in which they grow are quite different. I know of only one instance—a rock west of Breil—where S. Aizoon, S. lingulata, and S. cochlearis are to be found all together; and their times of flowering are not the same. Indeed, near Tenda several weeks elapse between the flowering period of S. Aizoon and of S. cochlearis (type); and also between that of the latter and of S. lingulata. I once found a plant near Castellane, as mentioned in my first notes on this subject (see reference above), which was intermediate between S. Aizoon and S. lingulata, but quite distinct from either; it might be compared with

S. catalaunica (Boiss. and Reut.) from the Montserrat.

Saxifraga cochlearis, Reichenbach.—This is distinguished by its leaves, which are wide and rounded, and often indented at the top. The type, which is erroneously considered by Reichenbach to be a hybrid between S. lingulata and S. cuneifolia, has branching, ligneous root-stocks (at least, in older plants), very dense rosettes, thin, rigid, erect stems 15 to 25 centimetres high, covered, as are also the calyces, with brownish, viscous, glandular hairs. The flowers form a dense paniele, with large, white, obovate petals; the general effect is different from, and not inferior to, that of S. lingulata. The variety minor (or S. Probynii of M. Correvon), by some botanists confounded with S. valdensis, differs chiefly in being a small, thin plant (not exceeding 10 cm. in height) with few flowers. It grows abundantly with the type near Tenda; its flowering period is usually about a month later, so that they seldom bloom together. I think it probable that the same roots (which evidently live for many years) could produce successively the smaller and the larger plant; but the former must be considered in the light of a good variety, as in unfavourable regions it is the only one to be found. The variety major is a luxuriant, slender plant which grows in warm, damp ground, such as the gorge of Saorge and the Cairos Valley. It nearly resembles S. lantoscana, with its lax, shapeless rosettes and thick, pendulous stems. The branching of the panicles is unilateral, and the petals are elliptical, not contiguous; in one instance the petals were found to be linear, and entirely white. One plant which I measured was 47 cm. long. The natural habitat of the species (with almost the whole of which I am familiar) chiefly consists of limestone rocks, though it is found also near Briga on tertiary sandstone. The altitude varies considerably, ranging from 170 metres on the Italian boundary, near Breil, and at least 1,950 metres on the southern rocks of Monte Toraggio. It is limited to the valleys of the Roya from the Tenda basin downwards, the Nervia, and the Argentina. The distant region on the Monte di Portofino, near Genoa—an isolated mass of siliceous conglomerate 610 metres high—would repay examination. I have never yet been able to obtain any specimens from it, though I visited it once in June. In the Roya Valley the species abounds, and is only supplanted by S. lingulata (the type, or S. lantoscana) where the climate is cooler or damper. Where the two species grow together, S. cochlearis usually occupies the sunny slopes, the shady spots being preferred by S. lingulata. As this latter species grows in low, warm places outside the area of S. cochlearis, it must be assumed that this latter is the older inhabitant of the two. In fact, the flora of the Roya Valley is in general more ancient than that of the Vésubie and other Western Valleys (with the exception of the Alpine tract outside the limestone districts), which are deficient in remarkable limestone species such as Moehringia papulosa, Primula Allionii, Micromeria Piperella, etc.

(*Photo by F. Mader.*

Fig. 54.—Saxifraga lingulata var. bellardii on rocks behind Tenda.

Saxifraga lingulata, Bellardi.—I have not seen a plant of this species from the Northern Apennines, and am therefore unable to compare the different forms. Mr. T. A. Sprague, whom I have before quoted, admits the identity of the plant growing on the Apuane Alps, in Tuscany, with S. australis Moricand found in Southern Italy, Sicily and Sardinia. The figure he gives shows a plant with leaves somewhat similar to those of S. lantoscana, but wider towards the top. In our mountains the species is exceedingly variable; the extremes show wide differences, but it seems impossible to draw the line between them. Some characters they all have in common—thick, arched, horizontal or pendulous stems, branched only on the upper face. The variety Bellardii, Sternb. (or the type of Bellardi, not to be confounded with S. Bellardii Allionii, an Alpine form of S. adscendens Linné, near to S. tridactylites) bears long, linear canaliculate leaves, neither widened nor restricted at the top, the crustaceous margin (often very frail) figuring a dentation; even when not flowering it does not bear true rosettes, the basal leaves being crowded together in more or less pyramidal clusters. The colour of the stem is not characteristic, depending on age, damp or dry exposure. The narrow, linear or "lingulate" white petals, as described for the type, are very exceptional, being found only on slender plants in very damp, shady places; the petals are usually elliptical, with red spots. The only good differential characteristic of the variety S. lantoscana is in the arrangement and shape of the basal leaves, which form rosettes; the leaves are much shorter, widened near the top, with an obtuse conical tip; very little, if at all, sulcate, plane or convex in the upper half; the crustaceous margin is smaller, but more continuous and stronger. S. lantoscana grows chiefly in dry places; it is not absent from the Roya and Nervia Valleys, but becomes more common towards the west, as the lower regions there are not occupied by S. cochlearis, and the climate is on the whole drier. As I stated in my last article, all the plants I examined near Castellane in the Verdon Valley, near the western limit of the species, had the stalks and calyces covered with short, dense hairs, while in the east and in the Var Valley the species is generally glabrous. A similar plant, also hairy, but smaller and thinner, from the isolated chain of Sainte-Baume, near Marseilles, is described in a posthumous Latin monograph as Saxifraga Sanctæ-Balmæ by Mr. Shuttleworth, an English botanist living at Hyères. The range of the species is very wide—from 150 metres high, near the confluence of the Vésubie and the Var, up to 2,400 metres (the mountains west of Limone, etc.). The flowering period varies, in consequence, from April to September. Though properly speaking a limestone plant, and not found in the great central mass of crystalline rocks, S. lingulata is common on the red slates of the gorges near Daluis and Beuil, and even on the gneiss-like rocks, of unknown antiquity, between Tenda and Vievola. On the hot, sunny southern slopes of Mont Baudon or Aiguille, near Mentone, the plants are somewhat smaller, but not otherwise differing from S. lantoscana; while a form found on the northern side of the same mountain, and illustrated by Mr. Sprague in his Fig. 3, is hardly entitled to represent a variety, the irregularity of its leaves being obviously due to some damage—a frequent occurrence. A much more remarkable plant is that found near the summit of Cima Ciavraireo, between the Miniera and Fontanalba valleys, at about 2,350 metres above sea-level. This is perhaps the coldest situation in which the species is found, as the exposure is directly north; I found here in September flowering and fruiting plants only 5 to 10 cm. long. The leaves were similar to those of S. lantoscana, but measured only 1 to 2½ cm., while the stem bore only 10 to 20 flowers.

The variety Bellardii is a splendid plant (see fig. 54, representing a group of panicles 40 cm. long). In fact, I found a plant with two panicles, the total length being 64 cm., and the basal leaves measuring 23 cm.; and I saw others which were even longer. In general effect S. lantoscana is hardly inferior, but it is less luxuriant, and seldom exceeds 50 cm., even in its giant specimens. The panicles are, however, often more numerous in the same place, and the flowers comparatively larger. In the month of June the numerous feathery hanging tufts of this plant cover the walls of the western gorges, and fringe the cliffs around the characteristic rock-villages of this region, considerably enhancing the interest and heightening the beauty of a country already rich in all that appeals to the artist or the naturalist. *Dr. F. Mader, Nice.*

The Week's Work.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Begonia socotrana.—The main batch of these plants should be potted. Shake the old soil from the roots and re-pot them in a mixture of rich fibrous loam (if the loam is heavy in texture add a little peat) and leaf-mould in equal parts, with coarse sand, wood ashes and decayed cow manure added. The larger plants may be grown in 4-inch or 4½-inch pots, placing the tubers on a layer of sand and covering them lightly with soil. They may be stood on a shelf or in a frame in the stove or other warm house until they commence to grow, when the soil should be watered thoroughly. After they are established continue to grow the plants in a stove temperature. Care must be taken to support the flower-spikes, which are very effective and useful for decorative purposes, lasting for several days as cut blooms in water.

Schizanthus.—Sow seeds of Schizanthus in pots or pans filled with a compost of finely sifted loam, leaf-mould and coarse sand. Cover the seeds lightly with fine soil, afford a thorough soaking with water, and stand the seed-pans in a cold frame placed under a north wall for preference. As soon as the seedlings are large enough to handle prick them off singly into thumb pots and grow them in a cold frame or on a greenhouse shelf. When they are well rooted shift them into 4½ or 5 inch pots, and finally into 6 or 7 inch pots, whichever size is considered the more useful. The soil may consist of good loam and leaf-mould in equal parts, with coarse sand, wood ashes, dried cow manure and soot added. Grow the plants in a cold frame until there is a danger from frost, when they should be transferred to a cold house, such as a vinery or a Peach house. Keep the foliage free from moisture, and do not syringe, for one or two degrees of frost will not harm the plants, provided the foliage is dry. As the plants arrive at the flowering stage they should be staked and fed with weak manure water. At that stage they should be grown in a temperature of 50° to 55° until placed in the conservatory.

THE FLOWER GARDEN

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Lilium candidum.—The Madonna Lily will grow and flower well if left undisturbed for a number of years, but the bulbs should be dug up and replanted as soon as they show signs of deteriorating. So long as the plants continue to thrive it is not advisable to disturb them, for I have known cases where they have failed entirely after being transplanted, although they were in a perfect condition previous to shifting them. Where circumstances make it necessary to disturb the bulbs the present is a suitable time to carry out the work, provided the old flower stems have died down. If the bulbs are to be replanted in the same positions the work should be carried out as expeditiously as possible. Grade the bulbs, planting the larger ones in clumps by themselves at a distance of about 6 inches apart. There seems to be a difference of opinion in regard to the depth the bulbs should be planted, but I have known this Lily to thrive admirably when planted about 4 inches below the surface. If the soil is of a stiff, retentive nature add a small quantity of old mortar rubble. Plant the bulbs where they may remain undisturbed for a number of years.

Early-flowering Chrysanthemums.—The flower buds of early, outdoor Chrysanthemums are expanding, and the plants should be assisted by stimulants. Light dustings of artificial manure or well-seasoned soot, followed by a thorough soaking with clear water, will add considerably to the substance and colour of the flowers. Certain varieties need disbudding, but this is not necessary in all cases.

Plants in Tubs.—During hot, dry weather the watering of plants in tubs must be regularly attended to. The receptacles are filled with roots which have appropriated most of the nourishment in the soil, and therefore stimulants should be afforded at frequent intervals. Ivy-leaved Pelargonium Madame Crousse is a splendid subject for growing as a specimen in a tub. Sweet Peas in tubs are flowering freely from the base of the plants. If afforded plenty of water and food the plants will continue in flower all through the season, but they must not be allowed to develop seed pods. Keep the growth tied neatly to the stakes and turn the tubs occasionally to show the best side of the plants.

PUBLIC PARKS AND GARDENS.

By Superintendent.

Roads and Paths.—In our public and private parks and gardens few things add more to the comfort and convenience of visitors than well-arranged and well-kept roads and paths. For such situations no road, in my opinion, equals that made of granite, tarred roads and paths being not only unnatural and quite out of place in our parks and gardens, but in many instances they have been found detrimental to plant life in their vicinity. No doubt the initial cost of a road made entirely of granite is comparatively great, but if well formed at the first, the after-expense in the way of upkeep is by no means in proportion: while the cost of scavenging is reduced to a minimum. Then, as before said, the metalled road is not only of a more or less permanent character, but more in keeping with the surroundings of a park or garden, while that made of any of the tar compositions is usually disagreeable in hot weather and often highly injurious to plant life—the latter a most important point in connection with the vegetation of our open spaces. In the formation of new roads, after drainage has been attended to, the lower stratum of from 6 to 8 inches in depth of 2-inch granite should be thoroughly and evenly consolidated by a 10-ton roller, and as the work proceeds all faults should be made good by repeated feedings until the whole surface is uniformly hard and level. When quite level and to the proper camber ¾-inch granite siftings should be added to the depth of from ¼ to ½ inch, and the surface, after being well watered, thoroughly consolidated by repeated rollings. The roadway may then be finished off by the addition of a slight coating of fine granite siftings, say ¼ inch, and again rolled over. In carrying out the formation of new roads the depth of material must be proportioned to the traffic, whether light or heavy, while the camber of the road, that is the fall from centre to side, will require careful consideration. Where a quantity of stones or old building materials is at hand, or come across in the course of digging out the roadway, such may be economically utilised in its formation by placing them beneath (never above) the granite. Large rolling stones should be broken before they are used. Guernsey or Alderney granite is delivered by barge in London at from 8s. to 9s. per cubic yard, broken to the size of 2 inches, while siftings may be had at a smaller cost. No doubt these prices are comparatively high, but roads made entirely of granite are not only more lasting but require much less cleaning in the matter of mud and dust than those formed of perhaps any other material, points which should weigh heavily in deciding which class of road is to be adopted in our parks.

Making Footpaths.—In the formation of paths for pedestrian traffic granite foundations are by no means necessary. Brick rubbish from buildings that are being pulled down can generally be had in towns for nothing, or at a cheap rate, and this makes an excellent dry bottoming for paths and by-ways. Six inches in depth of broken bricks placed as a foundation, and, say, 3 inches of binding gravel atop and finished off with broken shells, will make a thoroughly efficient and dry pathway. The bricks at the bottom should be broken small and well solidified by means of a punnet. The gravel is then added and rolled when wet, and finished off with a coating of sand or powdered cockle-shells. Attention must be paid to the camber or fall of the path from crown to sides

Drainage of Roads and Paths.—Surface drainage, both in connection with roads and paths, should receive careful attention. In either case, built gulleys should be provided at certain distances apart along the sides, and these connected by socket pipes, the overflow being conducted to a sewer, main drain, or other source of outlet. The quantity of water to be dealt with will form the best criterion as to the sizes of gulleys and pipes to be used.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Early Pears.—The varieties Citron des Carmes, Clapps' Favourite, and Jargonelle are on the point of ripening, and the fruits should be gathered and sent direct to the table, for they deteriorate if stored. Certain other early varieties, including Williams' Bon Chrêtien Jargonelle, Doyenné d'Eté, Beurré d'Amanlis, and Dr. Jules Guyot, may be stored on shelves in a cool place. By planting trees of these sorts in different aspects a succession of ripe fruits may be had over a long period. Pears should never be gathered before they are ready, and this may be ascertained by lifting the fruit in a horizontal position, when, if ripe, it becomes detached from the tree.

Early Apples.—Certain varieties of early Apples, including Irish Peach, Margaret, Mr. Gladstone, and White Joaneting, also should be eaten as soon as they are picked; but Beauty of Bath, Devonshire Quarrenden, and Lady Sudeley may be stored for a little time, although none of the earlier Apples improve in flavour by keeping after they are ripe. A good practice with freely-cropping, early culinary Apples, such as Keswick Codlin, Lord Suffield, and Lord Grosvenor, is to gather a few fruits from various parts of the tree, commencing at the topmost and outside branches.

Fig Trees on Walls.—Shoots that are crowded must be thinned, and the best plan is to pull the weaker growths clean away. Expose the fruits to the light, but not to injury by storms, as they are very easily marked when at the ripening stage. If the weather is fine syringe the trees in the early mornings, but not before the sun shines on them. The roots require very little water; if the tree is weakly and the border well drained diluted liquid manure made from cow dung may be applied when the fruits commence to swell finally.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Winter Onions.—Make preparations for sowing Onions to stand over the winter and afford bulbs in April and May. This is an important crop, as it will furnish a supply at a time when Onions are scarce. The ground in which the seeds are sown should not contain much manure, as the plants will withstand the winter better than if grown in rich land. Prepare the soil in the same manner as for spring Onions, but the drills may be made a little deeper. As the largest and mildest-flavoured Onions are produced from seeds sown in the autumn and transplanted to rich soil in the spring, ground for the crop should be prepared by trenching in the winter. The work should be accomplished as early as possible, so that the soil may be exposed to the winter weather for a long time. When the season arrives for transplanting the seedlings the surface of the bed should be broken up carefully and the plants set out in rows made at 18 inches apart, allowing 9 inches distance between the plants in the rows. Ailsa Craig, Long Keeper and Giant Lemon Rocca are good varieties for the purpose. A small sowing of the White Lisbon variety may be made now to furnish spring Onions.

Carrots.—Carrots raised from seeds sown early in July are ready for thinning. A distance of 6 inches apart will be sufficient space. Dust the plants lightly with soot whilst the morning dew is on the foliage and also during times of rains.

Turnips.—Seeds of Turnip may yet be sown for spring supplies. Sow in shallow drills made at one foot apart, and dust the young plants with wood ashes as soon as they appear above the ground. If the soil is dry at the time of sowing, water the drills the night previous to

sowing the seeds. Green Top Stone and Golden Ball are good varieties to withstand the winter.

Tomatos.—Seedling Tomatos intended for cropping in the winter should be shifted into 10-inch pots. Grow the plants under close conditions for a few days after they are potted, but afterwards admit air freely, both night and day, to favour sturdy growth. This batch may be expected to furnish ripe fruits in December and January. For the present all the laterals should be pinched out, and, when sufficient fruits have set, the leading stems should be pinched and the roots fed with liquid manure once a week. As the season advances a little extra growth may be allowed to develop, as this will tend to keep the plants healthy.

Potatos.—All early varieties of Potato should be lifted as soon as possible and the tubers placed in a dry shed from which the light may be excluded. Do not make very large heaps or the Potatos may become heated and their quality affected. Tubers for next season's planting should be selected and allowed to remain in the open for a few days before they are placed in their winter quarters. A shed where light and air can be freely admitted is the best place in which to store them

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Sobralia.—One or more of these plants has been in bloom ever since the middle of May. At the present time S. Veitchii, S. Lucasiana, and S. Colmanii are in flower here, and S. Warscewiczii will soon be opening its blossoms. The earlier flowering varieties included S. macrantha, S. m. alba, S. Cliftonii, S. xantholeuca, S. leucoxantha, S. virginalis; S. alboviolacea, S. Lowii, S. Liliastrum, and S. Ruckeri. The present is a suitable time to re-pot these plants, but it is not always advisable to do so immediately they become pot-bound, provided there is sufficent space for the young shoots to grow up freely, for being strong-growing and free-rooting subjects, they would soon become unwieldy if repotted annually. Plants that are in good health and not absolutely requiring re-potting will, if fed with weak liquid cow-manure, thrive for several years without root disturbance. Plants that appear to need a larger pot, or specimens that have become of an inconveniently large size, may be divided or re-potted soon after they have flowered. Employ plenty of drainage materials, and pot firmly in a mixture of good fibrous loam and rough, sandy peat in equal parts, with a small quantity of Sphagnum-moss and a moderate amount of small crocks. Keep the surface of the soil moderately damp until new roots appear through it, but later, when growth is vigorous, afford the roots an abundance of water. Sobralias grow best in a light position in the intermediate house, but newly potted plants should be rather more heavily shaded for a time than old-established specimens. It is a little too early to remove this year's flowering breaks, but as soon as the old leaves change colour cut the stems down to the roots, and tie the young growths clear of each other. If Sobralias are grown in a suitable temperature insect pests rarely trouble the plants.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Peaches and Nectarines.—The season in Scotland has been very favourable for the ripening of the wood of early forced Peach and Nectarine trees. It is essential for the foliage to remain in a healthy condition until it drops, and injury by red spider must be guarded against, for the conditions have been favourable to the spread of this pest. Syringe the foliage on frequent occasions with a weak solution of soft soap and sulphur to destroy the red spider. Surplus shoots that are not required for furnishing the tree should be removed to allow plenty of light and air to reach the branches. Keep the houses fully ventilated and see that the roots do not suffer from want of water. After the fruits have been gathered from trees growing in inside borders, give the roots a thorough soaking with water, and, if the foliage is infested with insect pests, spray with an insecticide sufficiently diluted with water. When the insects have been destroyed use clear water only for syringing, as this will assist in keeping the foliage healthy. Examine the trees carefully with a view to removing the old fruiting wood. Late varieties growing in cold houses should be syringed twice daily with clear water, and this should be continued until the fruits show signs of ripening. Old trees that are not making satisfactory growth may be fed liberally with manure water. Promote atmospheric moisture by damping the paths and bare surfaces frequently, and continue to do so until the fruit approaches the ripening stage, when both the borders and the atmosphere should be kept dry. Unheated houses require careful ventilation, regulating the amount of air according to the weather. To assist the fruit and wood to mature it is necessary to close the house in the afternoons, when the atmosphere is well warmed by the sun's heat. Expose fruits that are ripening in the sun's rays and thin the shoots to prevent overcrowding of the growths. In doing this do not make the ties too tight, but allow room for the young shoots to swell.

Fruit Trees in Pots.—Pot trees intended for early forcing should be re-potted. For Peaches, employ rich loam mixed with rough mortar rubble, bones and a rich fertiliser. Let the pots be cleansed thoroughly, and place plenty of materials in them for drainage. When potting see that the space between the ball of the plant and the side of the pot is filled with soil, and make it quite firm by ramming. It is not necessary to re-pot Fig trees every year, but only when the soil is exhausted. First remove as much of the surface soil as can be conveniently taken away, and replace it by good turfy loam mixed with lime rubble and concentrated manure. Make the soil firm by ramming, and, when the work is finished, stand the plants in a shady place until they recover from the disturbance. Guard against an excess of water at the roots until the latter are established in the fresh soil, but syringe the shoots daily for a week or so.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Old Manure Beds.—Plants of the first batch of celery set in the middle of June are sufficiently advanced for blanching, which is done by covering them with light mats. Etiolation will be completed in from 14 to 20 days. During wet weather cover only the sides of the beds, or the plants may decay. Carrots raised from seed sown in the middle of July are growing fast; the only attention the crop requires is regular waterings. The roots will be ready for marketing in 8 weeks' time. Where a constant supply of new Carrots is in demand seeds of Early Parisian variety may be inserted in frames filled with black soil. Keep the ground moist to ensure quick germination, and when the seedlings appear thin them freely so that the foliage grows strong and stiff.

Crops in the Open.—As the frames from the Melon beds are at liberty during the next fortnight they may be set over the crop of Beans sown six weeks ago. If the plants are a success a second frame may be placed on the top of the bottom one, but this should not be done before the end of September, when the nights are cold. The Tomato fruits are changing colour, and some of the leaves may be thinned to let the sunshine reach the berries. Make the stems secure to the supports, as the trusses of fruits are becoming very heavy. Assist the plants by feeding, as the fruits are swelling fast. The spring Cabbages have been pricked out at 3 inches apart. Keep growth backward by giving only moderate waterings, or the plants will be liable to bolt in the early spring. Where vegetable refuse is used for manure the heap may be turned over to ferment, giving at the same time a good dressing of lime. The material will form a splendid manure for ground intended for planting spring Cabbages during the next month.

Lettuces.—If ground is available from September 15 next, and is suitable both for its quality and its position, it may be utilised for a winter crop of Lettuces. The variety Little Gott may be sown thinly under cloches, allowing 24 plants per glass. Afford shade until the plants are well established, when ventilation may be given both day and night in mild weather. The variety White Passion may be preferred, in which case the seed may be sown at once in the open, the seedlings to be transplanted under the cloches afterwards. During September the ground allotted for this crop should be heavily manured and well dug, as it will be the only opportunity for working this plot during the next twelve months. Set the frames in position on a dry day, allowing them to slope towards the front. Place six barrow loads of black soil in each frame, and, should the weather be wet, place the lights in position. Where mildew has been prevalent among Lettuces in previous seasons, spread half a pound of sulphate of copper, "Solubic Brand," along every row of frames before placing the black soil in position.

Melons.—Melons planted early in June have proved a very profitable crop. The plants will require less water as the nights get colder, but the side shoots still need pruning. Turn the fruits frequently so that they may ripen evenly.

Cucumbers.—The plants will need a moderate watering at least once weekly. All unnecessary shoots and leaves should be removed at an early date, and the lights placed in position at night.

THE APIARY.

By Chloris.

Driven Bees.—In some districts the honey-flow is over, and consequently stocks in skeps are being destroyed. In most instances the bees may be had for driving, and will prove, if quite free from disease, of great value in strengthening weak colonies, and are even more useful to unite to other stocks, because it is a well-known fact that the stronger the stock the better it will winter, provided there is plenty of food.

Driving.—When stocks have to be driven choose a fine evening. Place a bucket on a table or a tub at some distance from the stocks to be driven. Give the stock to be driven a puff of smoke through the entrance, wait a minute or so, then turn over the skep, standing at the back, and immediately give the bees another puff of smoke to drive them down. As soon as the skep has been removed place an empty skep on the stand to receive the flying bees. Place the full skep mouth upward in the bucket, which will act as a capital stand. Over the stock place an empty skep, and fix a portion of the edge by means of an iron skewer; raise the empty skep to form an angle of 45°, and fix it in position by two pieces of bent iron, one on each side. Strike the sides of full hive with the palms of the hands, gently, and very soon the bees will begin to rise. Should the bees collect at the junction of the two skeps they can be made to move by using a quill. If several lots be driven the youngest queen may be kept and others destroyed as they pass to the top skep. Should all the queens be valuable they may be retained to be united to other colonies not so well off. Several stocks may be utilised to form one colony.

Hiving.— When home is reached place a cloth on the alighting board, first having fitted up the hive with six drawn combs. The bees should be fed freely with warm syrup until they have stored 20 to 30 lbs., and always make the hive warm with good quilts of non-conducting material, taking great care that the corners are well closed.

Syrup for Feeding.— Take 10 lbs. of pure white lump sugar, and place it in 5 pints of boiling water to which has been added ½ oz. of salt, and 1 oz. (about a tablespoonful) of vinegar. Let it boil a few minutes, taking great care not to allow it to burn. Fill bottles to the brim and cover with cheese cloth firmly tied down, and overturn the bottles on the frames. Use the syrup while lukewarm, and perform the operation of changing the bottles in the evening, taking great care not to spill any of the syrup, and close the entrances so that one bee only can enter at a time, because when feeding is taking place the bees are liable to commence robbing.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, AUGUST 26—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Messrs. Blackmore and Langdon on "Begonias.") Roy. Hort. Soc. of Ireland Autumn Sh. Sandy Flower Sh.

FRIDAY, AUGUST 29—
Dunfermline Fl. Sh. (2 days). Dundee Hort. Exh. (2 days). Dumfries and District Hort. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deducted from observations during the last Fifty years at Greenwich—60.6°.

ACTUAL TEMPERATURES :—
LONDON.—*Wednesday, August 20* (6 p.m.); Max. 70°, Min. 55°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Thursday, August 21* (10 a.m.); Bar. 30.2, Temp. 70°.
PROVINCES.—*Wednesday, August 20*, Max., Spalding, 68°, Min., Shields, 56°.
Weather—Sunshine.

SALES FOR THE ENSUING WEEK.

MONDAY, WEDNESDAY, THURSDAY AND FRIDAY NEXT—
Trade Sales of Dutch Bulbs at 67 and 68, Cheapside, E.C., by Protheroe and Morris at 10 o'clock.

WEDNESDAY NEXT—
Dutch and French Bulbs, Bay Trees, etc., at Stevens' Auction Rooms, King Street, Covent Garden, at 12.30.

The National Botanic Garden of South Africa.

We rejoice to learn that the establishment of a National Botanic Garden in the Union of South Africa is assured. The Government has set aside Kirstenbosch, an estate on Table Mountain, for the purpose, and is prepared to make a grant, including £1,000 per annum for the upkeep of the garden, provided that additional funds be forthcoming from other sources. From a report in the *Cape Times*, in which these decisions are announced, it appears to be certain that the establishment of the garden will not fail for lack of support on the part of the people of the Union. As a first step to securing this support a National Botanical Society of South Africa has been founded, and subscriptions have been secured from a number of prominent citizens. The Government has appointed Sir Lionel Phillips and Sir D. P. de Villiers Graaff to act as trustees of the National Garden, and Professor Pearson has undertaken the honorary directorship. For upwards of 50 years the project of a garden has been under consideration, and it must indeed be gratifying to those who have worked so long and devotedly for this object that it has at last achieved fulfilment. As we mentioned on a former occasion, it is mainly due to Sir Lionel Phillips that the Government has been induced to give the financial support without which the National Garden could not have come into existence; but, as Sir Lionel insisted in the course of the meeting convened to consider the formation of the National Botanical Society, much credit is due to Professor Pearson, who has known how to communicate his enthusiasm for the preservation of the South African flora to those in authority. Some day an ingenious historian may be tempted to write the history of the rise and fall of Botanical Gardens in the British possessions. He will discover that some became ours by right of conquest, and that not a few languished because Governments and Governors lacked understanding of their importance and insight into the rôle which such institutions should play in the life of a tropical or semi-tropical country. It was not foreseen that with the progress of agriculture the native floras run the risk of being swept away; or if it was foreseen this fate was regarded not as a disaster but as a natural and satisfactory consequence of the progress of husbandry. Hence it came about that either the gardens fell from their once flourishing estate or they were so ill-staffed that but little could be done for their development or for the prosecution of the many lines of investigation of which such gardens permit.

Then came the discovery that it pays to develop tropical agriculture on scientific lines, and in not a few cases Governments, lacking in competent advisers, conceived the foolish plan of converting the Botanic Garden into an experiment station for all and sundry branches of agricultural research. Inasmuch as research of this kind is specialised, is concerned with comparatively few plants, and these of a commercial, rather than of a decorative, order, the gardens so converted ran the risk of presenting the unattractive appearance of allotments.

Now that the mistake of such a policy is beginning to be recognised, it should be the duty of those who direct the policy of the British possessions to define the rôle of the Botanic Garden, and to show what part it should play in the work of the country in which it is placed. Any such definition must start from the axiom that a Botanic Garden has work to do which is both important, definite and distinct from that which pertains to an agricultural station. That work consists in the discovery, classification, investigation and cultivation of the indigenous flora and in the introduction of plants from other parts of the world. It embraces, as Sir Lionel Phillips has pointed out, the æsthetics of horticulture. To cultivate plants, the contemplation of which may in turn cultivate the sense and love of beauty in those who see them, is no less important in a civilised community than to discover a cheaper way of tapping rubber or a combination of artificial manures which increases the yield of tea. Provided that the garden carries out its proper and essential functions, and provided that it be not starved in respect of them, it is desirable that it should have a relation, albeit not too intimate a relation, with such experimental stations as may be established in its vicinity or in other parts of the territory. The dangers of too close a relation are patent; for inevitably the head will be sooner or later an agriculturist, and not a botanical horticulturist, and with such a head it is only a matter of time for the prime functions of the Botanic Garden to be forgotten, its beauty diminished, and its rôle as an intermediary between man and nature ignored.

These dangers are forfended in the case of the South African garden. They are well provided against by the establishment of the National Botanical Society "to assist toward the establishment of the garden and to encourage the growth of the South African flora." Therefore we congratulate Sir Lionel Phillips, Professor Pearson and all associated with them not only on the success which has attended their efforts to establish a National Garden, but also on the fact that they have been among the first in modern times to perceive the true rôle which a National Garden should play in the life of a British Dominion.

Supplementary Illustration.—In the *Gardeners' Chronicle* for April 2, 1904, we published a description of Hewell Grange, the Worcestershire residence of the EARL of PLYMOUTH, P.C., and this we now supplement with illustrations of the gardens. The flower garden is a unique example of a most pleasing adaptation of the French style. Situated on the south-eastern side of the house, it is divided into four quarters, enclosed by well-trimmed hedges of Lime trees. The flower-beds are set out on grass and gravel, and are enclosed by well-defined Box hedges nearly 2 feet high. There is no rigid system of furnishing these beds; the largest are planted informally with annuals and herbaceous perennials, and present a pleasing variety. Another feature of the Hewell Grange flower garden is the many posts and chains flanking the various sections, and clothed with Roses, Clematises and other climbers. Such a garden, with its many arches, festoons, trimmed trees and enclosing hedges, does not present so magnificent a spectacle as when the design is on more formal lines, as at Longford Castle, for instance; but it possesses a rare charm. Anyone who visits the Hewell Grange flower garden sets out on a veritable voyage of discovery, passing with delight from one division to another and always finding new objects of admiration. On the opposite side of the house is the rock garden, which is depicted in the lower illustration. Like the flower garden, this portion is conventional. Its design would not satisfy Alpinists, who would doubtless demur to the intrusion of the central fountain and the Lily pond; nevertheless, although unorthodox, it is very beautiful.

Coloured Supplement.—The subject of the coloured plate to be published in the next issue is Cattleya Lawrenceana.

Royal International Horticultural Exhibition, 1912.—The following financial statement of the auditors, Messrs. Crewdson, Youatt and Howard, chartered accountants, has been sent by Mr. J. Gurney Fowler on behalf of the directors of the Royal International Exhibition, 1912, to the guarantors. The accounts cover the period from November 21, 1910, to April 9, 1913 :—

Receipts.	£ s. d.	£ s. d.
To Share Capital Subscribed		360 0 0
,, Donations and Subscriptions received		5,976 16 6
,, Tickets sold	4,492 7 5	
,, Cash Takings at Gates	12,648 0 2	
		17,140 7 7
,, Bath Chairs and Sundry Receipts		157 6 3
,, Refreshments, Percentage on Receipts		377 8 2
,, Rent of Spaces		2,430 1 0
,, Sale of Catalogues	482 9 7	
,, Advertisements in ditto	1,259 7 2	
		1,741 16 9
,, Programmes		76 13 0
,, Advertisements in List of Awards		63 6 0
,, Interest on Deposit		88 19 10
		£28,412 15 1

Expenditure.	£ s. d.	£ s. d.
By Tents and Fittings		8,224 5 11
,, Prizes Awarded (exclusive of Special Cups)		2,727 19 0
,, Rent of Grounds and Rates		596 1 4
,, Working Expenses, including Salaries, Wages and Staff Expenses, Travelling, Electric Light, Water, etc.		4,112 3 8
,, Office and General Expenses		995 6 1
,, Stationery, Printing, Postages, etc.		2,067 6 5
,, Catalogue Printing		1,696 7 5
,, Advertising		1,941 0 6
,, Accountancy Charges (including issue of Tickets and Control of Cash Takings at Gates)		589 17 0
,, County Secretaries' Expenses		393 18 5
,, Science and Education Committee Expenses and Reports		87 12 4
,, Jury Lunch, Entertainment of Foreign Guests, etc.		661 3 5
,, Bands		355 0 0
,, Police		341 3 11
,, Registration and other Fees		63 8 0
,, Legal Fees		453 16 7
,, Liquidator's Fee		52 10 0
,, Legal Costs of Liquidation		25 12 8
,, Share Capital returned		360 0 0
,, Surplus distributed as follows :—		
Irish Gardeners' Association and Benevolent Society	100 0 0	
Donation towards republishing "Pritzel's Botanical Index"	250 0 0	
Gardeners' Royal Benevolent Institution	1,532 1 7	
Royal Gardeners' Orphan Fund	766 0 10	
		2,648 2 5
,, Balance, for Contingencies		20 0 0
		£28,412 15 1

Royal Horticultural Society. — The next meeting of the committees will be held on the 26th inst. in the Vincent Square Hall, Westminster. At the three o'clock meeting of the Fellows a lecture on Begonias will be given by Messrs. Blackmore and Langdon.

Congress Lectures at Kendal. — The North of England Horticultural Society has arranged a series of lectures, to be held at Kendal on Wednesday and Thursday, September 24, 25. The first paper will be read on the opening day at 6 p.m., the subject being "The Organisation of the Fruit Industry in Westmorland, with special reference to Damsons." The chair will be taken by Lord Henry Bentinck, M.P. Mr. C. J. R. Tipper, B.Sc., Secretary to the Westmorland Education Committee, Kendal, will speak on the subject, and Mr. H. H. Mason, editor of the *Fruit Trades' Journal*, will open a discussion. At 8 p.m. Mr. R. A. H. Gray, M.A., Adviser in Agricultural Zoology, Armstrong College, Newcastle, will deal with "Fruit Insect Pests," woolly aphis or American blight, big bud, the codling and winter moths. On Thursday, at 3 p.m., Mr. W. F. Emptage, horticultural expert of the *Fruit Grower*, will deal with "Land Tenure and Fruit Culture" (chairman, W. D. Crewdson, Esq.), followed by a paper at 5.30 p.m. on "Potato Culture," by Mr. G. P. Berry, Chief Inspector of the Horticultural Branch of the Board of Agriculture. At 8 p.m. the chair will be taken by Alderman E. J. Abbatt, when Mr. W. B. Mercer, B.Sc., Lecturer in Agricultural Botany, Armstrong College, Newcastle, will deal with "Diseases of Potatos." Prizes are offered in five classes for Potatos. Mr. W. B. Little, Lecturer on Horticulture, Armstrong College, is organising an exhibit of Potato diseases. Mr. A. G. L. Rogers, head of the horticultural branch of the Board of Agriculture, and others are assisting in the collection of material. Those who can help with specimens are requested to correspond with Mr. Little, 40, Petteril Street, Carlisle. On Tuesday, September 9, there will be a council meeting at 2.15 p.m., and at 4 p.m. Mr. H. A. Gillingham, of Messrs. Clibrans, of Altrincham, will address the Fellows and members present on "Early Flowering Chrysanthemums." Messrs. Clibrans hope to arrange for an exhibit to illustrate the lecture.

National Botanical Society of South Africa.—The formation of a National Botanical Society of South Africa, to which reference is made on p. 138, was decided upon at a meeting presided over by the Mayor of Cape Town, Mr. H. Hands, on the 10th ult. The *Cape Times* of June 11 gives a list of those present and a report of the principal speeches. Both Mr. Hands and Sir Lionel Phillips referred to the natural beauties of Kirstenbosch, the site chosen for the Botanic Garden, and the latter gave a list of plants found growing wild there. These included Erica hirtiflora, Rochea coccinea, Disa uniflora, Virgilia capensis (Keaurboom), Lobelia coronopifolia, Roella ciliata, Erica purpurea, Halleria lucida, Oxalis variabilis, Protea grandiflora, Podalyria calyptrata, Erica viscaria, Liparia sphaerica, Erica baccans, Adenandra uniflora (Shepherd's Delight), Tetraria thermalis, Anemone capensis, Protea cynaroides, Rochea versicolor, Watsonia rosea, Gladiolus blandus, Harveya capensis, Disa Harveyana, and Watsonia Meriana.

"La Revue de Phytopathologie."—We have received the first number of a new fortnightly magazine, bearing the title of *La Revue de Phytopathologie, Maladies des Plantes*. It will be published on the 5th and 20th of every month, and is devoted, as its title indicates, to the study of plant diseases and insect pests. The number contains sixteen pages of text, and among the articles are one on crown gall, the novius cardinalis in the South of France, and insect pests of the Apple tree and Beetroot. The offices are at 3, Villa Hippolyte-Garnier, Paris (14e).

Appointment of a French Town Gardener.—The following announcement, which appears in a French contemporary, may interest some of our readers. It concerns a competition for a gardener, who will have the control of the public gardens, squares and promenades of the town of Rennes. The salary to start with is £140 per annum, rising by £12 increments every four years until a maximum of £200 per annum is reached after twenty years' service. A dwelling-house is included. The notice does not say whether a pension is granted. Candidates must submit their names to the Mayor by September 20; they must be of French nationality, not less than twenty-five years of age or more than forty years; they must supply testimonials of past services, and sit for an examination, the details of which are given. £200 a year and a house free in a provincial town like Rennes is an appointment, we should think, that will attract not a few French gardeners.

Imports of Potatos.—According to the Return of Market Prices issued by the Board of Agriculture for Scotland, imports of Potatos last week in the United Kingdom amounted to 2,207 tons, as compared with 575 tons in the corresponding week 1912. The exports last week amounted to ten tons; in the corresponding week in 1912 they totalled 1,451 tons.

Autumn Shows in France.—The autumn horticultural shows in France are announced as follows :—Paris (Concours-Exposition), September 11; Joinville (Haute Marne), September 13 to 15; Cartignies (Nord), September 14 to 15; St. Pierre-sur-Dives, September 21 and 22; Montmorency (S.-et-O.), September 28 and 29; Paris (Concours-Exposition), October 9; Montpellier, October 9 to 12; Bordeaux, November 6 to 10; Pau, November 6 to 10; Paris, the usual autumn show of the National Horticultural Society of France, October 24 to November 2; Le Havre, November 8 to 10; Rouen, November 8 to 11; Epinal (Vosges), November 8 to 15.

The Genus Primula.—M. S. Mottet, the well-known French horticultural writer, has recently published a little volume of about 100 pages, entitled *Monographie du genre Primevère*. It is neatly printed and contains a dozen plates of various species. The work was awarded a gold medal by the National Horticultural Society of France, at whose congress in May, 1912, the subject was dealt with, being the second question selected for consideration. The price is two francs, and the publishers the Librairie Agricole de la Maison Rustique, 26, Rue Jacob, Paris.

The Rev. J. Bernard Hall, secretary of the North of England Horticultural Society, has been appointed to the living of Farnham-with-Scotton, near Knaresborough. Mr. Hall was educated at Shaftesbury School, at St. John's, Leatherhead, and afterwards at Emmanuel College, Cambridge, where he took honours in the Mathematical Tripos. He was ordained deacon in 1896, became assistant curate of Holy Trinity, North Shields, and from 1899 to 1900 was curate-in-charge of Ninebanks-with-Carshield. From 1900 to 1904 he was a chaplain in the Royal Navy. He was curate of Corbridge-on-Tyne from 1905 to 1909, and of Dalston, Carlisle, 1909 to 1910. Mr. Hall's enthusiasm in the work of the N.E.H. Society, and his love of horticulture generally are well known. It is to be hoped that he will still find time to carry on his duties as secretary for the Northern Society.

The Toulon Flower, Fruit and Vegetable Trade.—According to a report from the British Vice-consulate, the flower-growing industry at Toulon in 1912 was well maintained, and the year was a good one. 1,313,272 kilos of cut flowers were despatched to Hyères a'one. A diminution in the exports of the larger varieties of Narcissus and Hyacinth bulbs was noticed, which probably accounts for the prices having been generally in excess of those of former years. About 3,000 acres are devoted to the culture of bulbs, and the annual production is estimated at 25,000,000 bulbs. The crop of flowers in the Var supplying the European markets was valued at 5,000,000 francs. The Immortelle crops show a slight falling off. The United States of America are still the chief buyers of Immortelles, and the shipments generally take place in the autumn. The prospects for this year are very unfavourable owing to the exceptional dryness of the winter. The crops of fruits in 1912 showed marked increases all round as compared with the previous year, the figures being :—

	1911. Quintals.	1912. Quintals.
Chestnuts	22,000	33,000
Cherries	10,859	28,000
Apples	1,298	2,370
Plums	607	800
Apricots	156	840
Peaches	4,784	7,500
Figs	3,500	6,000
Almonds	82	1,800

The production of vegetables was an average one. With the improvement of the transport facilities market gardening in this region is on the increase, especially as regards early vegetables (*primeurs*). Artichokes and Peas were very successful crops, and large consignments of these vegetables were made in the season to Paris, which is the principal market.

ALTHÆA FICIF LIA.

THE single yellow Fig-leaved Hollyhock is a welcome change from the monstrously double florists' flowers now so often met with in ordinary gardens, which appear unfortunately to have ousted the cottage garden Hollyhocks with their wide guard-petals and daintily clustered centres that were the pride of many a village in the old days. Of all the singles the most delightful is the species now under notice, the flowers, of exquisite shape, being of a charming clear, pale-yellow colour, and the plant is well worthy of inclusion in the best herbaceous border. The blossoms measure from 3 inches to 4 inches across, are of delicate texture and very refined in appearance. The leaves are large, palmate, and divided into from five to seven lobes, and somewhat resemble those of a Fig tree—hence the specific name. From shortly after midsummer until the late autumn this Hollyhock (see fig. 55) creates a charming picture in the garden, its towering stems, 10 feet and more in height, being studded with clear-coloured blossoms. Many aver that the Hollyhock should be treated as an annual, and that it is useless to retain old plants; but this particular specimen has now occupied its present position for very many years and annually throws up flower-stems that show no sign of decreasing vigour. It is apparently not so susceptible to the dreaded Hollyhock disease as are florists' varieties, for the plant here illustrated has never shown the slightest symptoms of being affected, though it must be said that no other Hollyhocks are grown in the same garden. Every year self-sown seedlings appear around the parent plant, numbers of which have been given away to those who did not possess it. Althæa ficifolia is a native of Siberia, and has been known in this country for over 300 years, having been introduced about twenty years after Althæa rosea, the parent of the garden Hollyhock. *Wyndham Fitzherbert.*

[*Photograph by Wyndham Fitzherbert.*

FIG. 55.—ALTHÆA FICIFOLIA: FLOWERS PALE-YELLOW.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

DWARF GAILLARDIAS.—For a long time Gaillardias were not in favour as border perennials, on account of their straggling and rather untidy habit, but this has all been changed. In Messrs. Veitch's nurseries at Exeter recently I saw a bed of charming very dwarf annual Gaillardias, under the name of Gaillardia Lorenziana picta nana compacta. There were six colours, and none of the plants was more than a foot high. They were so even in growth and so true that some pains must have been exercised in their selection. They were very charming indeed, and suggested great possibilities in beds and borders; and, knowing the long flowering period Gaillardias have, I can see how useful they could be made to those with limited accommodation and not too long a purse. The colours were in rows—red and yellow, pure yellow, red, tipped yellow, lemon or buff-yellow, the Bride, at first primrose then white, and Bordeaux Red—a rather dull, purplish red. Flowering from seed sown in March, there are few more useful or showy annuals. *Captain Cuttle.*

MEDITERRANEAN FRUIT FLY (see p. 117).—It may interest you to know that a fruit fly is a troublesome pest on the Gold Coast, and it is probable that it is the same species known as the Mediterranean Fruit Fly, although so far this has not been determined. Specimens, however, are under investigation. The life history is very similar; the fly lays its eggs in the Orange, Grape Fruit, Guava, Eugenia, Melon, Cucumber, and Vegetable Marrow. Owing to the pest it is almost impossible to grow the three members of the Cucurbitaceæ mentioned. The fruits continue to grow and flourish, and were it not for the puncture which may be observed on the fruit, one would not be aware that it had been attacked until the fruit is cut, when the white grubs may be observed inside, having eaten all the inner portion. It is mostly during the dry season that this pest is at its worst. Oranges attacked by the fly drop some time before they are mature and become yellow, and this also occurs in the case of the Grape Fruit. *Albert R. Gould, Agric. Dept., Gold Coast.*

MIDLAND DAFFODIL SOCIETY.—As the R.H.S. has responded to so large an extent to the wants of those who advocated a National Daffodil Society, and since, therefore, the foundation of such a society is likely to be postponed *sine die*, may I urge the claims of the Midland Society to all lovers of Daffodils and to the advantages that such membership confers? The Society, owing largely to the energy of the late Mr. Robert Sydenham, holds the premier position amongst Daffodil societies, and its shows have done much to encourage and popularise the love of the Daffodil. Further, the Midland Society has been the means of more new seedlings being shown than any other society. Membership means (1) joining the leading "Club" of the Daffodil world and bringing a member into touch with those who are the busiest workers amongst the Daffodils; (2) the right to attend and exhibit at the shows which are acknowledged to be the pleasantest gatherings of the kind, and where the leaders in the cult are always to be found with the latest up-to-date flowers. With a larger membership and more funds much could be done by the Committee on the lines of the suggestion of those in favour of a National Society.—*C. Lemesle Adams, Pendeford Hall, Wolverhampton.*

BABWORTH HALL, RETFORD.—On the occasion of a recent visit to Babworth, I was much impressed with charming Roses in rambler form in the gardens. Growing gracefully over arches in every direction were Gruss an Teplitz, Dorothy Perkins, Lady Gay, Hiawatha, and White Dorothy, whilst all the latest and best hybrid Teas were represented in bush form, full

of bloom, healthy and vigorous, every one of them. The borders are nearly two hundred yards long and ten yards wide, flanked on the one side with a 12-foot fruit-covered wall, and on the other by standard fruit and ornamental trees in variety. The extreme edge of each border is charmingly decked with puce Violas, whilst dotted thickly throughout the length and breadth of the beds are hardy annuals of many kinds, embracing Godetias, Lavateras, Jacobæa, Stocks, Asters, Arctotis, Arabis, Browallia, Brachycome, Calliopsis, Iberis, Chrysanthemums, Clarkias, Cornflowers, Dianthus, Machet Mignonette, and others in infinite and entrancing variety, not to mention many perennials, such as Anchusa italica and Galegas, and many Lilies, conspicuous among these latter being a good form of Lilium tigrinum splendens. Sweet Peas were well represented, and I have seldom seen these appear better anywhere in any season. Mr. Best has original ideas with respect to summer bedding, and he blends his Fuchsias and Dactylis, Begonias and Heliotrope, Snapdragons and Pelargoniums in excellent fashion. *A. F. U.*

Unwelcome Rain. — After two months' drought there comes a change, and every other person one meets has a smile on his or her face, and remarks, "A nice rain, it will do a lot of good." But the practical man has not yet made up his mind as to the results likely to follow. The rain continues to fall gently for two or three hours, some of the dust is washed off the leaves, there is a refreshing feeling in the atmosphere, the ground does not feel so hot to one's feet, and the birds are once more happy. Why should the plodding, practical man not throw aside his water-pot and join in the rejoicing? He prefers to wait a bit, and he has not to wait long. The clouds disperse, the sun comes out, and his plants, as ungrateful as himself, commence to droop. Decorative Chrysanthemums planted out, Turnips, and even Potatos, lower their heads as if in mourning for something lost. They had never drooped to such an extent before. Why is it? Well, the Dutch hoe had been vigorously plied at short intervals where there was room for it, the surface soil was well pulverised, and what water there was below the surface, except so far as the plants drew it up, remained there. Now all is changed. The leaves of the plants, to protect themselves from the arid conditions, had reduced the opening of their pores to a minimum, and transpiration was very feeble; but as the atmosphere became humid these pores automatically opened, and the next quick change found them unprepared. Besides this, the little moisture which had been locked up below the dry, pulverised surface soil was no longer locked up, and in 24 hours after the rain fell the soil contained less moisture than it had done before. In my own case Chrysanthemums which had never been once watered since planting had not drooped to any extent till after the rain, and in the course of a week of dry weather which followed they regained some of their former rigidity, although the soil, from the reasons stated, had become much drier. Happily, though the air has been dry, there has not been an abundance of sunshine, and the nights have generally been cool and still, thus causing a good deposit of dew on the leaves. Dew does not cause the stomata to open much, because the chief deposit takes place when there is little or no sunlight, and if the air remains still, although hot, its effects on plants which have *not* been kept watered are visible throughout the first half of the following day. I have nothing to say against a passing summer shower, when the humidity in the atmosphere does not last sufficiently long to cause much derangement in the stomata, and, like the average amateur's watering, is not sufficient to thoroughly wet the pulverised surface soil; but two or three hours' drizzling followed immediately by bright sunshine is a different thing, and I had rather my neighbour had my share as well as his own. But as this cannot be we have to consider what is best to do under the circumstances. My advice is to at once use the water-pot freely, for such is an ideal time for artificial watering. Rain, when it comes in sufficient quantity, is far more effectual than any artificial watering can be, for the humidity of the atmosphere which accompanies it, and which cannot be created artificially, is then a great advantage, and, especially after a dry spell, it adds some ammonia to the soil, while artificial watering washes it out. During the month of July we had less than half-an-inch of rain—.45 was the official measurement at our station—and it took seven days for this quantity to fall. Just compare this with our artificial watering. A plot of Cos Lettuces planted 12 inches apart has a quart of water given to each plant. A quart of water spread over a square foot gives nearly half-an-inch in depth, but as the Lettuces are planted in drills, less than half the surface is watered, so that part which is actually watered receives approximately what is equal to an inch of rain. This sometimes, but not always, suffices for 48 hours. It is true that not every plant requires as much water as a Lettuce, and there is frequently much time as well as water bestowed on subjects which would be as well, if not better, without it. Bedding Pelargoniums, for instance, when once established, will revel in hot, bright weather, and Wallflowers suffer very little inconvenience from it so long as you do not water them at all; but give them driblets and they almost cry for more. Some Antirrhinums in pots were turned outside in the spring because they had become too tall for the purpose required. They remained in the pots for several weeks without a drop of artificial watering, and though they flagged at first, they afterwards regained their rigidity, and not only flowered, but formed perfect seeds. Godetias were cast out for a like fault, and these were turned out of their pots and thrown on the rubbish heap. After a time they turned up their heads and produced a new crop of flowers, some of which were cut and placed in a sitting-room, where they remained in good condition for more than a fortnight. Plants of Borecole, which had never been watered in the seed bed till the day before they were lifted, were planted in drills which had been copiously watered, and the plants then had another watering, but none since. These never drooped at all, and although they have not made much visible progress, are quite healthy. As to sowing seeds, one is much more sure of success in dry, than in wet weather, the ground being sweet and warm, and there is no fear of slugs. Even with Parsley, which remains underground for two or three weeks, we are sure of success if we sow in well-watered drills and shade for a fortnight with old bags, mats, canvas, Potato tops, or Pea haulm. Sow any kind of seed and water every day with a rose on the water-pot, and you court failure. Sown in saturated drills, and covered with perfectly dry soil, very few seeds will require watering till after germination has taken place. After the seedlings appear, except for the first day or two, it is better to dispense with all spraying and apply water between the rows, not less than a foot apart, from the spout of a 3-gallon water-pot, which will quickly form furrows, and from these furrows the water will percolate the soil to the roots. I have a demand for a quantity of early flowering Chrysanthemums of the Masse type in pots. These are planted out of the boxes in which they were struck, watered once or twice, and then, with the exception of hoeing between them frequently, they are left to themselves. Some of these have lately been potted, as they were coming into flower. The ground being too dry for the water to enter freely, some soil was drawn up, so that the plants were in a sort of furrow, and these furrows were filled with water several times on the day before lifting the plants. The following morning and evening the plants were lifted and potted on the spot; they were then carried and placed on the shaded side of a wall and watered, while the wall, the surrounding soil, as well as the plants, were frequently sprayed for a few days. Never a leaf drooped, the plants commenced rooting immediately, and they will soon be fit for placing in a sunnier spot. It was found on taking them up for potting that no new roots were being formed near the surface because of the lack of moisture, but that the lower roots were active and were working downwards, not laterally. It was the same with later flowering varieties which had been temporarily planted out because one can obtain better shaped plants this way than when grown in pots. I have had much greater difficulty in wet, or even ordinary seasons, in getting such plants established in pots, because the roots had spread out laterally, were more numerous, leaving little room for soil, and the plants were altogether softer. It will be gathered from the foregoing remarks that although the drought has caused great inconvenience and much loss in many cases it is not an unmixed evil to the resourceful horticulturist, and when we consider that it has decimated the slugs, made it easy to free the ground from weeds, and sweetened it to such an extent that no artificial sterilisation is requisite, we find some points in its favour. *Wm. Taylor.*

BATTERSEA PARK.

THE "OLD ENGLISH" GARDEN.

A year hence, when the Oak posts and beams of the pergolas are furnished with Roses, Clematises, Jasmines, and Honeysuckles, it will be exceedingly difficult to realise that the "old English" garden in the L.C.C. park at Battersea was not commenced before the middle of March in the year 1912. Except for the unavoidable nakedness of the pergolas the garden already wears an air of having been in existence for generations. It was formerly the site of a "students' garden," a garden of very limited interest, so this educational feature was transferred just clear of its old position, and is now much more effective and useful. The place so obtained for the new garden is delightfully secluded, and surrounded by large, richly-foliaged forest trees. The central feature is a rectangular Water-lily pond, framed with weather-worn coping, and containing an old fountain which harmonises with the stonework. Broad gravel walks radiate from the pond, and at the corners of the garden there are comfortable semi-circular seats which invite the visitor to rest and contemplate a most pleasant scene. The flower-beds are of generous size without being unwieldy, and, although in planting them the old-world character of the garden has been observed, it was wisely considered unnecessary to exclude modern plants, but rather to illustrate the value and beauty of those of easy culture which will live and flourish in the metropolis. Roses play an important part in the scheme, and here may be seen the old Moss and the fragrant Cabbage Roses which are indispensable in an "old English" garden; but such recent varieties as Mme. Abel Chatenay, Richmond and Frau Karl Druschki are largely planted. For the most part the Roses are planted in beds of one variety, but, as the beds are carpeted with such annuals as Candytuft, Virginian Stock, Sweet Alyssum and Mignonette, there is no impression of laboured striving after colour effect. The most successful variety of Rose is Gustav Grünerwald, which bore a glorious profusion of bloom, Ulrich Brunner, Mme. Abel Chatenay, and the climbing La France, grown as a dwarf, were nearly as successful, but the variety Richmond, which is so popular with the florists, is not a good garden Rose in London; it flowers with fair freedom, but is only attractive in the bud state. The other beds are planted with a variety of herbaceous subjects—Gaillardias, Sweet Williams, Canterbury Bells, Hollyhocks, Anchusas, Antirrhinums, Geums, herbaceous Veronicas, and a quantity of splendid Delphinium seedlings. Amongst the annuals Sweet Peas, Coreopsis, and Clarkias are particularly successful. The edgings for the flower-beds have received especial attention, and no plant is more attractive than the grey-foliaged, lavender Nepeta Mussinii, which is used largely and which continues in flower for a very long time. Long rows of Messrs. Barr's strain of Pink "Cyclops," which bears large numbers of fragrant blossoms of various shades—pink, mauve, white-edged, and so on—have just completed their display, but the compact tufts of glaucous foliage possess considerable charm.

It is the boast of the Parks Committee of the London County Council that their Superintendents are all expert gardeners, and they will find ample justification in the work of Mr. J. Rogers at Battersea, for he is responsible for the making and keeping of this most charming old-world spot, which has been done with the permanent

staff. Battersea Park has long been noted for the excellence of its sub-tropical gardening, and this feature, where may be seen happy blendings of large Palms and various other fine-foliaged plants, as well as gorgeous summer-bedding schemes, is remarkably effective. *A. C. B.*

CAMPANULA ALPINA.

Campanula alpina, one of the smallest members of the genus, is known as the Alpine Bell Flower. The species is a biennial, which is a disadvantage for garden purposes; but plants are easily raised from seed, and succeed so well in gritty soil that the species is well worth

Photograph by W. Irving.

Fig. 56.—Campanula alpina: flowers violet. (natural size.)

growing among the choicer plants in the rock garden. Its nearest ally in the genus is the better-known C. barbata, but, unlike that plant, C. alpina prefers soil of a calcareous nature. The Alpine Bell Flower possesses a fleshy rootstock and forms a tuft of narrow leaves, from which the stem, only 3 inches or so in height, is produced. The flowers are produced in May and June, and vary in colour from pale to deep violet. C. alpina is found at elevations ranging from 6,000 feet to 7,000 feet in the Alps of Austria, Lombardy and Transylvania, so that it is not so difficult to manage in gardens as many other members of the genus. It has been in cultivation in this country since 1779, so that it is not by any means a new plant. There are many dwarf Campanulas of neat and compact habit, and one or more of the various species are in flower during a period extending over several months. *W. I.*

EUCALYPTUS.

More than two-thirds of Mr. Cambage's Presidential Address to the Royal Society of New South Wales on the occasion of the ninety-second anniversary of its foundation, May 7, 1913, is devoted to Eucalyptus, the paramount genus in Australian vegetation, to its development and distribution. The author deals with the development and distribution of the species in relation to geological changes, climate, and chemical composition of the substratum. Broadly speaking, he says, the Eucalypts distribute themselves under two extreme types of geological formations, the siliceous and basic, and there are numerous examples of two distinct floras approaching each other up to a common boundary without intermingling, the one growing, perhaps, on an acid granite or siliceous sandstone formation, with an abundance of free silica, and the other on a basalt or other basic rock producing a clay soil. He also discusses the classification and distribution of the species in relation to characters offered by: (1) The bark—whether smooth, scaly, scaly to subfibrous, fibrous, and hard-furrowed; (2) the timber—texture and colour; (3) the leaves—size, thickness, veration (transverse, oblique, or parallel); (4) anthers—parallel antheral, porantheral and renantheral; (5) oil constituents—pinene, eucalyptol (cineol), and phellandrene. We commend this essay to the consideration of all persons interested in Eucalypts. *W. B. H.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

August 12.—*Present:* Mr. E. A. Bowles, M.A., F.E.S., F.L.S. (in the chair), Messrs. J. Fraser, A. Worsley, E. M. Holmes, and F. J. Chittenden (hon. sec.), with Mr. R. Farrer, visitor.

Agapanthus Weilgii.—Mr. Worsley showed a specimen of this beautiful species of Agapanthus which he had obtained from Holland. It will be fully described in the *Journal* of the Society.

Double Cineraria.—Mr. Worsley also showed heads of a Cineraria with proliferation similar to that seen in the "hen and chickens" Daisies, but with the separate capitula more congested. He remarked that this type of doubling often occurred in forms that normally bear single flowers when they blossom in summer, as in the present instance, and that the normal type would be resumed later on.

Saxifraga florulenta.—This curious species of Saxifraga was sent by Mr. Chaplin, of Great Amwell, Ware, in whose garden it had flowered. It was collected by him and had apparently been growing in shade in cultivation, though it appears to grow alike in sun and shade in its home in the Maritime Alps, where it occurs at high altitudes. It has perhaps only once before flowered in this country, when it was shown by Maw and received a first-class certificate in June, 1872. Its foliage is more attractive than its flowers.

Rubus discolor double-flowered.—Mr. Chittenden showed from a correspondent at Haywards Heath a beautiful pink-flowered form of the common bramble with double flowers. It had been found in a hedge and was apparently wild. Several such forms are in cultivation.

Xanthorrhoea australis.—Mr. E. M. Holmes showed the lower part of the leaf-rosette of this plant, which is now being imported for cattle food on account of the sugar it contains.

Aphis on Picea.—Some shoots of the Piceas pungens glauca and magnifica were sent from Lexden attacked by the large aphis which has been so prevalent this year and last on these trees in several parts of the country, and has worked great damage to them. Mr. Chittenden said that several trees had been attacked at Wisley, but the insects had all been killed by one thorough spraying with "Niquas" in May, and the trees had quite regained their beauty. The winter is passed in the egg stage, and spraying should be resorted to as soon as the insects hatch out in spring, any wash containing nicotine being useful.

Apples Showing Glassiness.—Some specimens of the apple Lord Derby were sent from South Devon from some cordon trees, and showed the curious phenomenon known as glassiness in a marked manner. The cause leading to this peculiar condition is so far unknown, though it is often attributed to frost. It is evident that in this and in several similar cases that have recently come to notice this cause cannot have been acting.

Crown Gall.—Mr. H. T. Gussow sent a culture of the Bacterium tumefaciens which Dr. Erwin Smith has shown to be the cause of the disease known as Crown Gall. This disease attacks numerous plants, producing large swellings, generally of a soft nature, on the roots and lower parts of the stems, and in America it is frequently credited with doing damage to the plants attacked. The committee would be glad to learn whether any serious results have followed the occurrence of such swellings on the roots of plants. Instances have been brought to the notice of the committee of swellings on Apple, Plum, Birch, Cherry, Peach, Carnation, Marguerite, Blackberry, Loganberry, and Cupressus.

SHROPSHIRE HORTICULTURAL.

Exhibition at Shrewsbury, August 20 and 21.

THE exhibition which was held in the Quarry Grounds on Wednesday and Thursday last will rank as one of the most successful of the series held over a period of 39 years. Notwithstanding that these Shrewsbury shows have attained to such excellence as to become the most important horticultural functions of their kind in Great Britain, we are led each succeeding year to expect some new feature. This time the novelty consisted in a class for rock gardens, in which the first prize amounted to the substantial sum of £50. Great success attended the new class, and two of the exhibits were equal to any displays of this kind we have seen. The far-sighted policy of the committee in upholding all the best traditions of the shows, and their eagerness to keep abreast of the times, have contributed largely to the splendid success of the Shrewsbury shows, whose fortunes have been directed so ably from the very commencement by Messrs. Adnitt and Naunton. The resignation of these gentlemen last year from the secretaryship caused widespread regret, and a movement was set on foot to mark the close of their connection with the society in a fitting manner. The Veitch Memorial Trustees bestowed a Veitch Memorial Medal on each gentleman, and it was a gracious act of the Royal Horticultural Society to confer the Honorary Fellowship of the premier society in the country, together with the R.H.S. Diploma. A sum of £250 was also subscribed as a testimonial, and the presentations were made at the luncheon on the opening day, when the President of the Society, E. P. Fielden, Esq., referred in feeling terms to the absence of Mr. Adnitt owing to ill health. Mr. Fielden presented each gentleman with a cheque for £150, and Sir Harry Veitch bestowed the other awards on behalf of the Veitch Memorial Trustees and the Royal Horticultural Society.

With respect to the show itself, the exhibits of fruit were good, but not exceptional. Groups of plants were splendid, as were also the specimen plants, Begonias, Sweet Peas, Roses, and hardy flowers. The new class for rock gardens was very popular, and these exhibits attracted a large amount of attention. Vegetables were excellent. The exhibits by traders reached a high standard of excellence, and gold medals were awarded freely.

In the competitive classes the entries were numerous, and in nearly all cases the contest was keen.

The weather was beautifully fine, and the attendance on the opening day is said to have been easily a record one, although no figures were available.

The new secretary, Mr. W. G. Brazier, upon whose capable shoulders has fallen the task resigned by Messrs. Adnitt and Naunton, is to be congratulated on such a splendid initial year, and the thanks of all are due to him for his courtesy and ready help.

Champion Decorated Fruit Tables.

The exhibits of fruit were good, but scarcely equal to those of some previous years. The class for a decorated table of indoor fruit is, perhaps, the principal item in this section, and it attracts some of the best growers of fruit in the country, so that a good competition is always assured. On this occasion there were fewer exhibits than usual, and we specially missed the fine collection usually contributed from the Duke of Portland's garden.

There are only three exhibits, each consisting of 30 dishes of ripe fruit in not fewer than nine distinct kinds. Grapes were restricted to 14 bunches in not fewer than four varieties. The schedule also stipulated that not more than four varieties of any other kind of fruit, nor more than two dishes of any one kind, were to be included, and only one variety to be shown on a dish, but not more than four dishes of any one kind of fruit. The sum of £72 10s. was offered in four prizes, the winner to receive £25, the 2nd £20, and the 3rd £17 10s. On former occasions points have been awarded for the decorations, but this time the flowers and foliage did not count. The three exhibits were all good, and, after careful pointing, the judges awarded the 1st prize to the Duke of Westminster, Eaton Hall, Chester (gr. Mr. N. F. Barnes). The grapes in the premier exhibit were good, especially Madresfield Court. Eleven points were awarded for Muscat of Alexandria, 10 for all other Muscat varieties, both black and white, and 9 for all other kinds. We enumerate the varieties of fruits exhibited and the points awarded for each. Apples: Cox's Orange Pippin, Gascoyne's Scarlet Seedling, Cox's Orange Pippin, Chas. Ross (6½ points each). Figs: Brunswick (5½), Brown Turkey (6). Grapes: Muscat of Alexandria (8½, 6½, 7, 6½), Madresfield Court (8½, 8, 9, 7½), Appley Towers (7, 7, 6½, 7), Chasselas Napoleon (6½, 7½). Melons: Eaton Seedling (6½, 7), Eaton Green Flesh (6½), Hero of Lockinge (5½). Nectarines: Pineapple (7, 6), Dryden (5), Dymond (5½). Peaches: Merlin (6½, 6½), Royal George (6, 6). Pears: Marguerite Marillat (6½), Louise Bonne of Jersey (6), Doyenné du Comice (5½, 5). Plums: Jefferson (5½) The total number of points was declared to be 240. The decorations consisted of Francoa ramosa, Montbretias, and Oncidium incurvum, with light foliage. The 2nd prize was awarded to Lady Henry Somerset, Eastnor Castle (gr. Mr. G. Mullins), who gained 217 points. The Grapes included splendid bunches of Gros Maroc. Emperor Alexandria Apples, Marguerite Marillat Pears, and Elruge and Lord Napier Nectarines were other outstanding dishes. Peaches were not so fine as we have seen them The decorations were Souvenir de la Malmaison and pale pink Perpetual Carnations, interspersed with Francoa and relieved by sprays of Ampelopsis and greenery. 3rd, Earl of Harrington, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre), with 213½ points. His best Grapes were Muscat Hamburgh, the four bunches of this variety having great excellence. The next best were Black Hamburgh, whilst the berries of Madresfield Court showed splendid finish. The Muscat bunches were unusually small, but the berries were very clean and well ripened.

Collections of Fruit.

Collection of 12 *Dishes of Fruit.*—There were only two exhibits in this class, which called for 12 distinct varieties in not fewer than nine kinds and not more than two varieties of a kind. Black and white Grapes were considered distinct kinds for purposes of the competition. It is a pity the contest was not keener, for the two exhibits shown set a remarkably high standard of excellence. A superb collection shown by the Duke of Newcastle was placed 1st. Humboldt Nectarines, Crimson Galande Peaches, Negro Largo Figs, Wealthy Apples, and a large yellow-skinned Melon were all superb. The Grapes were represented by Muscat of Alexandria, Madresfield Court, and Black Hamburgh; 2nd, E. Bewley, Esq., Rathgar, Dublin (gr. Mr. McIntosh). This exhibitor had exceptionally good Peasgood Nonesuch Apples, and Marguerite Marillat and Souvenir du Congrès Pears. The Grapes were very good, Madresfield Court and Muscat of Alexandria especially, but they were not quite ripe.

Collection of 9 *Dishes*—1st, Captain Heywood Lonsdale, Shavington Hall (gr. Mr. J. Mills), with Peaches Barrington and Royal George, Nectarines Stanwick Elruge and Pineapple, Apple James Grieve, Figs Brown Turkey, Melon New Peerless, Grapes Madresfield Court and Muscat of Alexandria. The Grapes were on the small side, but well finished. 2nd, Col. Mainwaring Jacson, West Felton (gr. Mr. W. Willdig). The Nectarines were the finest fruits in this collection. 3rd, A. Heber Percy, Esq., Hodnet Hall.

Grape Classes.

The Champion Grape Class, for twelve bunches in four or more distinct varieties, but not more than four bunches of any one variety, brought eight competitors and a keen contest. Taking the exhibits as a whole, they were of good average quality, but nothing remarkable. The black varieties were good generally, especially Black Hamburgh and Madresfield Court. There was rather a sameness about the decorations, as nearly everyone employed pink Carnations, interspersed with Francoa and Grasses. The exhibit that pleased us most was decorated with Gloriosas and two finely-coloured Codiæums (Crotons) at the back. The 1st prize was won by the Duke of Newcastle, Worksop (gr. Mr. S. Barker), and the award was made for the excellence of quality, as the bunches were much smaller than many others. The berries were clean, splendidly coloured, and well ripened. They were awarded 99½ points out of a maximum of 124.

The varieties and points were as follows:—

		Maximum No. of Points.		Points Awarded.
1.	Black Hamburgh	10	...	9
2.	Madresfield Court ...	10	...	9½
3.	Muscat of Alexandria	11	...	9
4.	Muscat Hamburgh ...	10	...	9½
5.	Muscat of Alexandria	11	...	9½
6.	Madresfield Court.....	10	...	8½
7.	Black Hamburgh	10	...	8½
8.	Madresfield Court.....	10	...	8
9.	Muscat of Alexandria	11	...	6½
10.	Madresfield Court.....	10	...	8
11.	Muscat of Alexandria	11	...	6½
12.	Black Hamburgh	10	...	7
	Total	124		99½

The 2nd prize was awarded to the largest bunches in the show, exhibited by Lord Rowallan, Kilmarnock (gr. Mr. J. Dixon), who was beaten by one point, his figures being 98½ out of a maximum of 123 points. The bunch of Gros Maroc was superb, and received the maximum number of points. Next to this was a splendid piece of Muscat of Alexandria, a trifle green in berry; Madresfield Court and Muscat Hamburgh dropped two points each for unripeness. The bunches of Madresfield Court were splendid in size of bunch and berry, and only needed a little longer time to assume a better finish. 3rd, Earl of Harrington, with 96 points out of a possible 122. 4th, Lady Henry Somerset, with 94 points out of 122.

Four Bunches of Grapes.—The schedule called for two bunches of a black variety and two of a white variety; competitors in the Champion Grape Class were excluded. There were five exhibits, and the 1st prize was awarded to Capt. Heywood Lonsdale, Shavington (gr. Mr. J. Mills), who showed Madresfield Court and Muscat of Alexandria. The Muscats were large, but rather irregular, bunches, with big, finely-coloured berries. 2nd, Col. H. C. Legh, Knutsford (gr. Mr. A. J. Cook), who showed the same varieties. The Muscats were large, "lumpy" bunches, with rather green berries; the black Grapes were excellent in shape and finish. 3rd, E. Bewley, Esq., Dublin (gr. Mr. D McIntosh).

Two Bunches of Black Hamburgh.—This popular black Grape was shown by ten competitors, the best by the Earl of Harrington, who had compact bunches with berries as black as Sloes and of good size. The 2nd prize was awarded to Lord Rowallan, Kilmarnock (gr. Mr. J. Dixon), whose bunches were much larger but not so well finished. 3rd, Lady Henry Somerset, Eastnor Castle (gr. Mr. G. Mullins).

One Bunch of Black Hamburgh.—The finest single bunch of this variety was shown by Lord Rowallan. The bunch was the largest of eleven and the berries were well coloured. 2nd, H. St. Maur, Esq., Newton Abbot (gr. Mr. G. Richardson). 3rd, The Duke of Newcastle, Worksop (gr. Mr. S. Barker).

Two Bunches of Black Grapes, Muscat Varieties.—Only four exhibits were forthcoming in this class, and the 1st prize was won by the Earl of Harrington with the variety Muscat Hamburgh of good average quality. 2nd, H. St. Maur, Esq., with Mrs. Pince variety. 3rd, Col. H. C. Legh, Knutsford (gr. Mr. A. J. Cook).

Two Bunches of Madresfield Court.—This splendid variety was also shown by four ex-

hibitors, and Col. Legh was awarded the 1st prize for shapely bunches, carrying good bloom on the berries, which were excellent in size and shape. 2nd, the Earl of Harrington, with less shapely, but finely finished, bunches.

Two Bunches of Black Alicante.—Lady Henry Somerset excelled easily in this class with very large bunches. The only other exhibit was shown by Lord Joicey, Newtown (gr. Mr. Jackson), and was awarded the 2nd prize.

Two Bunches of any other Black Grape.—This was a good class, and Lord Rowallan was placed 1st for Gros Maroc, with much the largest berries—a splendid exhibit. 2nd, Lady Henry Somerset, with the same variety, but much smaller in berry.

Two Bunches of White Muscats.—The Muscat Grapes generally had not the rich amber colour seen in some seasons, and the largest bunches were quite green. But those shown by Lord Seaforth, Braham Castle (gr. Mr. W. Campbell), were well ripened, and the bunches possessed good shape and size; the 2nd prize was awarded to the Duke of Newcastle, whose bunches, though the smallest, were splendidly finished; 3rd, Hugh Andrews, Esq., Winchcombe (gr. Mr. J. R. Tooley).

Two Bunches of White Grapes of any Other Variety.—The Duke of Newcastle won the 1st prize in this class with Buckland Sweetwater, superbly finished and perfectly coloured; 2nd, Mrs. F. Alderson, Oswestry (gr. Mr. G. Davies), with the same variety, larger in berry and bunch, but greener than those in the 1st prize exhibit.

Classes were provided for growers in the county of Salop, and the prizes were awarded as follows:—*Black Hamburgh*, 1st, Lady Mary Herbert, Market Drayton (gr. Mr. J. Birch); 2nd, Capt. Heywood Lonsdale. *Madresfield Court*, 1st, Capt. Heywood Lonsdale; 2nd, Col. Mainwaring Jacson, West Felton (gr. Mr. W. Willdig). *Any other black variety*, 1st, Col. Mainwaring Jacson, with Gros Maroc. *Muscat of Alexandria*, 1st, Captain Heywood Lonsdale. *Any other white variety*, 1st, Mrs. F. Alderson, Oswestry (gr. Mr. G. Davies), with, apparently, Buckland Sweetwater.

Other Kinds of Fruits.

Peaches.—The exhibits of Peaches were not so good as usual, except the winning dish (of the variety Bellegarde), shown by the Duke of Westminster, Eaton Hall, Chester (gr. Mr. N. F. Barnes); 2nd, Lady Henry Somerset, with Dymond. There were fourteen competitors in this class.

Nectarines.—These fruits were smaller than usual, but they were finely coloured. The 1st prize was awarded to the largest fruits, shown by Egerton Leigh, Esq., Holmes Chapel (gr. Mr. H. Bateman). The variety was Pineapple and the colour was excellent. 2nd, Duke of Newcastle, with the same variety.

Apricots.—The 1st prize for these fruits was won by A. Stanley Hughes, Esq., Bicton Heath (gr. Mr. J. Nuttall); 2nd, Major R. A. Newill, Admaston (gr. Mr. W. Ashwood). Neither exhibit was of more than mediocre quality.

Melons.—Prizes were offered for (1) green-fleshed varieties, (2) scarlet-fleshed varieties, (3) any other variety open only to growers in the county of Shropshire. The best fruit with green flesh was shown by Lady Henry Somerset; the variety was Emerald Gem, a large, finely-netted fruit. 2nd, Miss Baird, Malvern. For a scarlet-fleshed variety the 1st prize was awarded to Col. H. C. Legh; 2nd, Col. Mainwaring Jacson. The county prize for Melons was won by R. L. Kenyon, Esq. (gr. Mr. J. Durnall), for a very small, green-fleshed fruit.

Plums.—The exhibits of Plums were very few. There were four competitors in the class for Gages, and the 1st prize was awarded to Oullin's Golden, shown by the Earl of Harrington; 2nd, C. A. Cain, Esq., Welwyn (gr. Mr. T. Pateman), with Transparent Gage.

Mr. Cain was the only exhibitor in the class for twelve yellow Plums, and he was awarded the 1st prize.

In the class for purple or red Plums, the Earl of Harrington showed best of four competitors with the variety Kirks; 2nd, Mr. Kenyon, with the same variety.

Groups of Plants.

Group of Miscellaneous Plants Arranged in a space of 250 sq. feet.—Were it not for the excellence of the plants and the skill displayed in their arrangement the continued successes of Messrs. J. Cypher and Sons, Cheltenham, in this premier group class would be monotonous. Good as were the other two exhibits, there could be no question as to the judgment which awarded Messrs. Cypher the 1st prize. The cork-covered arch at the back of the group continues to play an important part in the design of these displays, but on the present occasion the skilful arrangement of the trailing plants, which formed a thin veil, and a few flowering plants—Ixoras, Liliums, and the bright-foliaged Nandina domestica—below and beyond the archway, gave the impression of distance, and instead of being at the back of the group this arch appeared to be in the middle distance. In the remainder of the group the first impression was that of gorgeous Codiæums (Crotons) rising gracefully from mounds of Oncidiums, Odontoglossums, smaller Codiæums, and Caladium argyrites.

The 2nd prize was won by Sir G. H. Kendrick, Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), with a very bright and tasteful group arranged on lines similar to those which gained the 1st prize. The plants were every bit as choice as in the other—the Codiæums were even better—and it was a delightful group, but it fell short of first place in its perspective. 3rd, Mr. W. R. Manning, Dudley, who used splendid plants of Ixora Duffii and many good Orchids in a pleasing collection.

Group of Hardy Flowering Plants and Aquatics.—As with the group of tender exotics, the 1st prize exhibit in this class showed the effects of the master mind. Messrs. Gunn and Sons, Olton, Warwickshire, made one of the most pleasing groups of hardy flowers that we have ever seen. It has often been said, and with much truth, that the exhibits of hardy border flowers are, as a rule, painfully formal and overcrowded, but the most captious critic could not find this fault with Messrs. Gunn's contribution, which could be reproduced in the garden, where, indeed, it would be even more attractive by reason of the natural background it would have. Bold groups of double Hollyhocks, dwarfed but equally effective clumps of Liliums, of Campanula pyramidalis, Galtonia candicans, Gladiolus, and the like rose up amongst the dwarfer Gaillardias, Phloxes, Scabious, and other plants. The rock-bound pool containing good Nymphæa blooms was also a charming item; 2nd, Messrs. W. Artindale and Son, Sheffield.

County of Salop Class.—There were four exceedingly creditable groups in the county class, which allows a space of 100 sq. feet. The 1st prize was awarded to Mr. Bernard Howson, Market Drayton, whose design was somewhat on the lines of the groups in the open class. The rigid formality of the square archway at the back gave a quaint and distinctive character to the arrangement, which contained especially well-coloured Codiæums; 2nd, A. W. Barber, Esq., Wellington (gr. Mr. F. Bremmell), whose effort did not please us so much as that of Mrs. F. Burd, Shrewsbury (gr. Mr. M. Edwards), which received the 3rd prize.

Group of Begonias.—Messrs. Blackmore and Langdon, Bath, won the 1st prize with a splendid collection, which was composed almost solely of double tuberous varieties of excellent quality. Two little groups of the tall, single B. Martiana grandiflora gave an added interest to this superb collection. The hanging baskets of the varieties Lena and Golden Shower bore a profusion of blooms; 2nd, Messrs. T. S. Ware, Ltd., Feltham, Middlesex, who arranged a bank of magnificent double-flowered tuberous Begonias. The blooms were characterised by great size and rich, pure colouring.

Specimen Plants.

Fifteen Stove and Greenhouse Plants.—On this occasion Messrs. J. Cypher and Sons may well be said to have excelled themselves, for they exhibited what was probably the finest collection of trained plants which has ever been seen. The immense plants of Erica Ewerana, Ixora Duffii, and Statice Gilbertii, for instance, bore a profusion of bloom; 2nd, Mr. W. R. Manning, Dudley.

Thirty Stove and Greenhouse Plants.—The object of this class was to illustrate the ornamental value of tender exotics growing in comparatively small pots, and for this reason the maximum size of pot allowed was 10 inches in diameter. Messrs. Cypher won the 1st prize. Their collection was very rich in Ixoras, of which genus the large, vivid crimson trusses of I. Duffii, the orange-coloured I. Pilgrimii, and I. Regina, which bears compact round trusses of bright, terra-cotta-coloured blooms were exceptionally good; 2nd, Mr. W. R. Manning.

Major-General Sir Francis Lloyd, Aston Hall, Oswestry (gr. Mr. W. T. Stannard) exhibited 6 excellently Dracænas in relatively small pots, for which the 1st prize was awarded; 2nd, Mr. W. R. Manning.

Fuchsias were a strong class; Messrs. J. Wright and Sons won the 1st prize, and Mr. H. Howells the 2nd.

The class for 6 Zonal Pelargoniums was the best in these smaller classes, the 1st prize plants, shown by Messrs. J. Wright and Sons, being especially good; 2nd, Messrs. H. Cliff and Sons.

Tuberous Begonias were shown in very good condition; the best were from Mr. T. Hammond, Shrewsbury; 2nd, Messrs. J. Wright and Sons, Leicester.

Mr. F. Hammond, Shrewsbury, showed the best 4 Begonias. The 1st prize for single and double-flowered Zonal Pelargoniums in pairs was won by Messrs. H. Cliff and Sons, Salisbury.

There were many good exhibits of 4 Exotic Ferns; the 1st prize was won by Capt. Heywood, Lonsdale; 2nd, Messrs. J. Wright and Sons. For 12 Gloxinias the chief award was won by Messrs. J. Wright and Sons, Leicester; 2nd, Mr. J. Farrant.

County of Salop Classes.

Besides the competition in the class for a group of miscellaneous plants in a space of 100 square feet, the following classes were reserved for growers in the county:—

Twelve Miscellaneous Plants.—The 1st prize was awarded to Mr. B. Howson, Market Drayton, who showed a good variety of well-grown plants; 2nd, Mrs. F. Alderson, Oswestry (gr. Mr. G. Davies).

Six Stove and Greenhouse Plants.—The 1st prize was won by J. Farrant, Esq., Shrewsbury, who included especially good plants of Clerodendron Balfouri and Statice profusa in his collection; 2nd, G. Burr, Esq., Shrewsbury (gr. Mr. A. Jones).

Sweet Peas.

There were sixteen entries in the class for eighteen bunches, distinct. The 1st prize was won by Mr. T. Jones, Ruabon, with splendid blooms, including the varieties Melba, Thomas Stevenson, Dobbie's Cream, Prince George, R. F. Felton, Audrey Crier (a grand vase), Etta Dyke, Marjorie Linzee, Edsom Beauty, Marks Tey, Rosabelle and Agricola. This exhibit was noteworthy for fine colour and general good quality, while the arrangement was all that could be desired. 2nd, Mr. J. Haycocks, Welshpool, whose flowers, though good, lacked the large size and finish seen in the 1st prize exhibit. Duplex, Dorothy, Maggie Stark, Thomas Stevenson and Lady Miller being the best varieties. 3rd, G. H. Garnet Orme, Esq., Skipton. These blooms also were good, Doris Usher, Barbara, and Lady Miller being especially fine. 4th, Mr. G. Bowness, Bushby, Glasgow. This grower was placed 1st last year, but the variability of the season no doubt accounts for his being lower in the prize list.

The class for twelve bunches distinct was also very strongly contested, the 1st prize in this class being awarded to Mr. Stewart Robinson Kingdon, Hereford, who had a wonderfully even exhibit of clean blooms. The varieties were Mrs. C. W. Breadmore, King Manoel, Hercules, R. F. Felton, Lavender G. Herbert, Thomas Stevenson, White Queen, Mrs. Routzhan, Prince George, Elfreda Pearson, Lady Miller and Anglia Pink. 2nd, Mr. W. H. Holloway, Port Hill, who had Inspector, Mrs. E. Cowdy, John Ingman and Thomas Stevenson in excellent condition. 3rd, Colonel Cornwallis West, Ruthven Castle.

The class for six varieties produced very strong competition, Mr. J. Roberts, Grisford, winning with King Manoel, Melba, Hercules, Charles Foster, John Ingman and White Queen. 2nd, Mr. H. Robinson, whose bunches of Edith Taylor, Amber and Hercules were very good. 3rd, Mr.

E. Price, Skipton. The varieties Barbara and R. F. Felton were of outstanding merit in this exhibit.

Roses.

The competition for the Silver Challenge Bowl was exceptionally good, and there were many splendid collections. The 1st prize was awarded to Messrs. Gunn and Sons, Olton, Warwickshire, who tastefully arranged tall stands of Polyantha varieties and of Lady Alice de Rothschild, Lady Hillingdon, Molly Sharman Crawford. The groundwork was composed of a great number of distinct varieties, the most noticeable being Rayon d'Or, Geo. C. Waud, Lyon Rose, Mrs. Theodore Roosevelt, Juliet, Lady Ashtown, and Lady Pirrie; 2nd, Messrs. Hugh Dickson, Ltd., Dublin, whose collection was stronger in the large-flowered sorts, but not equal to the first in the Polyantha and other free-flowering varieties. Chief amongst the former were Wm. Cooper, Mrs. John Laing, Mrs. James Lynas, Charles H. Douglas, Muriel Dickson, and Hugh Dickson; 3rd, Mr. John Mattock, New Headington, Oxford, who set up tall stands filled with such varieties as Irish Elegance, Irish Glory, Lady Pirrie, Duchess of Wellington, as well as low bowls of cut blooms.

Eighteen Cut Roses.—The 1st prize was awarded to Mr. G. Speight, Market Harborough, for a praiseworthy collection, which included Mme. de Ganey, Mme. Jules Gravereaux, and J B. Clark; 2nd, H. Garnet Rolt, Esq., Hay

Twelve Vases of Decorative Roses.—Mr. J. Mattock, Oxford, who won the 1st prize, showed a beautiful collection, chief amongst which were Duchess of Wellington, Mrs. Alfred Tate and Irish Elegance; 2nd, Messrs. W. and J Brown, Peterborough. The 1st prize in a moderate class for 12 cut Roses was awarded to Miss H. Leeke, Shifnal, Byton.

The finest Zonal Pelargoniums in twelve trusses were shown by Mr. E. Bewley, Dublin (gr. Mr. D. McIntosh); 2nd, Mr. A. Myers, Shrewsbury. These exhibitors reversed positions in the class for double varieties.

The summer-flowering Chrysanthemums were a trifle disappointing. The exhibits did not display the value and beauty of this section. 1st, Mr. H. Woolman, Shirley; 2nd, Mr. G. Bowness, Glasgow.

The 1st prize for 12 bunches of hardy flowers was won by E. H. Shorting, Esq., Broseley (gr. Mr. H. Bentley). Messrs. G. Mair and Son, Prestwick, showed a very good collection of 24 Gladiolus spikes, and deservedly won the 1st prize; the Marquis of Northampton, Castle Ashby (gr. Mr. A. R. Searle) similarly excelled in the class for 12 Gladioli.

The best 12 Asters were shown by Messrs. H. Clark and Sons, Leeds.

Carnations.

Two classes were provided for Carnations, the one for a collection of American Tree or Perpetual-flowering varieties arranged in a space measuring 15 feet by 4 feet, the other for a collection of cut blooms arranged in a space 6 feet by 4 feet, Tree Carnations being excluded. In the larger class there were four competitors, and all showed finely. The 1st prize was won by Mr. Chas. Wall, Bath. The blooms of Lady Fuller, salmon pink (new), Mrs. C. W. Ward, R. F. Felton, Carola, White Wonder, and Scarlet Glow were uncommonly good and arranged with taste; 2nd, Messrs. Young and Co., Hatherley, who showed Mrs. Raphael, a variety of the perpetual-blooming type, with flowers like a "Malmaison" variety; the colour is cherry red.

In the smaller class the 1st prize was won by Mr. C. H. Herbert, Acocks Green; a well-arranged group of excellent blooms. 2nd, Messrs. A. R. Brown, Ltd., King's Norton.

Dahlias.

Messrs. Keynes, Williams and Co., Salisbury, were awarded the 1st prize in the class for a collection of Cactus or Decorative Dahlias. The exhibit appeared to be rather overdone with greenery, but the quality of the flowers was good; 2nd, Mr. J. E. Knight, Wolverhampton.

Messrs. Keynes, Williams and Co. showed the best 12 Pæony-flowered Dahlias, and Mr. T. Jones, Ruabon, the best 12 Collerette varieties, whilst Lady Florence King, Hereford (gr. Mr. J. Davies), won the 1st prize in the class for 12 Cactus varieties with a very good collection.

Twelve Varieties of Cactus Dahlias.—The 1st prize collection from Messrs. Bottomley and Burton, Elland, was a magnificent contribution; 2nd, Messrs. G. Fairburn and Sons, Carlisle. Messrs. Bottomley and Burton also won easily the 1st prize offered for 24 Cactus Dahlias; 2nd, Messrs. H. Clarke and Son, Leeds.

The Rock Gardens.

Although the Rock Gardens were placed in a far corner of the grounds, this new feature of the Shrewsbury Show attracted an immense amount of attention. Throughout both days a constant stream of visitors paid interested attention to the various gardens. It was instructive to note the discrimination displayed by the visitors, the majority of whom at once selected the best of the gardens. The 1st prize was awarded to Mr. T. R. Hayes, Keswick, Cumberland, who built an exceedingly pleasing low rockery; the old weather-worn stratified boulders were placed with art and planted with a pleasant variety of appropriate subjects. On the higher levels, at the back, small Pinus austriaca, Junipers, weeping Yews, and the like, simulated stunted Alpine trees. A large number of Heaths and Heathers (Erica Watsonii, E. vagans alba, E. mackaiana plena and others, as well as Menziesia polifolia) were effectively placed, as also were various Campanulas, Primula capitata, Sedums, and Alpine Poppies; 2nd, Mr. J. Wood, Boston Spa, who displayed great skill in placing the boulders, but whose planting was too thin, and the pool insufficiently furnished with Water-lilies; 3rd, Mr. J. E. Knight, Wolverhampton.

Hardy Flowers.

Messrs. Harkness and Sons, Bedale, led in the class for twenty-four bunches of hardy flowers, arranged in a space 8 feet by 4 feet. There were three other exhibits, and all were of excellent quality. Messrs Harkness showed splendid Oriental Poppies, large Gaillardias of the variety Mrs. Mackellar, Chrysanthemum maximum, Verbascum hybrids, Lupins, Phlox F. H. Buchner (a fine white variety), Gladioli, and Iceland Poppies; 2nd, Messrs. Artindale and Sons, Sheffield; 3rd, Messrs. Bull and Co., Frome.

The best twelve bunches of cut flowers of hardy or half-hardy annuals were shown by Mr. W. H. Banks, Kington; 2nd, Mr. A. E. Humphreys Owen, Berriew.

Decorative Classes.

The best bouquet of Roses was shown by Messrs. R. Felton and Sons, Hanover Square, who utilised the pretty Sunburst variety. The best hand bouquet (Orchids included) was also shown by Messrs. Felton and Sons. The best bouquet (Orchids excluded) was staged by Mr. A. Adshead; 2nd, Messrs. Felton and Sons, who excelled in the class for a shower bouquet of Carnations—a very charming bouquet made of the variety Empire Day, with contrasting ribbon of old rose colour. 2nd, A. Adshead, who employed the variety Winsor. For a basket decorated with Orchids Mr. J. Sherratt was placed 1st, with an enormous basket of Vandas, white Phalænopsis, Oncidiums, etc. 2nd, Messrs. Felton and Sons, with a smaller but very tasteful arrangement of Odontioda Charlesworthii, Cattleyas, and Charlesworth's Hybrid Oncidiums, with a suggestion of Thalictrum dipterocarpum. The best basket of flowers for the hand was shown by Messrs. Felton and Sons, who used Rose Sunburst and brown foliage. 2nd, A. Adshead, with Carnations and Francoa ramosa.

New Plants.

Certificates of Merit were awarded to *Rose Moonlight*, a free-flowering semi-double variety, in which the white petals delicately contrasted with the rich golden stamens, and *Rose Danae*, a pale yellow cluster Rose, which also has a very long-flowering period. Both were shown by the Rev. J. H. Pemberton.

Awards of Merit were granted to *Sweet Pea Constance Hinton*, shown by Hammond T. Hinton, Esq., Heytesbury, Wiltshire (gr. Mr. W. Kitlow); *Cactus Dahlia Grenadier* and *Collerette Dahlias Tusker* and *May*. All three varieties were shown by Messrs. Dobbie and Co, Edinburgh.

Vegetables.

Many of the exhibits in these classes were of splendid quality, and there were numerous entries in the various classes for collections. Of the single dishes the Peas, Beans, Celery, Cauliflowers, Tomatos, and Cucumbers were exceptionally fine.

Twelve Distinct Kinds.—In this open class the 1st prize was awarded to Hon. Vicary Gibbs, Elstree (gr. Mr. E. Beckett), for a splendid collection, in which the finest items were Peas, Runner Beans, Tomatos, Cucumbers and Leeks; 2nd, Mr. H. Andrews, Winchcombe; 3rd, Mr. T. Sanderson, Whittington. The best 9 distinct kinds in the open class were arranged by F. Bibby, Esq., Hardwicke (gr. Mr. J. Taylor), whose splendid Cauliflowers, Leeks and Potatos received the full number of points; 2nd, Capt. Heywood Lonsdale, Shavington (gr. Mr. J. Mills).

Messrs. Sutton and Sons' Class.—In this class, which required 9 distinct kinds, there were 9 exceptionally good collections. The 1st prize was won by Capt. H. Spender Clay, M.P., Lingfield, Surrey (gr. Mr. D. Gibson), whose exhibits were all well-nigh perfect examples; 2nd, Colonel Cornwallis-West, Ruthin Castle (gr. Mr. H. Forder); 3rd, Hugh Andrews, Esq., Winchcombe, Gloucester (gr. Mr. J. R. Tooley).

Messrs. J. Carter and Co.'s Class.—Of the 8 collections, each of 6 distinct kinds, the best was shown by Mr. F. Barnett, Ellesmere. The Peas (Carter's Quite Content), Tomatos (Duke of York), and Autumn Giant Cauliflower were splendid; 2nd, Mr. E. Deakin, Hay Mill, Birmingham; 3rd, Mr. T. H. Pugh, Newtown.

Messrs. Dickson and Robinson's Class.—The best collection of 9 kinds was shown by the Marquis of Northampton, Castle Ashby (gr. Mr. A. R. Searle), whose best items were long, clear Carrots, Celery, Peas, and Scarlet Runner Beans; 2nd, Mr. T. Jones, Bryn Penylan; 3rd, Mr. F. R. Owen, Haverfordwest.

Messrs. Webb and Son's Class.—The 1st prize was awarded to Mr. E. Winchester, Birmingham, who excelled with Celery, Peas, Tomatos and Cauliflowers; 2nd, H. Andrews, Esq., Winchcombe (gr. Mr. J. R. Tooley); 3rd, H. Watson Smith, Esq., Stourbridge (gr. Mr. H. Davis).

Messrs. Clibrans' Class.—The Marquis of Northampton, who showed magnificent Prize-winner Carrots, Autumn Giant Cauliflowers, and Triumph Tomatos, excelled in this competition; 2nd, Mr. T. Sanderson, Whittington; 3rd, F. R. Dixon Nuttall, Esq., Prescott (gr. Mr. J. W. Barker).

Messrs. R. Sydenham's Class.—Mr. F. Barrett, Overton, Ellesmere, won the 1st prize with the best Parsnips in the show, excellent Gladstone Peas, Autumn Giant Cauliflowers, the Lyon Leeks and Perfection Tomatos; 2nd, Lord North, Banbury (gr. Mr. E. R. James); 2nd, Mr. E. Deakin.

Six Dishes of Potatos.—The 9 collections were of such extraordinary high quality that the judges must have experienced considerable difficulty in awarding the prizes. The 1st was won by Capt. H. Spender Clay, who showed splendid dishes of Factor, Up-to-date, Windsor Castle, and Early Rose; 2nd, P. T. Davies Cooke, Esq.; 3rd, Mr. T. Bullock.

Single Dishes.

In the open classes the 1st prizes were awarded to the following exhibitors:—Mr. A. Bayley, Bayston Hill, for Peas; Mrs. Jenner, Wenvoe Castle, Cardiff, for Spring Onions; Mr. H. L. Collins, for a brace of Cucumbers; Marquis of Northampton, for Tomatos; Mrs. Jenner, for Autumn-sown Onions; Mr. James Wainwright, Nantwich, for Celery; Lady Mary Herbert, Styche (gr. Mr. J. Birch), for Cauliflowers; P. D. Davies Cooke, Esq., Mold (gr. Mr. W. Weaver), for Potatos; Capt. H. Spender Clay, for Runner Beans; Mr. F. Barrett, Ellesmere, for French Beans; Mr. H. L. Collins, Lindley, for Peas; Mr. Jas. Breeze, Coleham, for Turnips; Mr. E. Deakin, for Carrots; and Rev. J. Davies, Crowle Rectory, Worcester, for Parsnips.

Non-Competitive Exhibits.

Messrs. Sutton and Sons, Reading, made an admirable display of flowers, fruits and vegetables, representing the seed specialities of the firm. The exhibit included most vegetables in season—fine new red Intermediate Carrots, Purity Cauliflowers, Dwarf Gem Brussels Sprouts,

excellent Duke of Albany Peas, Tomatos in variety, Onions, Beets, Potatos and many other kinds. Melons were a feature on tall stands, and at the back were Antirrhinums, Asters, Scabious, Coreopsis and other flowers, with banks of Gloxinias at either end, and here and there vases of the Red Sunflower. (Large Gold Medal.)

Messrs. Pipers, Bayswater, exhibited border flowers in great excellence and variety. Liliums were represented by L. longiflorum giganteum, L. auratum, L. speciosum, and L. tigrinum; other features were the clear yellow Gaillardia Lady Rolleston, Lychnis chalcedonica rubra plena and Delphinium Moerheimii. This firm also showed numerous varieties of Pæony-flowered Dahlias. (Small Gold Medal.)

Messrs. Isaac House and Son, Westbury-on-Trym, staged border Phloxes in all the newer and choicer varieties; also other border flowers and pans of Alpines. (Small Gold Medal.)

Messrs. R. Wallace and Co., Colchester, exhibited hardy flowers. A large batch of Montbretias included most of the fine varieties raised by Mr. Davison, of which the beautiful Star of the East had no peer. Gladioli, Liliums, Phloxes, Tritomas, Delphiniums and other kinds were shown splendidly. (Small Gold Medal.)

Messrs. Forbes, Ltd., Hawick, contributed Pentstemons, Phloxes, Pansies, Violas, Gaillardias and other border flowers, also numerous varieties of border Carnations. This firm's Pentstemons and Phloxes were equal to any in the exhibition. (Small Gold Medal.)

Messrs. J. Gibson and Co., Bedale, Yorkshire, showed splendid border flowers, for which a Silver Medal was awarded.

Messrs. Dobbie and Co., Edinburgh, had one of the finest exhibits in the largest tent in their display of Collerette Dahlias, Sweet Peas and Roses. The Sweet Peas were magnificent, and arranged with fine colour effect. King White, Dobbie's Thomas Stevenson, Lavender George Herbert, Doris Usher, Edrom Beauty, Mrs. Cuthbertson, Edith Taylor and Melba are a selection of the best varieties. (Large Gold Medal.)

The fine exhibit staged by Messrs. Dickson and Robinson, Manchester, attracted more than usual interest as much for boldness of design as for the quality of the subjects employed. It consisted of a display of fruits, flowers, and vegetables arranged against a dark cloth background. In the centre was a mass of rosy-scarlet Larkspur encircled by an archway of Scabious; Liliums and Gaillardias were displayed similarly. In the front were many kinds of fine vegetables. (Large Gold Medal.)

Messrs. James Veitch and Sons, Ltd., Chelsea, filled a recess in the large tent with a crescent-shaped group of foliage and flowering plants of superb quality. Magnificent Pitcher plants (Nepenthes Curtisii superba, N. Sir W. T. Dyer, etc.) rose high from mounds of Liliums, of Cannas and the like arranged with Ferns and other foliage plants, whilst in the background there were many specimen foliage plants. A central collection of Orchids included Cœlogyne pandurata, Odontoglossum grande, Cattleya aurea, C. Gaskelliana, and many fine Cypripediums. (Large Gold Medal.)

Messrs. L. R. Russell, Richmond, displayed a unique collection of magnificent Tree Ivies, which contained a wonderful variety of form and colouring. (Small Gold Medal.)

Messrs. E. Webb and Sons, Stourbridge, filled a long stretch of tabling in one of the larger tents with a tasteful collection of flowers, fruits and vegetables. The first-named predominated, and included a central group of Liliums, chiefly L. auratum, and several arches of Sweet Peas. Many dishes of Tomato Webb's New Emperor, showed the excellent shape and colour of this splendid variety. (Large Gold Medal.)

Messrs. Alex Dickson and Sons, Newtownards, Co. Down, festooned a large number of cut Roses in a very attractive manner. The varieties used were Irish Fireflame, Lady Greenall, Red Letter Day, Carine, etc., whilst the show boxes contained a large assortment of H.T. varieties in splendid condition. (Large Gold Medal.)

Messrs. H. B. May and Sons, Upper Edmonton, sent a large and choice collection of their well-known indoor Ferns, including very many rare and valuable species. There were dainty little plants of Adiantum lineatum, Notholæna rufa, Asplenium Berlangeri and Nephrolepis Millsii, besides many Gymnogrammes and larger kinds. (Silver-gilt Medal.)

Mr. H. N. Ellison, West Bromwich, arranged on a semi-circular shaped table a collection of stove and greenhouse Ferns, and plants of the graceful Phœnix Roebelinii, the best Palm for dwelling rooms. (Silver Medal.)

Messrs. John Peed and Son, West Norwood, showed many excellent plants of various Caladiums, of which King George V., Madame Jules Picot, Rufus, Princess Olga and Red Indian were the brightest and most attractive. Along the front of these well-grown Caladiums there were boxes of Gloxinia and Streptocarpus blooms of very desirable strains. (Silver-gilt Medal.)

Messrs. Kerr and Sons, Liverpool, staged a collection of especially well-grown Codiæums (Crotons), all of a size suitable for table decoration, and of vivid colouring. (Silver Medal.)

Mr. Maurice Prichard, Christchurch, Hants, set up a fine collection of hardy border flowers. The quality of this exhibit was excellent, and the outstanding items were Kniphofia Glow, rich dark-blue Delphiniums, and splendid herbaceous Phloxes. (Silver-gilt Medal.)

Messrs. Hewitt and Co., Birmingham, staged a pleasantly arranged collection of cut border flowers. (Silver-gilt Medal.)

Messrs. James Vert and Sons, Saffron Walden, Essex, contributed double Hollyhocks of great merit. (Silver-gilt Medal.)

Mr. G. Reuthe, Keston, Kent, showed a great number of rare and uncommon shrubs and plants. Amongst the former we noted Indigofera Gerardiana, Eucrypha pinnatifolia, Potentilla humilis, Fagus fusca, F. Menziesii, F. cliffortioides and Arctostaphylos tomentosa. (Silver Medal.)

Messrs. Bakers, Wolverhampton, arranged a series of pools in front of rock work, and flanked by a large collection of hardy border flowers. (Large Gold Medal.)

The Craven Nursery Company, Clapham, Yorkshire, exhibited in a stand various Pines and rock garden plants. The latter included such rarities as Eritrichium nanum, Campanula Zoysii, Primula Auricula ciliata, and P. sibirica. (Silver Medal.)

Mr. Amos Perry, Enfield, Middlesex, filled a very large space with a raised Water-lily pool, groups of Delphiniums, an enormous quantity of the excellent Achillea Perry's White, and many choice hardy Ferns. (Large Gold Medal.)

Mr. James Box, Haywards Heath, Sussex, showed a very large collection of border flowers, which encircled a Water-lily pool. Chief amongst the border flowers were excellent spikes of herbaceous Phloxes, Gladiolus, and Delphiniums. (Small Gold Medal.)

Messrs. Caldwell and Sons, Knutsford, showed a variety of border flowers. (Silver Medal.)

Messrs. Rich and Co., Bath, also showed various border flowers. (Silver-Gilt Medal.)

Messrs. Bees, Ltd., Liverpool, showed various border flowers, and a very good collection of Cut Roses.

Messrs. W. H. Simpson and Sons, Birmingham, showed Antirrhinums, for which a Silver Medal was awarded.

Messrs. Young and Co., Hatherley, Cheltenham, showed Carnations of the perpetual-blooming type.

Messrs. A. R. Brown, Ltd., King's Norton, exhibited border Carnations. (Silver Medal.)

Sweet Peas were shown splendidly by Mr. R. Bolton, Carnforth. To enumerate the varieties would be to give a list of all the finer sorts in cultivation. (Large Gold Medal.)

Mr. A. F. Dutton, Iver, exhibited his new variety of perpetual-blooming Carnation, Mrs. A. F. Dutton, a delightful shade of pink.

Messrs. Stuart Low and Co., Enfield, showed Carnation Baroness de Brienen, for which a Silver Medal was awarded.

Messrs. Jarman and Co., Chard, exhibited Zonal-leaved Pelargoniums, Carnations, Roses, Centaureas and Dahlias. (Silver Medal.)

Mr. Albert Myers, Shrewsbury, showed Zonal-leaved Pelargoniums, against a background of Coleus plants, and interspersed with Eulalia japonica and Francoa ramosa. (Silver Medal.)

Messrs. Dickson, Chester, exhibited border flowers and Roses. Two magnificent clumps of Lilium auratum were arranged in the centre, and there were other tall stands filled with Gladioli and Pentstemons. The beautiful Romneya Coulteri was shown finely in association with the scarlet Geum Mrs. Bradshaw and Papaver nudicaule. (Gold Medal.)

Mr. Edwin Murrell, Shrewsbury, showed Roses and pot-plants of Clematis. The Roses were remarkably good, and the exhibit had the good point of not being crowded. Tall stands, filled with Mrs. John Laing, Lady Hillingdon, Sunburst—a delightful posey, Hugh Dickson and Kaiserin Augusta Victoria were excellent foils to the shorter vases. (Small Gold Medal.)

Mr. Henry Eckford, Wem, had a large exhibit of Sweet Peas, Gustave Hamel, Captain of the Blues, Spencer Pearl Grey, Senator Spencer, St. George Improved being the more noticeable varieties. (Small Gold Medal.)

Messrs. Jones and Sons, Shrewsbury, showed varieties of border Carnations, hardy border flowers, Sweet Peas and Violas, the last arranged as a floor group interspersed with Lilies and Roses. (Small Gold Medal.)

Hobbies, Ltd., Dereham, Norfolk, exhibited Roses and Dahlias. This excellent group was arranged in one of the side bays of the largest tent, and was a very effective display of bright flowers. Hanging baskets of Rayon d'Or Roses were a feature against a background of Pæony-flowered Dahlias. (Large Gold Medal.)

Messrs. W. Artindale and Son, Sheffield, showed a few varieties of Sweet Peas in the Sweet Pea tent.

Mr. Vincent Slade, Taunton, was awarded a Silver Medal for Zonal-leaved Pelargoniums.

A Silver Medal was awarded to Mr. H. Woolman, Shirley, near Birmingham, for Chrysanthemums.

Mr. A. W. Thorp, Lichfield, also showed Chrysanthemums, for which a Silver Medal was awarded.

Messrs. S. R. Compston and Son, Macclesfield, showed Violas. (Silver-gilt Medal.)

Mr. Geo. Underwood, Leicester, also showed Violas (Silver Medal), and an exhibit of these flowers was also staged by Mr. G. Weaver Price, Ashgrove, Brecon. (Bronze Medal.)

Mr. Vernon T. Hill, Langford, was awarded a Silver Medal for Alpines and hardy flowers, the former arranged in virgin cork.

Hardy border flowers were shown by Mr. G. W. Miller, Wisbech. (Silver Medal).

The National Gladiolus Society contributed a very good selection of cut spikes of Gladiolus from the Society's Trial Grounds at Southampton. (Silver-gilt Medal.)

Messrs. Fred. Smith and Co., Woodbridge, exhibited border flowers in variety.

Robert Sydenham, Ltd., Birmingham, showed Sweet Peas in rustic metal displayers. (Silver-gilt Medal.)

Mr. R. C. Notcutt, Woodbridge, was awarded a Silver-Gilt Medal for Apples.

The Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. E. Beckett) exhibited a superb collection of vegetables which rivalled his exhibit at the last Holland House Show; as then the various kinds shown nearly approached perfection. (Large Gold Medal.)

Messrs. Barr and Sons, Covent Garden, London, exhibited a very large collection of excellent vegetables. The novelties included Tomatos, Red Currant, Yellow Pear, Red Pear, Golden Waxpod Beans, and Blood-red Flat Onions. (Silver-gilt Medal.)

Miss S. Thompson, Handsworth, showed Cactaceous plants. (Bronze Medal.)

The King's Acre Nurseries, Hereford, staged pot-fruit trees of splendid quality and gathered fruits of orchard house produce in baskets. The Pears and Apples were well cropped. A small tree of Pear President d'Osmonville bore a marvellous crop. There were also Grapes, Plums, Peaches, and Figs. (Large Gold Medal.)

Messrs. Pritchard and Sons, Shrewsbury, were awarded a Small Gold Medal for miscellaneous flowers.

Mr. Vernon Hill, Bristol, showed flowers and Alpines, for which a Silver Medal was awarded.

Other awards included a Silver Medal to Mr. Jones for Gladioli, a Silver-Gilt Medal to Mr. Rideout for Carnations, a Small Gold Medal to Messrs. Fairburn for Sweet Peas, and a Small Gold Medal to Messrs. Smith and Chandler for miscellaneous flowers.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

July 3.—*Committee present:* Rev. J. Crombleholme (in the chair), Messrs. J. Bamber, Dr. Hartley, A. J. Keeling, D. McLeod, C. Parker, W. Shackleton, P. Smith, H. Thorp, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (secretary).

Silver-Gilt Medals were awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), who staged a splendid miscellaneous group; A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for Odontoglossums in variety.

Bronze Medal to O. O. Wrigley, Esq., Bury (gr. Mr. Rogers).

Other exhibitors were Mr. J. Birchenall, Alderley Edge, and Messrs. A. J. Keeling and Sons, Bradford.

BRITISH PTERIDOLOGICAL.

August 4.—The annual meeting of this Society was held, as usual, on August Bank Holiday, at Totnes, Devonshire. The balance-sheet was considered satisfactory, and it was stated that there were 160 members, compared with about twenty at the time of the reconstruction of the Society and the founding of the *British Fern Gazette*.

The Seven Stars Hotel was fixed as the meeting place, and prior to and after the meeting the members organised various hunting expeditions to Dartmoor and the surrounding district of South Devon, with very satisfactory results, notwithstanding a two months' drought, through which exposed Ferns had in many places been killed outright. A number of good varieties fell to the lot of the searchers, showing that Nature was still busy in producing "sports." A series of beautiful forms obtained by selective sowing was sent by absent members as a proof that in this direction also much had been done, and was still being done, to improve, if possible, the original wild varieties through their capacity of further variation by their spores. The hon. secretary is Mr. Druery, 11, Shaa Road, Acton.

DUMFRIES AGRICULTURAL.

August 5.—In connection with the annual show of the Dumfries Agricultural Society, held at Dumfries on the 5th inst., prizes were offered for Sweet Peas and other flowers. The Silver Cup offered for 12 varieties of Sweet Peas resulted in a capital competition, and many good flowers were shown. The Cup was won by Colonel J. K. Maxwell-Witham, of Kirkconnell, Newabbey (gr. Mr. Jas. M'Gill); 2nd, W. Keswick, Esq., Cowhill Tower, Dumfries (gr. Mr. C. G. M. Murray). In the amateurs' class for six varieties Mr. G. L. Moffat, Mayfield, Lockerbie, was placed 1st; 2nd, Mr. J. Crosbie, Dalswinton Village. In the open classes Jas. Brown, Esq., Knockbrex, Kirkcudbright (gr. Mr. F. France) was awarded the 1st prize. Mr. W. Anderson, Collin, showed the best hardy border flowers.

PERTHSHIRE SWEET PEA.

August 8, 9.—The annual show of this Society was held on these dates in the City Hall, Perth, and proved the most successful exhibition held under the auspices of this society. The entries showed a large increase over those of the previous year, and the exhibition was notable for the high excellence of the flowers staged by the competitors. A conference was held on the first day of the show, and was largely attended. The subject was "The Ideal Sweet Pea and How to Stage It." Mr. Harry Foster, in the absence of Mr. Walter Wright, opened the discussion, and was followed by Mr. Ed. Cowdy. A Gold Medal was offered for a display of Sweet Peas, arranged for effect on a table 12ft. by 6ft., there being no restriction as to style of arrangement, vases, and the number of sprays, etc. Messrs. Thyne and Son, Dundee, won the 1st prize with a pretty arrangement of fresh flowers; 2nd, Mr. D. McOmish, Crieff. A silver challenge cup, presented by Sir John Dewar, Bart., M.P., was offered for twelve distinct bunches of Sweet Peas. Mr. Edward Cowdy, Loughall, Co. Antrim, was placed in the first position, his varieties including Lavender George Herbert, Dobbie's Cream, and Audrey Crier; 2nd, Sir John Burnet, Bart. (gr. Mr. John Petrie), Crathes Castle, Aberdeenshire. Edrom Beauty was splendid in this exhibit.

There were numerous smaller classes for Sweet Peas, in all of which competition was very keen, Sir John Burnet, Crathes Castle, proving a very successful exhibitor.

In the classes open only to growers of from 15 to 50 yards or clumps of Sweet Peas, Mr. R. W. Duncan Kemnay, Aberdeenshire, secured the Society's challenge cup for nine bunches, distinct, and also the Society's Silver Medal for six bunches, distinct. Other leading prize-winners in this section were Mr. G. Milne, Montrose; Mr. P. Grant, Kennaway; Mr. A. Petrie, Larbert; and Mr. R. Grant, Clovenfords.

In the special division for small growers Mr. J. Glover, Colinton, Edinburgh, was awarded the National Sweet Pea Society's Silver Medal. In the floral decoration section the leading winners were Mr. and Mrs. George Reid, Downfield, Dundee. Sir John Burnet, Bart., was awarded the 1st prizes in Messrs. Dobbie and Co.'s, W. J. Unwin's, and Mr. Robert Bolton's classes respectively.

Non-Competitive Exhibits.

The only non-competitive display of Sweet Peas was set up by Mr. H. Sinclair, Aberdeen, who was awarded a Gold Medal.

Messrs. Dobbie and Co., Edinburgh, staged a large collection of Roses and Carnations (Gold Medal).

Messrs. R. Henderson and Sons, Perth, exhibited a collection of floral work and fruit (Gold Medal).

Messrs. D. and W. Croll, Dundee, showed Roses, for which they were awarded a Silver Medal.

SCOTTISH HORTICULTURAL.

On Saturday, the 9th inst., on the invitation of Lord Elphinstone, ninety members, including the president, Mr. King, paid a visit to Carberry Towers. The party was met by Mr. Kidd, the gardener, who conducted the visitors over the gardens and grounds.

A visit was afterwards paid to the new Experiment Garden of the Edinburgh and East of Scotland College of Agriculture at Liberton, where, in the absence of Mr. Chisholm, the party was shown over the establishment by Mr. J. Harris.

The monthly meeting was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on the 5th inst. Mr. King, the president, was in the chair, and there were 75 members present.

A paper, entitled "Villa Gardening from the Professional Gardener's Point of View," was read by Mr. John Highgate, Hopetoun Gardens, South Queensferry. One thing, Mr. Highgate said, which struck one more than any other in connection with villa gardening was the sameness of the subjects used in their embellishment. Possibly what attracted most attention was the lawn, no matter how small, and it added a charm to every flower and shrub around it; yet how often was it expected to thrive on impoverished soil? Like every other plant, grass required nourishment, and to keep a lawn in good condition it required to be top-dressed with some fertiliser annually. Next to the lawn, perhaps the most important feature of a villa garden was the trees and shrubs. Trees such as the Lime, Chestnut, and Elm were entirely out of place in the average villa garden, and when they were lopped to keep them within bounds they lost their true character, and often became unsightly. There was room for greater variety in floral decoration, and Begonias, Pentstemons, and Antirrhinums were mentioned as being well suited to the purpose. It was a common practice, said Mr. Highgate, to plant Apples and Pears on the walls of back gardens, with the view to obtaining fruit, but the walls were generally too low, and cordon Gooseberries and Red Currants would give more satisfactory results.

The exhibits were:—Lilium testaceum, L. Humboldtii magnificum, L. chalcedonicum, L. chalcedonicum maculatum, and Stenanthium robustum, from Messrs. Dicksons and Co., Edinburgh, who were awarded a Cultural Certificate for the Liliums and Astilbe Pink Pearl, from Mr. John Downie, Edinburgh.

At the meeting on September 2, Mr. J. Stuart, of the Edinburgh and East of Scotland College of Agriculture, will give a lecture on "Fruit and Vegetable Bottling" (with demonstration).

NATIONAL SWEET PEA.

August 13-14.—The provincial Show of the National Sweet Pea Society was held at Carlisle on these dates in conjunction with the Carlisle Horticultural Association. The show, taken as a whole, was very good. Sweet Peas were the main feature, and it is doubtful if finer blooms have been staged in the North. Upwards of 40 classes had been arranged by the N.S.P.S., the local association and its secretary, Mr. Thackeray, dealing with the staging and other matters of detail. Many well-known members of the Sweet Pea world were present, including the hon. sec. of the N.S.P.S., Mr. C. H. Curtis, Messrs. Horace J. Wright, A. Hallam, H. Tigwell, A. Ireland, T. A. Weston, E. Cowdy (Armagh, Ireland), Tom Jones (Ruabon), and A. Malcolm Duns.

A Sweet Pea Conference was held in the evening, when Mr. Alex. Malcolm Duns read a paper on "Sweet-Pea Breeding."

In the open classes competition was strong, and in those for 18, 12 and 6 bunches respectively, Mr. A. Smellie, Busby, won the 1st prizes with splendid blooms.

The seedling class brought only 2 entries, Mr. Robt. Wright, Formby, winning with Royal Purple and Josephine.

Classes 31 to 34 were open to the members of the N.S.P.S. only. For 12 bunches, Mr. Ed. Keith, Wallington Gardens, Morpeth, was awarded the 1st prize; the variety Lady Miller was shown superbly. Mr. G. Shaw excelled in the Northern Counties class for 9 bunches; his varieties, R. F. Felton and Hercules, were very fine. A class was open to Irish growers, and the 1st prize was won easily by Mr. E Cowdy, Armagh; whilst in the similar class open only to growers in Scotland Mr. James Kerr excelled. In the provincial championship class for 12 bunches Mr. Tom Jones, Ruabon, was placed first, and this grower also excelled in the class for 6 new Sweet Peas. The "International" class called for 12 bunches. The exhibitors competed by invitation, and the several countries were represented by Mr. Thos. Jones, Wales; Mr. Ed. Keith, England; Mr. E. Cowdy, Ireland; and Mr. J. A. Grigor, Scotland; the prizes being awarded in this order. Mr. Jones' exhibit easily surpassed those of his rivals, and included magnificent bunches of Etta Dyke (sunproof crimson), Thos. Stevenson, Mrs. Breadmore, King Manoel, Audrey Crier, May Campbell, Lavender George Herbert, John Ingman, and Prince George.

The 2nd prize exhibit was also very good, but the Irish flowers were a trifle uneven.

Non-Competitive Exhibits.

Mr. Robt. Bolton, Carnforth, showed Sweet Peas (Large Gold Medal); Messrs. Dobbie and Co., Edinburgh, were awarded two Gold Medals—one for Sweet Peas, the other for Dahlias and Roses; Messrs. G. Fairbairn and Sons, Carlisle, exhibited Sweet Peas (Gold Medal); Messrs. Herd Bros., Penrith, and Messrs. Thyne and Son, Dundee, were awarded Silver-Gilt Medals for Sweet Peas; Mr. Hugh Dickson, Ltd., Belfast, showed Roses, for which a Gold Medal was awarded.

ANNANDALE UNION FLOWER SHOW.

This show, which takes place on alternate years at Annan and Lockerbie, was held this year at Annan. There was a capital exhibition, although the number of entries showed a substantial decrease upon former occasions. In the vegetable section, open to gardeners and others, Mr. A. Currie, New Christilands, Annan, won the 1st prize in the class for a collection of vegetables, and was successful in several other classes. Jas. Davidson, Esq., Summerville, Dumfries (gr. Mr. J. Wilson), Major Critchly, Stapleton Tower, Annan (gr. Mr. W. Niven), and Mr. T. G. Grierson were other winners of 1st prizes in the vegetable classes. Major Critchly won the 1st prizes in most of the fruit classes, the next most successful exhibitor being Mr. J. French, Hightae. In the classes for pot plants almost all the 1st prizes were won by Major Critchly, who also showed the best decorative Roses and Pelargoniums. Mrs. R. Grierson excelled in the Dahlia classes. Other successful exhibitors with cut flowers were Mr. J. J. Tweedie, Mr. Jas. Davidson, Mr. W. Anderson, Collin, Mrs. Tweedie, Mouswald, Mr. J. G. Wright, Newhope, and Mr. A. Rutherford, Annan.

Obituary.

R. A. MILLIGAN HOGG.—We regret to record the death of Mr. Robert Alexander Milligan Hogg, B.A., in his sixty-fourth year, the only son of the late Robert Hogg, LL.D. The deceased suffered a paralytic seizure recently, and gradually declined thereafter. Mr. Hogg was proprietor of the *Journal of Horticulture* and *Poultry* from 1907, when Dr. Hogg died, until he disposed of his interest in these properties in November, 1911. The deceased gentleman also was editor of the *Journal of Horticulture* after the retirement of Mr. John Wright, V.M.H., until the change of proprietorship. He was trained to the law and was a Barrister of the Inner Temple and was a man of versatile tastes, delighting in music and literature. Mr. Hogg was educated at Westminster School and at St. Andrews and Cambridge Universities. As a traveller he had seen many parts of the world, including California, New Zealand, Australia and South Africa, in each of which countries he had spent several years. Indeed, there were few cities or interesting places in Europe he had not visited, and he was an accomplished linguist. For some years he was a member of the Floral Committee of the Royal Horticultural Society and of the Executive Committee of the Gardeners' Royal Benevolent Institution. He also supported the Royal Gardeners' Orphan Fund. The deceased, who leaves a widow, but no family, was interred at Brookwood Cemetery.

Answers to Correspondents.

CULINARY PEAS: *J. Dare.* The plants have been killed by a stem-boring insect, just below the level of the ground. The insect is in the chrysalis stage at present, so cannot be identified. The two plants of the unnamed variety are suffering from the new bacterial disease. (See reply to *W. B.* in the last issue, p. 128.)

NAMES OF PLANTS: *Rose.* 1, Ceanothus Gloire de Versailles; 2, Lythrum Salicaria. Roses: 3, Papa Gontier; 4, Natalie Bottner; 5, Caroline Testout; 6, Hon. E. Gifford; 7, Capt. Christy; 8, Mrs. J. Laing; 9, Marie van Houtte; 10, Souv. de Pierre Notting; 11, petals shattered; 12, Killarney.—*Havering.* 1, Physostegia virginiana; 2, Olearia Haastii; 3, Centranthus ruber; 4, Tamarix gallica; 5, Campanula garganica var. hirsuta; 6, Gilia tricolor.—*Co. Longford.* Veratrum nigrum.—*W. M. G.* 2, Gilia capitata: others too scrappy to identify.—*Lt.-Col. Briggs.* 1, Rubus fragariopsis; 2, Salvia leucantha; 3, Origanum microphyllum; 4, Priva lævis.—*J. B.* Verbascum nigrum.—*T. R. C.* Chenopodium capitatum.—*W. J. Greaves.* Fuchsia, probably Monarch variety.—*E. B., Horton.* Rose Mrs. Stewart Clark.—*Mossel Bay.* Tillandsia pulchella, a plant which has established itself on many trees, including the Orange, cultivated in South Africa. It is a native of S. America, and was imported with Orange trees.—*C. E. Bridget.* Your plant is not a Calabash Gourd, as you suppose, but is probably a species of the genus Lycium. The seedling Pelargonium we suggest you should send to a nurseryman who specialises with these plants.—*G. H. P.* 1, Ceanothus Gloire de Versailles; 2, Tamarix hispida; 3, Leycesteria formosa.—*B. L.* 1, Cœlogyne Parishii; 2, Epidendrum inversum; 3, Dendrobium clavatum; 4, Aspasia lunata; 5, Bletia hyacinthina. There are both white and coloured forms of this species. They may pass the winter outdoors in favourable situations if a layer of dry leaves be placed over the crowns; 6, Eriopsis biloba.—*Foreman.* 1, Adiantum formosum; 2, Pteris hastata; 3, Pteris geraniifolia; 4, Adiantum pubescens.—*Hort.* Dracæna marginata. It requires a warm house.

ONIONS: *Mr. C.* The most suitable ground for growing Onions is that which has been cultivated for several years, sandy loam for preference. The plot should be trenched two feet deep in early winter, and allowed to remain rough until spring. A good dressing of thoroughly decomposed farmyard manure may be mixed with the soil as the work proceeds, and a dressing of soot may also be applied with advantage as the soil is being forked over in spring.

PEACH TREE FAILING TO FINISH FRUITS: *H. G.* The roots of your Peach tree have evidently got away into the clay subsoil, and cause the trouble. We presume that during the five years it has been planted it has neither been lifted nor root-pruned; as a result the tree makes rank growth, taking all nourishment, and so causing the fruit to drop. Lift your tree in the autumn, prune off all the strong roots, and remake border, adding plenty of old mortar rubble; also place a few slates underneath the roots to prevent them penetrating into the subsoil. An overwatered border, a very high temperature, and a stuffy atmosphere when the fruits are stoning would also cause the trouble. During the resting period, in order to thoroughly ripen the wood, afford all the light possible, and ventilate the house freely, and on no account get the border too wet.

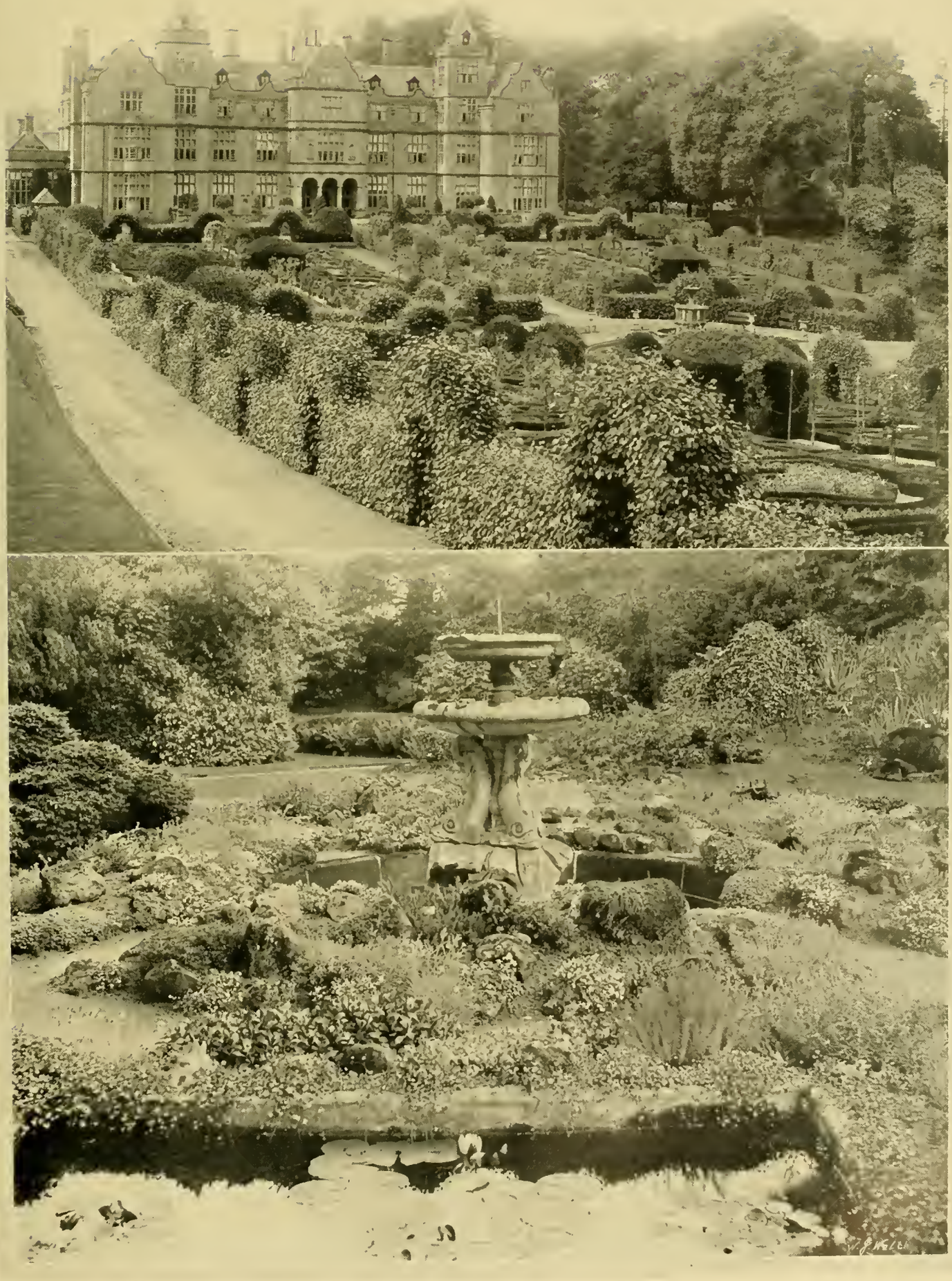
PEACH-HOUSE: *A. B.* Your 14-feet-high wall is well adapted for the support of a lean-to Peach-house. This house should be constructed as follows: Build a front 9-inch wall, 24 inches high, and resting on a 14-inch footing 17 feet from and, of course, parallel with the back wall. Wall plates and front ventilating sashes, measuring together 24 inches high, resting thereon will give a height of 4 feet from the ground line in front. Instead of constructing a Peach-house of sashes and heavy rafters, light rafters 1½ inch by 3 inches should be employed, these being secured at the top to a plate bolted to the wall under the coping at 18 inches asunder. A house of these dimensions will afford a roof angle of about 35° to the sun, and give a length of rafter of nearly 25 feet. Other items of wood necessary in the construction of a house of this description are as follows: Wall and end plates, 4 inches by 5 inches; end rafters 3 inches by 4 inches. The rafters, as stated, should be fixed to the wall plates bottom and top. A piece of wood, 2 inches by 3 inches, bevelled on one (top) side to the slope of the rafters, should be nailed on to the top of wall plate between each pair of rafters, and flush with the top surface of the latter and the inside edge of plating. These individual strips of wood should be rabbeted in a line with the bed of the rafters for the purpose of receiving the top squares of glass in the bays formed by each pair of rafters intervening between the individual ventilators. The ventilators, top and bottom, should open the full length of roof by machinery—Wolland's continuous ventilating gear is all that can be desired in this connection. The ventilators should be secured to the plating by watertight hinges. A dripboard, 1 inch by 3 inches, should be nailed on the plate at the bottom of the rafter, and flush with the rabbeted bar of same for the first squares of glass to rest on. Door frames, 3 inches by 4 inches (the lintel being bevelled to prevent water lodging thereon), with oaken sills of the same size; doors, 6 feet 6 inches by 2 feet 8 inches, the doors being either all wood or one-half made of glass, as may be desired, and hung on substantial brass butts, and provided with either a brass mortise or galvanised rim lock and suitable furniture. The roof should be covered with glass, 21 ounces to the square foot, 18 inches by 22 inches, bedded in good putty, and fastened on top with brass springs (like those shoemakers use). It will require about 286 squares of glass of the sizes given to cover the roof. The vents, top and bottom, should consist of three panes, each of the dimensions indicated, these being hung in the manner described at intervals of three bays, and worked throughout, as advised above, by continuous gear, having curvilinear lifting and lowering rods. The woodwork should receive two coats of good white-lead paint before being fixed and another afterwards. As you propose to plant the house at present, and there being practically no artificial heat provided, we do not think any advantage would now be gained by having a division in the proposed house; still, bearing in mind that the house might be differently planted in the near future, it might be as well to have the division made when erecting the house on the score of economy. The tree of Coe's Golden Drop Plum should be planted at the cooler end of the house.

PYRETHRUM ROSEUM: *P. T. Edwards.* In raising seedlings of named varieties of Pyrethrum roseum, the proportion that may be expected to come true to name will depend on various circumstances. The most important is, whether the seed-bearing plants are isolated, or growing near other varieties. In the former case, a far greater proportion may be expected to develop flowers resembling the parent.

WATER-LILIES AND GOLD FISH IN CEMENT TANK: *G. W. R.* Gold fish and Water-lilies will both live in your tank, but if it is newly constructed fill it with water for a few days before they are placed in it. Afterwards run off the water, and give the tank a thorough cleansing. Suitable plants for furnishing the "pockets" include Aubrietias, Achillea umbellata, Corydalis lutea, Sedums in variety, Campanula garganica, C. fragilis, Dianthus cæsius, D. deltoides, Armeria (Thrift), mossy and encrusted Saxifrages, Erinus alpinus, Iceland and Alpine Poppies, Wallflowers and Antirrhinums. The following Water-lilies are suitable for cultivation in the tank: Froebelii, Andreana, Marliacea ignea, M. sanguinea, Pygmæa, P. helvola W. B. Shaw, atropurpurea, and any of the Laydekeri section.

WIREWORMS IN VINE BORDER: *Troubled.* If you have conclusive proof that the injury is caused by wireworms drastic measures must be taken to rid the soil of the pests, but these insects sometimes get more credit for mischief than they deserve. We are not aware that they are ever numerous in borders long after the turf is decayed, from which it would appear that if they feed on vine roots they do not obtain from them sufficient nourishment to keep them alive. We were recently called to inspect a similar case to yours, and although wireworms were abundant and were thought to be the culprits the mischief was traced to another cause. Good vines were carefully planted last February, and a highly praised concentrated manure was mixed with the soil forming the border. The turfy loam used was of good quality, and was obtained at some expense from a distance of several miles. As it was fresh, and comparatively rough, some finer soil, with the fibre decayed, was applied round the roots, but none of the manure was mixed with it. The vines started well, and made good growth for a time, when growth ceased suddenly. On examination it was found that the roots, immediately they reached the extremity of the soil without the manure, had their tips burned, and grew no further. The vines are now useless, and they, as well as the border, will need to be replaced. No wireworms were found in the soil where the fibre was decayed. The manure when fresh had no particular scent, but after being mixed for a time with the soil it had a very offensive odour, and some of it applied in a top dressing for chrysanthemums burned their roots. Some Peach trees lifted from outside last autumn and planted in a house with similar soil, but without the manure, have done splendidly, and are bearing a heavy crop of fruit of the finest quality. As your vines are not worth keeping we advise you, if you are still convinced that the injury is due to wireworms, to obtain some perfectly fresh gas lime and mix with the soil at the rate of two pounds to the cubic yard, and add double this quantity of kainit, turn the whole two or three times during autumn and winter and expose it as much as possible to the air. Gas lime which has been exposed to the air for several weeks is useless for the purpose. Another plan is to thoroughly sterilise the soil.

Communications Received.—R. G. W.—J. H. B.—F. R. S., Newbury—C. & Sons—G. B.—The C. G. A.—S. D. B.—J. H.—W. M., Naples—J. F. G.—Constant Reader—Sir A. B. H.—Reader—Lucan—G. C—J. J. F.—Journeyman—H. S.—J. M., Wrexham—A. P., Cardiff—C. W., Trinidad—E. J. T.—Bonemeal—G. R. P.—John Dewhurst (thanks for 2s. 6d. received for R.G.O.F. box.—EDS.).



Photograph by H. N. King.

HEWELL GRANGE, WORCESTERSHIRE, THE RESIDENCE OF THE EARL OF PLYMOUTH, P.C.

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THE HISTORY OF CULTIVATED FRUITS

AS TOLD IN THE LIVES OF GREAT POMOLOGISTS.

III.—Olivier de Serres.

THE inclusion of Olivier de Serres in this series of articles may perhaps be considered to place an unduly wide interpretation upon its scope and object. When, however, we see our leading daily paper referring to him as "an obscure provincial magistrate," it seems proper that de Serres' work as a pomologist should be brought to the notice of horticulturists. His famous book, the *Théâtre d'Agrieulture*, is notable in the history of fruit culture, as it was one of the first to place practical observation above the pontifical authority of the classic authors. As in botany, so in garden practice, the writings of Greek and Roman authors were considered for many generations as the source of all knowledge. The common gardener, happily ignorant of Latin, did no doubt proceed upon the oldest of all methods, that of trial and error, but even he was ruled by the traditional prejudices handed down from older times. The seasons of grafting, sowing and pruning were regulated by the phases of the moon, and even de Serres, sceptical as he was of this subtle influence in many cases, did not wholly break away from the accepted tradition. But in his book we find the dawn of the new spirit of experiment and inquiry, which, added to a passionate love of country life, makes him stand out as a prominent figure in the transition stage of horticulture.

The times were ripe for the restoration of agriculture and horticulture to their old position. The devastating religious wars which had for years turned France into a battlefield had almost destroyed the art of husbandry. The Edict of Nantes had brought peace, and Henry IV. and Sully wisely devoted their efforts to the re-establishment of the staple industries of the country. It was at this time (1600) that the *Théâtre d'Agriculture* appeared, and its influence was remarkable. By 1675 nineteen editions, pirated and authentic, had appeared, and de Serres was hailed as the restorer of French agriculture.

Before treating of his contributions to the art of fruit culture, a short account of his life may be given, most of the details of which are gathered from Vaschalde's authoritative memoir (*Olivier de Serres*, Henry Vaschalde, Paris, 1886).

OLIVIER DE SERRES.
1539-1619.

The father of de Serres owned estates in and around Villeneuve, and it was at Pradel, near this town, that Olivier was born in 1539. He was educated probably at Valence, and at the age of 19 was widely read in the Greek and Latin authors, a fact which doubtless had a great influence on his style. When 20 years old he married Marguerite d'Arcons, and seven children were born to them. An ardent supporter of the Reformed Church, he was chosen to visit Calvin at Geneva to engage a minister for the community of Villeneuve. An account of the expenses of this journey still exists at Pradel, in his handwriting, and gives a vivid picture of the difficulties of travel in those days. Though a thorough and convinced Protestant, he was broad enough to gain the esteem of the Catholics in his neighbourhood, as is shown by the fact that when the sackings of churches were rife he took charge of the articles of value belonging to the Roman Catholic church at Villeneuve.

Passages in his work indicate that he travelled in Germany, Spain, and probably Italy, and his knowledge of the local names used for fruits in the different parts of France shows that he did not neglect his own country. But his happiest days were spent at his home in Pradel. Here, in the tranquillity of a country house, he studied his favourite authors, Pliny, Columella, and Varro, and laid the foundation of the practical knowledge which was gathered together, after 40 years' experience, in the *Théâtre d'Agriculture*.

Pradel became what would now be termed a model farm, and to some extent an experimental station. New plants were tried, and many curious experiments were undertaken. The introduction of Maize into Provence was due to his example, and he clearly saw the great value of the Potato, then recently introduced from America. The planting of Mulberries for the use of silkworms owed much to his advocacy and, backed by the powerful aid of Sully, he thus laid the foundation of the silk industry of France. Among his experiments in vine culture was the sulphuring of the leaves, which was believed to keep away insects. His claims to remembrance as a pomologist rest mainly on the fact that he evidently tried many of the experiments mentioned by the classical authors, and did not hesitate to say if he found them to be fallacious. Up to the time of the publication of his work the available literature of fruit culture was small, and only one work of original matter can be found, that of David Brossard, published in 1552.

The careful and explicit directions of de Serres mark a great advance, and his instructions for planting, grafting and pruning are the result of close personal observation. His chapter on fruit gardens in general gives a good idea of the charming style in which the whole book is written—a style which has been considered equal to that of Montaigne.

The chapters on the culture of trees in the nursery and the numerous methods of grafting and budding contain the most minute directions, and could hardly be bettered after 300 years' more experience. Particularly interesting are the instructions for pruning espaliers. The espalier was then grown, as now, as a hedge or division in the garden, but trees were not at this time grown on walls, though the garden at Pradel was probably thus enclosed. The use of this form is recommended on account of the increased size of the fruit and the thorough ripening which it undergoes. The first tree to be treated thus was the Apple St. Jean, a very dwarf-growing sort which is recorded so far back as 1485. When it was found that other fruits would submit to this treatment, it was for many years kept a secret, and the grafts were said to come from the Indies, that home of the miraculous. Dwarf-growing fruits were also grown in pots and served to decorate the dinner-table, and doubtless to astonish the diners.

Of the bizarre grafting that occupied so prominent a place in the works of older

authors de Serres gives an account, but merely to satisfy the inquisitive, and he states that such things are curiosities only, and goes so far as to doubt their possibility in many cases. The grafting of Peaches on various Plums, such as is done to-day, he approved, but did not advise that Apricots be grafted on Almonds, as the former dislike water and manure, whereas the latter thrive on liberal supplies. The varieties of fruits are unfortunately only named and not described, and are a selection only; for we know from the remarkable catalogue of Le Lectier of Orléans, published in 1628, that the number of Pears, for instance, was very large. It is impossible to quote their names here, but it is interesting to see that many of the Apples, Pears and Plums still exist to-day. Court-Pendû Plat, the Wollaton Pippin of the Midlands, and the Api or Lady Apple, which is frequently sold on the London markets, are noticeable among the Apples, and among the Pears are the Bon Chrétien d'Hiver, Caillot Rosat, and many others which are still grown in France.

De Serres lived to see the great success of his work, and at his death in 1619 it had already reached the eighth edition. It is remarkable that no English translation was made of a book of such far-reaching influence. The chapter on the silkworms was, however, translated by Nicholas Geffe and published in London in 1607.

Many interesting relics of de Serres are still preserved at Pradel, and among them is a small portrait painted by his son, which is reproduced by Vaschalde in his work quoted above.

That Olivier de Serres is still remembered is due to the Pear named after him by M. Boisbunel, of Rouen, but he deserves to be better known as one of the great pomological authors. His greatness does not rest upon the introduction of new methods or upon voluminous writings, but to his placing of experience before authority, and in him we find the turning-point between the old and the new.

E. A. Bunyard.

CAMPANULA ISOPHYLLA ALBA IN THE OPEN.

This very attractive and interesting species of Bellflower was introduced into this country from Northern Italy in 1868. The type is blue in colour, but it is more seldom met with than the white variety, which has the additional merit of being more ornamental. Though the name of Campanula isophylla is very generally included in nurserymen's catalogues, a form of C. fragilis, differing somewhat in foliage from C. isophylla and bearing pale, lilac-blue flowers, is often sold for it. In the accompanying illustration the white variety of C. isophylla is shown growing in an open garden in South Devon, where it falls over a rocky ledge about 2 feet in height and makes a very pretty picture It is sometimes stated that this Campanula must be grown in the shade, but the plant illustrated is in the full sunshine for the greater part of the day, and has been left entirely untouched for some years. After the blossoms have withered the shoots gradually die back until not a particle of green remains on the plant, which appears quite dead. Later on in the season tiny rosettes of green appear at the bases of the shoots and attain a length of an inch or more before the winter sets in, remaining in this condition until the warmer weather of the early spring leads to renewed growth. When in full flower the plant furnishes a remarkably beautiful sight, and it is curious that it should be so little grown in the rock garden in the warmer localities of this country. Volume after volume of the horticultural Press may be consulted without a single reference being found to this Campanula except as a pot plant. For this manner of cultivation it is certainly the finest of all the Bellflowers, and may be seen in quantity, smothered in bloom, in cottage windows all over the country. It is best divided in the month of March, when a plant in a 7-inch pot will provide four or five divisions. A rich, porous, gritty compost is most suitable for this Campanula, which should be kept well supplied with water. Plants grown in 10-inch pots, over which a funnel of wire netting about 3 feet in height is fixed, form pyramids 4 feet in height clothed to the base of the pot with flower and foliage, and remain in beauty for a very long time. *Wyndham Fitzherbert.*

Photograph by Wyndham Fitzherbert.

Fig. 58.—CAMPANULA ISOPHYLLA ALBA IN A DEVON GARDEN.

SOUTH AFRICA.

THE NATIONAL BOTANIC GARDEN.

The establishment of a South African National Botanic Garden, to which attention was drawn in a leading article last week, is an event which the horticultural world will note with interest. The South African flora has made many important contributions to the gardens of the world; those who know the country cannot but realise that it contains a great wealth of forms yet to be brought within the range of horticultural operations. Further than this, the varied vegetation of South Africa is of almost unrivalled scientific interest, and its

economic possibilities have hitherto been hardly considered. The range of the field which is thus opened for the proper activities of a botanic garden is wide, and everyone will realise that this long-desired establishment for botanical research has a very promising outlook before it.

Sir William Thiselton-Dyer, Mr. J. S. Gamble, and other authorities who at one time and another have written on this subject, agreed in recommending the lower eastern slopes of the Table Mountain Range as the most suitable site for a botanic garden. By a fortunate combination of circumstances an estate, occupying such a position, was available. This estate, known since 1811 as Kersten Bosch or Kirstenbosch, added to the Groote Schur Estates by Mr. Rhodes and bequeathed by him to the Nation, has been granted by the Government for the purpose. Its situation is indicated on the accompanying map (Fig. 59).

The area of Kirstenbosch is not yet precisely known; it is probably not far short of 400 acres. The eastern half, or rather more than half, lying about 60-200 feet above the sea, consists of somewhat undulating land sloping gently to the east. A considerable portion of this has been under cultivation until recently; the rest is thickly planted with Oaks and Poplars, the former, with few exceptions, in an advanced state of decay. The Poplars have taken complete possession of large areas, and offer a remarkable illustration of the success of reproduction by root-buds. A shoulder of the mountain running out, just within the southern boundary, towards the east, carries a very fine forest of Silver Trees (Leucadendron argenteum). This forest formerly extended beyond its present boundary towards the north, but it has been considerably encroached upon by a misplaced plantation of Cluster Pine (Pinus Pinaster).

The western half of the estate climbs the mountain slopes to a height of perhaps 1,000 or 1,500 feet above sea level, and includes the lower ends of three well-wooded mountain gorges. Here we have a rich growth of Cape trees and shrubs in its primitive condition—except where, here and there, it has been devastated by fire. It includes magnificent specimens of Virgilia capensis, Cunonia capensis, Brabejum stellatifolium, Ilex capensis, Kiggelaria africana, Curtisia faginea, Plectronia ventosa, Heteromorpha arborescens, Halleria lucida, etc. Podocarpus Thunbergii occurs in the kloofs above, though possibly it is no longer found within the limits of Kirstenbosch itself. The drier portions of the Kirstenbosch slopes are thickly covered with the characteristic low bush of the peninsular slopes among which Proteas, Heaths, members of the Natural Orders Thymelæaceæ, Santalaceæ, Restiaceæ, Selagineæ and smaller plants commonly associated with them, are conspicuous. Thus on these slopes there is already a well-stocked botanic garden, in which are many long-established and well-grown specimens of plants not commonly seen save by those who are acquainted with the recesses of the mountain ranges of the Cape Province.

One of the outstanding difficulties of South African gardening is the water supply. The drainage from the three gorges of the mountain flows through the estate in two powerful streams which run for 10 months in the year. There are also two perennial springs issuing, the one about 100 feet, the second 300 feet, above the lower (eastern) boundary. By the construction of not more than two comparatively inexpensive dams, the whole area can be placed under irrigation if necessary. The numerous stream beds lend themselves to most effective treatment in any scheme of landscape gardening.

The soil is extremely varied in composition—a fact of far-reaching importance in a botanic garden which must provide accommodation for a representative collection of South African plants. The subsoil, except at higher elevations, is granitic. Solid granite outcrops in many places. The upper levels are strewn with blocks of Table Mountain sandstone. Outcrops of Malmesbury slate are believed to occur locally. Enormous deposits of humus have accumulated on those parts which for many years past have been enriched by the leaves of exotic deciduous trees. Thick beds of gravel overlying or embedded in great depths of stiff clay constitute the feature of an extensive slope with a northern aspect. Owing to the numerous water-divides and minor undulations there is a great choice of aspect, only that towards the west being obstructed by the proximity of the mountains.

It is well known that the Cape Peninsula, like the rest of the South-Western coast belt between Port Elizabeth and the mouth of the Oliphant's River, has a winter rainfall. It has therefore been supposed by many that the cultivation in such a situation of native species from the summer rainfall districts of the north and east will prove impossible. Undoubtedly it is the case that many species which naturally flourish in regions in which the rainfall is confined to the vegetative and flowering seasons cannot easily be established in places in which the rain all falls in the winter. The Cape Peninsula, however, is not such a locality. Although the bulk of the rain falls between April and September, the summer season is very rarely marked by a prolonged drought. If therefore species accustomed to dry winters can be preserved through a wet season in inactivity, there is no reason why they should not flourish at Kirstenbosch. And, indeed, this is no longer a moot point; the Cape Peninsula already possesses both private and public collections in which are to be found hundreds of species of dry-climate plants from regions of rainless winters; and of common occurrence in the gardens of the Peninsula are very fine specimens of Sparmannia africana, Dombeya Dregeana, Tecoma capensis, Acokanthera venenata, Odina caffra, Aberia caffra, Adhatoda Duvernoia, Mackaya bella, Erythrina caffra, Gardenia Thunbergia, Encephalartos sp. and others—all more or less distinctly characteristic of subtropical districts with wet summers. Everyone will realise that in a country of climate so varied as that of South Africa, it is impossible to get together in any one place a completely representative and properly-balanced collection of native plants. On the contrary, no one will deny that Kirstenbosch lends itself to the establishment of a very varied display of South African plants, calculated to give to those who care to study it a reasonably accurate idea of the types of vegetation which prevail between the Cape and the Zambesi.

The success of the National Botanic Gardens depends in a great measure upon the sympathy and interest of the public in general, and, in particular, of those to whom the administration of its affairs is entrusted. The public interest has been manifested in many ways, particularly in the formation of a Botanical Society, with the primary object of affording financial and general support to the gardens. The control is vested in a Board of Trustees, to which the

Fig. 59.—NATIONAL BOTANIC GARDEN OF SOUTH AFRICA.

× The site at Kirstenboech.

Government has nominated the following:—Lord de Villiers, Sir David Graaff, Bart., M.L.A., and Sir Lionel Phillips, Bart., M.L.A.

The Botanical Society will nominate one trustee, and it is hoped that the Corporation of the Unified Cape Town and suburbs will appoint another. The three trustees whose names are already announced have supported the scheme almost from its inception, and Sir Lionel Phillips took a prominent part in carrying it through its final stages during the last session of Parliament.

The trustees have made the following appointments:—Honorary director, H. H. W. Pearson, Sc.D., F.L.S.; secretary, Miss H. J. Davison, B.A.; curator, J. W. Mathews.

Work was commenced on July 1, and it is hoped that considerable progress in the formation of the nursery will be made in the ensuing spring season. A botanical survey of those parts of the estate in which the native vegetation has not been displaced by exotics is being conducted by the staff of the Bolus Herbarium. As soon as possible it is proposed to begin a series of observations and experiments on members of the Rutaceæ and other South African families which include drug-yielding species. *H. H. W. Pearson, South African College, Cape Town.*

REMARKS ON CONDITION OF THE FRUIT CROPS.

(*Continued from page* 134.)

(*See Tables and Summaries, ante, pp.* 80-85.)

4. MIDLAND COUNTIES.

HERTFORDSHIRE.—The fruit crops, with the exception of small fruits, are most disappointing. Pear trees had an abundance of bloom, though the flowers did not appear strong and vigorous, partly owing to the abundant crops of last season and partly to bad weather whilst the trees were in bloom. The blossom appeared to set freely, but the fruits never commenced to swell; the same remarks apply to Plums and Cherries, except as to last year's crops. Apricots, Peaches, and Nectarines are practically a failure, though the few fruits we have are of good quality. Apple trees set an immense crop, but many of the fruits dropped, and we have only a good average crop. All small fruits, including Loganberries, were good and the plants cleaner than in some seasons. The soil here is exceptionally heavy, and rests on London clay. *E. F. Hazelton, North Mymms Gardens, Hatfield.*

LEICESTERSHIRE.—The Apple crop in this district is fully up to the average, and large numbers of the fruits are dropping, which will be beneficial to the trees and the remaining fruits. Pears are a total failure and disappointing after the quantity of blossom on the trees. I attribute the failure of the Pear crop to continuous cold north-east winds in April, and to the 10° of frost on the 13th of that month. Plums on walls are below the average, but orchard trees are bearing much over the usual quantity, and the branches require supporting. Peaches are very scarce; the trees flowered when the weather was very cold, and no bees were about to pollinate the blossoms. The trees have had one of the worst attacks of "blister" which I have ever seen, but they are now making a vigorous and clean growth. Raspberries, Gooseberries, and Red Currants were all plentiful, but Black Currants were a failure, and Strawberries disappointing owing to drought. *Daniel Roberts, Prestwold Gardens, Loughborough.*

—— With the exception of Pears, Apricots, and Gooseberries, fruit trees flowered abundantly; there was no frost during the flowering period, and the partial failure of the crops must be attributed to the very wet autumn of last year, whilst the unusually mild winter may also have contributed to the failure. Stone fruits have suffered more than others. Numbers dropped after setting, while the others are still very small; Peaches, Nectarines, Plums, Damsons, Bigarreau Cherries, and Morello Cherries are all much the same in this respect; one tree of Morello Cherry—a large one—moved early last autumn is carrying a good crop, while other trees near by have failed. Apples and Plums in grass orchards are not cropped so well as those in cultivated ground. The Strawberry crop was one of the best on record. The soil is heavy clay. The garden is situated 260 feet above sea level, on the east side of a hill, which rises 200 feet higher. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

NORTHAMPTONSHIRE.—Owing to the wet, cold season the fruit crops generally are very inferior on our cold clay soil. Apples are fair, but Pears are very poor and scarce. Apricots, Peaches and Nectarines out-of-doors are failures. Cherries were fairly satisfactory, Gooseberries and Currants were very good and Strawberries and Raspberries plentiful owing to the heavy rains in spring. *Thomas Masters, Lower Shuckburgh, Daventry.*

NOTTINGHAMSHIRE.—The hardy fruit crops vary considerably in these gardens. All fruit trees blossomed very freely, but owing to the wet and cold autumn of 1912 the wood did not ripen, and this resulted in many of the fruits dropping when they were small. Nectarines, Peaches, and Apricots are a failure out-of-doors. Apples are an average crop of good quality, but

FIG. 60.—STOVE AND GREENHOUSE PLANTS EXHIBITED BY THE SOCIÉTÉ HORTICOLE GANTOISE AT THE GHENT EXHIBITION.

(See page 127 *ante.*

CYCLAMEN.*

THIS booklet treats of the cultivation of this, to some, somewhat difficult flower. It extends to the length of an ordinary cultural article, and though brief the directions are in general sound. The author dislikes dried-off corms to be grown a second year, but the experience of others shows that no bad results follow where this practice is pursued.

* *The Cyclamen, and How to Grow Them.* By F. C. Edwards. Leeds. 1s.

Pears are a light crop. Sweet and Morello Cherries were splendid. Strawberries, Black and Red Currants, Gooseberries and Raspberries were all heavy crops, and the fruits were exceptionally clean. Dry weather set in on May 6 and up to the time of writing we have had only a few light showers. Our soil is of a light nature and rests on a subsoil of sand. *James B. Allan, Osberton Gardens, Worksop.*

——The fruit crop generally may be described as a failure — Apples, Strawberries, and small fruits excepted. Apples are patchy; there are good crops here and there, but the early varieties are poor. Pears are, generally, a failure; also Plums, with the exceptions of Victoria and Heron varieties. Damson trees, after, perhaps, the finest show of bloom ever seen, have very little fruit. Cherries, Peaches, Nectarines, and Apricots are not much grown here, and the few trees are a failure. Small fruits were average crops. Strawberries promised splendidly, but practically no rain falling up to the time of writing since May 9, they were quickly over and the late varieties dried up. Nuts are a total failure. The weather during the blooming season was cold and wet; few bees or other insects visited the trees, whilst much of the fruit which did set fell by reason of the drought. The following is the rainfall: From May 9-31, .11 inch; June, .38 inch; and July, .14 inch. *J. R. Pearson and Sons, Lowdham.*

—— The fruit crops are disappointing. Apples only are up to the average. Pears, Plums, Apricots and Cherries gave promise of abundant crops, but with the exception of Morello Cherries all these fruits failed to set. Damsons are very thin; we had a very heavy crop of these fruits last year. Bush fruits have been very good. Strawberries were exceptionally fine and of good flavour, but the season was a short one, owing to drought. The same remarks apply to Raspberries, which failed to swell. There are scarcely any nuts. *A. C. Lehane, Park Hall Gardens, Mansfield.*

Oxfordshire.—Although the trees blossomed abundantly the fruit crops are disappointing, especially in the case of Pears, Cherries and Apricots. Certain Apples are carrying good crops, whilst some have not a single fruit. Our soil is a light loam on gravel and chalk, and in dry seasons most crops are unsatisfactory, especially Potatos and Broad Beans. *J. A. Hall, Shiplake Court Gardens, Henley-on-Thames.*

—— There was plenty of bloom on Plum, Apricot and Cherry trees, but owing to cold nights and hailstorms there was little prospect of even a small crop of fruit setting. Pear and Apple trees had a poor show of blossom. It has been a bad year for vegetation generally, the weather having been hot and dry, whilst the nights have been cold. Our soil is of poor quality, being very stony, and crops only do well if plenty of manure is used and the weather is summer showery. *A. J. Long, Wyfold Court Gardens, near Reading.*

—— Cherries, Apricots, Peaches and Pears set very badly owing to cold nights and dull days when the trees were in bloom. No blossom could withstand the strong, cold winds which prevailed here at that time. The soil is a light loam. *C. E. Munday, Nuneham Park Gardens.*

—— The fruit crops generally, with the exception of bush fruits, are disappointing. A few Apple trees are bearing a satisfactory crop. There was a wonderful show of blossom on fruit trees, and I attribute the failure to cold nights and very hot days at that stage. Trusses of dry bloom may be seen hanging on the trees even now. Much of the fruit that escaped injury from cold was affected by blight and dropped. *T. W. Whiting, Shotover Park Gardens, Wheatley.*

Shropshire.—Frost on April 8 (5°), 13 (6°), and 17 (4°), when Pears, Plums, and other stone fruits were in full bloom, is the cause of the thin crops of these fruits. Apples bloomed a little later, and so escaped injury. *A. Haggart, Moor Park Gardens, Ludlow.*

—— The fruit trees generally are badly affected with blight. Many Apple trees, including those of the varieties Duke of Devonshire, Betty Geeson, Warner's King, Allington Pippin, D. T. Fish, Royal Jubilee, Lady Sudeley, Blenheim Pippin, Cox's Orange Pippin, Chas. Ross, Rival and Peasgood's Nonesuch set very large crops, and many of the fruits had to be removed. Pear trees are very healthy, and the fruits are swelling well. Peach trees are also in the best of health; leaf curl has not been detected, but Plums and Black Currants are much damaged by blight. *J. Taylor, Hardwicke Grange Gardens, Shrewsbury.*

—— Apples are very variable this year, the older trees being better cropped than the younger ones. The varieties Warner's King, Golden Spire, Bramley's Seedling and Lane's Prince Albert are the most satisfactory. Trees of Lane's Prince Albert have been attacked badly by aphis. Plum trees also were much damaged by aphis, and Plums are very scarce, although odd trees here and there have a fair crop. Strawberries have been very good, whilst Raspberries were satisfactory. *G. T. Malthouse, Harper Adams Agricultural College, Newport.*

Staffordshire.—The fruit crops are about an average. There is a good crop of Apples, and Pears and Plums are very fair. The Strawberry crop was very good; the berries were large and of excellent quality. Small fruits, such as Gooseberries, Currants and Raspberries, were also satisfactory. The soil is of a light nature, and the subsoil gravelly. *Edwin Gilman, Ingestre Gardens, Stafford.*

Warwickshire. — Stone fruits generally are very disappointing. Prospects in the early spring were extra good, for the trees blossomed freely, but owing to blight most of the fruits turned yellow and dropped when about the size of peas. Apples are an average crop. Strawberries have been plentiful, and of good quality. Nuts are a failure. Small fruits are average crops. *Chas. Harding, Ragley Hall Gardens, Alcester.*

—— After a bad infestation of aphis, the fruit trees are making good secondary growth, and, given favourable weather, the fruits retained should now swell more satisfactorily than at one time seemed probable. Bush fruits, Strawberries, and Apples are the best crops. The soil is a clay-loam on rich earth; deep loams with a slight admixture of gravel are giving the best results. *H. Dunkin, Mount Pleasant, Warwick.*

—— Peach blister has given much trouble this season. The crop of this fruit is a poor one, the worst for many years. The wood did not ripen, as the leaves remained on the trees until well into the winter. The Apricot crop is a poor one. Pears are very scarce. *Jno. Masterson, Weston House Gardens, Shipston-on-Stour.*

—— The Apple crop, which at one time promised to be a heavy one, was injured by dry weather in June. American blight is very prevalent, especially on trees of the earlier varieties. Pears are a failure, being the worst crop for some years past. Most varieties of Plums set very heavy crops, but, owing to the drought, numbers of the fruits dropped. The crops, on the whole, are equal to those of an average season. Raspberries were the best crop I have known, and other small fruits were well over the average. Strawberries were good, but soon over. *H. F. Small, Warwick Castle Gardens, Warwick.*

5.—SOUTHERN COUNTIES.

Berkshire.—Apples are very satisfactory. The trees are clean and healthy, the variety Cox's Orange Pippin being especially fine. Pears are a very poor crop. Plums also are very scarce. Cherry trees are clean, and gave good crops of choice fruit. Peaches and Nectarines are fair crops, and the trees look well. Apricots are very thin. All small fruits were very heavy crops. The soil is a heavy loam, on a clay subsoil. *A. Mackellar, Royal Gardens, Windsor.*

—— The fruit crops are again disappointing, with the exception of small fruits, which are generally good. Strawberries especially were a heavy crop, and the berries were of good quality. Apples are much below the average, although some varieties have a fair number of fruits. Pears and Plums, which promised well at the flowering season, are almost failures. Gage Plums did not develop a single fruit. Peaches, Nectarines, and Apricots are thin, but the finest fruit promises to be good in quality. These trees were much harmed by cold winds in the spring, but they have since made satisfactory growth. Walnuts are a complete failure, and Cobnuts are only a small crop. Gooseberries were very satisfactory, and the berries were of good size. The soil is a light loam resting on gravel. *J. Howard, Benham Park Gardens, Newbury.*

—— Apples, Strawberries, and all bush fruits have cropped well. The best varieties of Strawberries were Royal Sovereign, Reward, Utility, Epicure, Givon's Late Prolific, Waterloo and Latest of All. Givon's Late Prolific still gives the best returns as a late variety. Apples are a good crop of clean fruits. All vegetables have been good, especially Peas. The soil is light in texture, with a clayey subsoil. *A. B. Wadds, Englefield Gardens, Reading.*

Dorsetshire.—The scarcity of Pears, Plums, and Cherries is mainly due to the heavy crops which the trees carried in 1912. The unripened condition of the wood is accountable for the failure of the Apricot, Peach, and Nectarine crops. Apple trees which failed to bear last year are in most cases carrying very satisfactory crops; otherwise the Apple crop generally is much below the average. Bush fruits are average crops and of excellent quality; whilst the Strawberry crop was the most satisfactory for many years past. Nuts of all kinds are almost nil. *Thos. Turton, Sherborne Castle Gardens.*

—— After a wealth of blossom the fruit crops are disappointing. I attribute much of the failure to continued rains whilst the trees were in flower. Apples, with the exception of a few sorts, are a failure: also Pears and Plums. Gooseberries and Strawberries were good crops, and all kinds of Currants fair. Figs are very plentiful, but Nuts are scarce. *Thos. Denny, Down House Gardens, Blandford.*

—— The Apple and Pear crops are the worst known in this district. The blossoms were weak and many malformed. Moreover, during the blossoming period the weather was very bad. Cold winds prevailed, and the temperature at night dropped to within 4° or 6° of freezing point. There was also a notable scarcity of bees to effect pollination. Of bush fruit we had an abundance, Gooseberries and Black Currants in particular. Figs are showing well. The garden faces south-east, and slopes considerably in that direction. The soil is shallow, fairly stiff, with a subsoil of chalk. *J. Jaques, Bryanston Gardens, Blandford.*

—— The fruit crops, with the exception of Apples, are under the average. Blossom was very plentiful, but either set badly or dropped after setting. There was not sufficient frost at the flowering stage to account for the failure, but a lack of pollinating insects, or perhaps an excess of wet, may be responsible. Apples, in many cases, required thinning. Peach and Nectarine trees even under glass bore lighter crops than usual. Currants, Gooseberries, Raspberries, Strawberries and other small fruits were excellent crops of good quality. The soil is light and friable. The gardens are near to a river and low lying. *A. Shakelton, Ford Abbey Gardens, Chard.*

—— The fruit crops are amongst the most disappointing on record. The very general shortage of fruits is probably due to unripened wood owing to the wet and sunless season of 1912, coupled with a very unfavourable spring. Most top fruits carried a smaller amount of blossom than usual. Pear trees in many cases flowered well, but much too early, and the Pear and Plum crops are almost complete failures. Plum trees were badly infested with aphis, and there is reason to fear that in some cases the results will be seen in a light crop next season, as the leaves and shoots are seriously damaged. Strawberries promised to be an excellent crop, but owing to prolonged drought at a critical stage the berries were much smaller than usual, and the season has been a short one and not up to average, though the plants were watered. *E. C. Parslow, County Offices, Dorchester.*

Hampshire.—The fruit crops are, generally, disappointing. Small fruits were good crops, and of good quality. Strawberries were excellent, the fruits being large and of good quality, but Pears, Plums, and Apricots are practically failures, which I attribute to wet, cold, sunless weather in April when the trees were in bloom. A few sorts of Pears, including Doyenné du Comice, Conference, and Beurré Diel, trained on walls in sheltered positions, have fair crops, but the same varieties in exposed parts of the garden are fruitless. Of Plums we have a fair crop of Victorias on wall trees. All Plums appeared to set well, but the fruits turned yellow and dropped. Apples are a good crop, and the quality good. *A. Legge, Dogsmerfield Park Gardens, Winchfield.*

(To be continued.)

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Miltonia vexillaria.— These Orchids have started to grow, and some of the plants need re-potting, but before this is done examine each growth for the presence of small yellow thrips that secrete themselves low down in the axils of the leaves. Similar measures may be adopted to destroy the pests as were recommended for the thrips on Disa grandiflora, but Miltonias are not nearly so liable to injury from vaporising compounds as Disas. M. vexillaria is a shallow-rooting plant, and requires a large surface-space to root in. The compost may consist of Osmunda-fibre, which should be cut into small portions; some growers employ compost consisting of Osmunda-fibre and Sphagnum-moss in equal parts, with small crocks and broken charcoal added; but the best plants that I have seen of late years were growing in Osmunda-fibre only. Arrange the base of each plant just a trifle above the rim of the pot, packing the material firmly. Afford water sparingly for a time, using a fine-rosed watering-can or sprayer. The plants will soon become re-established. They will do best in the cool house for the present, but when the nights become cold, and the inside temperature is likely to fall below 55°, they should be removed to a cool, airy position in the Cattleya or intermediate house. Any old plants that need dividing may be attended to, placing the portions in very small pots.

Dendrobium.—Many of the warm-growing species of Dendrobium, and especially those of the deciduous and semi-deciduous sections, are completing their growth, which is shown by the development of the terminal leaf at the apex of the new pseudo-bulbs. When this is observed afford the roots less water, but do not allow the soil to become excessively dry or the plants will receive a check, the new pseudo-bulbs will not attain to their full size, and the plants will be liable to start into growth prematurely. It is advisable to examine the plants frequently with a view to placing those that have completed their growth in a cooler house, where they may receive more light and air and less atmospheric moisture. After a few weeks the plants should be placed in an ordinary greenhouse or vinery from which the Grapes have just been gathered. The new pseudo-bulbs will soon become hardened, and many of the leaves will turn yellow and drop. Afford water with the utmost care whilst the plants are at rest, especially when they are exposed fully to the sun's rays. It is advisable to examine them at least once a day, and when a new pseudo-bulb shows the least signs of shrivelling the plant should be well watered. Where a large number of these Orchids are grown it seldom happens that all of them are ready for removal to a cooler house at the same time, and those that remain and are still growing freely must continue to have plenty of heat and moisture. But they may be hardened gradually by increasing the amount of ventilation and exposure to sunshine in the early morning, also by removing the shading before the usual time in the afternoons. This gradual maturation will enable the plants to be removed to cooler quarters later on. Certain species of the evergreen section, including D. thyrsiflorum, D. densiflorum, D. Schröderæ, D. Farmeri, and D. Griffithianum will soon be finishing their growths, but the plants do not need the decided rest that is generally afforded to those of the deciduous or semi-deciduous sections. When growth is completed arrange the plants in a cool part of the Cattleya or intermediate house, and, as they continue to make roots for some considerable time after the new growths are finished, afford sufficient moisture to keep the foliage healthy and the pseudo-bulbs from shrivelling. If, during the resting season, secondary shoots commence to grow, afford the plants more heat and an increased amount of moisture.

Catasetum and Cycnoches. – Catasetums and Cycnoches growing in the warmest house, being deciduous, require a season of rest, and immediately each plant has completed its growth it should be removed to a moderately warm, dry greenhouse. Let the plants receive plenty of sunlight, and as much fresh air as possible. Unless the pseudo-bulbs become thoroughly ripened it will be almost impossible to keep them plump and fresh during their long season of rest. An abundance of air and sunshine will cause the compost to dry quickly, therefore water must be afforded liberally until the leaves commence to turn yellow, when the amount should be gradually reduced, and later withheld entirely. Strong, healthy plants that absorb a large quantity of water during the ripening period seldom shrivel during the resting season.

Pleione.—Such Pleiones as P. maculata, P. lagenaria, P. præcox and its variety Wallichiana, need plenty of light, air, and water until the foliage begins to change colour, when the compost should be kept merely moist. Within a few weeks after the leaves have fallen the flowers will begin to appear from the base of the newly-made pseudo-bulbs, and if kept in a rather dry and cool position the pretty flowers will last for some considerable time.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Climbing Plants.—The growths should be thinned regularly in order to avoid the unsightly gaps which are the result of sudden and severe pruning. Many climbing plants are subject to disfiguring attacks of red spider. The plants should be kept clean by syringing with clear water, but should the pest have become at all troublesome an insecticide will be necessary. Climbers growing against a wall should be watered regularly and mulched with short dung. Several of the ornamental vines are useful plants for covering a trellis, and except for a little judicious thinning of the shoots early in the season they require very little attention when once established. Vitis Coignetiæ can be used equally well for training over a trellis or for growing up a wall. In the autumn the leaves assume brilliant and attractive tints, as do those of V. Thunbergii and V. vinifera purpurea.

Spartium junceum. — This ornamental flowering shrub is usually known as the Spanish Broom, but unlike most Brooms it has a long flowering season, beginning early in the summer and lasting until late in the autumn. It is a useful subject for a shrubbery, and will thrive in almost any kind of soil. It is most effective planted in masses in open spaces in the woodland. A stock of plants may be easily raised from cuttings, which should be inserted at the present time, or from seed, which matures in large quantities. For planting out pot specimens are the best as the Spanish Broom resents being disturbed at the root. The plants should be put out when quite young or the growth will become straggling.

The Flower Border.—Dead flowers and foliage should be removed daily, and every effort made to keep the border bright and gay for as long as possible. Late-sown annuals, including Lavatera rosea, Godetias, Malope, Coreopsis, Cosmos, Larkspurs, Salvias and Alonsoas are making a brilliant show, and the plants should continue in flower until the end of the season. Annuals intended for flowering early next summer should be sown now in boxes and placed in a cold frame. Give the flower border a thorough soaking with water at least once a week in dry weather.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Peaches and Nectarines.—The fruits of the earliest varieties of Peaches and Nectarines will now be ripening, and must be well protected from insects, which become increasingly troublesome as the fruit softens. The earwig is perhaps the most persistent; the best method of combating this pest is to trap the insects in hollow canes. Short lengths of the cane should be placed among the trees, and should be blown through or tapped each morning over a bucket of water. The insects will be found to have congregated in great numbers in these temporary shelters, and after a few days nearly all will have been destroyed. Wood lice and ants are frequently found in old, partially-decayed walls, especially in crevices where the mortar has become displaced. The wall should first be well syringed, after which the insects will probably be found sheltering in the soil at the base. This soil should be entirely removed, the wall scrubbed thoroughly, and fresh loam supplied in place of that which was taken away. When the wall has once been cleaned, a good preventive of damage by wood-lice to the trees is to peg the fruit-bearing branches away from the wall, and wrap each fruit in cotton wool. The whole of the fruit should be covered, and a small portion of the wood at the bottom. The wool should be placed with the rough side outwards, not next to the fruit; there will then be no danger of it adhering to the skin, and, moreover, the rough surface of the wool presents an obstacle to the lice. The fruits should not be allowed to remain on the trees until just before use, but should be gathered a day or two previously. They may be placed in the fruit room, but a better method is to place each one bottom upwards on a tray covered with soft packing material, and put the tray on a shelf near the roof-glass in a cool vinery or greenhouse. This will ensure the proper ripening of the under part of the fruit, which is usually not so soft as the face; and the flavour will also be improved. If the sun is hot the glass should be shaded partially. The stopping, tying and training of the leaders on wall-trees must be carefully attended to, as before advised, to encourage more vigorous growth on the part of undeveloped portions. As the work of training this year's shoots advances some of the ties may be removed from the older wood. It is well to support the trees as little as possible beyond what is really necessary. When tying young shoots the tie should be attached tightly to the support, but loosely around the wood; the soft bark, when once wounded by a tight ligature, seldom recovers from the disfigurement thus caused.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Freesia refracta alba.—If, when the corms are received from the bulb merchant, pressure of other work prevents these plants from being potted directly, take them out of the box and spread them thinly in sieves and stand them on a dry shelf. This precaution is necessary, for if the corms were allowed to remain in a heap fermentation would ensue and set up decay. The plants should be potted in either 4½ or 6-inch pots filled with a mixture of rich loam and leaf-mould with sand, decayed cow-manure and wood-ashes added in suitable proportions. Stand the pots in a cold frame and as soon as the corms commence to grow soak the soil thoroughly with water; as growth advances liquid manure and soot water may be afforded instead. The plants may be brought into an intermediate house in batches to furnish a succession of flowers.

Carnation Souvenir de la Malmaison.—Continue to pot layers of Malmaison Carnations, detaching them with great care from the parent plants. Dig up the roots with large balls of soil attached, and take care not to crowd them into small pots, a mistake that is often committed for the purpose of having all the plants in receptacles of the same size. Grow the layers in the best house or frame at disposal, so that they may have every opportunity to make a satisfactory growth. Should green fly be detected on the foliage when the potting is done take measures to destroy the pest.

Allamanda, Bougainvillea and Clerodendron.—As the foliage of these plants changes colour reduce the amount of water at the roots, and when the wood is ripened thoroughly remove the plants to a cold frame or store room, where they will be safe from frost.

The Conservatory.—Remove useless growths on plants of Cobæa scandens and train in young shoots to take their places. Afford the roots manure water, as this will cause the plants to make vigorous growth before the autumn. Roses trained on walls or the roof rafters should

be thinned of weak growth and receive less root waterings. Endeavour at this stage to get the wood of indoor Roses well ripened. Fuchsias on walls that have almost completed their blooming should be hardened gradually. Afford Camellias plenty of liquid manure, as this will cause the flower buds to become plump. Syringe the foliage of these plants occasionally with soluble paraffin to destroy insect pests.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cabbage.—Another sowing of Cabbage may be made in an open situation to secure hardy plants, which should be ready for transplanting at about the end of September. Seedlings of this later sowing may withstand the winter better than those planted a month earlier. Early Offenham and Flower of Spring are reliable varieties for present sowing. Cabbage plants may be put out now to supply heads for use during November. If summer-sown plants are available now they will prove a valuable crop at that time.

Cucumbers.—Seedling Cucumbers raised from seeds sown a month ago are ready for planting, which should be done without further delay, as it is necessary to have the trelliswork covered with short-jointed growth before the Cucumbers are required. The house in which they are grown should be cleansed thoroughly, and if a little sulphur is burned in it before the hot-bed is placed in position many insect pests will be destroyed. When the fermenting material has been prepared it should be trodden together tightly and the layer placed to within 18 inches of the roof-glass. Arrange the soil in small mounds and allow a day or two to elapse before planting, so that it may become warmed to the temperature of the house. Whilst cold soil is harmful care must be taken that the compost does not become too hot through excessive fermentation, as this also would injure the roots. The compost may consist of turfy loam two-thirds and leaf-mould one-third. Seeds of Cucumbers may be sown singly in pots to furnish plants for setting out about the middle of September.

Radishes.—Radishes may be sown as late as the middle of December, choosing a short-topped variety. Sow the seeds thinly in rich soil, and afford the roots water whenever moisture is necessary, otherwise the Radishes will be strong and tough.

Vegetable Marrows.—Marrows require liberal supplies of water at the roots during times of dry weather, and if manure water is available this should be applied once or twice each week. Keep the growth well thinned and cut the fruits as soon as they are large enough for use, whether they are required or not, or the plants may cease to bear before the season is over.

Leeks.—The earliest-planted Leeks should have more soil placed about the stems as the season advances and the roots watered on frequent occasions with liquid manure. The Leek is a gross feeding plant and requires liberal supplies of manure. During dry weather afford a thorough watering at least once each week. Further plantations may be made to furnish roots for use in the spring. The plants may be grown in drills made at 1 foot apart, allowing 6 inches between the plants in the row.

Lettuce.—Make a sowing of either Maximum or All the Year Round Lettuce to furnish a supply of this salad in December. The plants may either be lifted and placed in cold frames or protected by box-frames where they are growing. Small sowings of Lettuce should be made on frequent occasions during the present month to ensure a plentiful supply of plants in winter. If cold pits are available when the plants are ready for thinning, the seedlings may be set in the frames at 9 inches apart, arranging the soil so that the Lettuces are about 15 inches from the roof-glass. The lights should not be placed in position until there is a danger from frost. The varieties Brown Cos and Hardy White Cos are a longer time in maturing than some other sorts, but they are very valuable for furnishing winter salad. Plantations should be made now from seedlings of these varieties raised from former sowings. The variety Hammersmith Hardy Green may be included in the list of those sown now.

Endive.—Endive furnishes a valuable salad in winter and should be treated in a similar manner to Lettuces. Plants may be grown on a south border to furnish a supply in early winter, but protection must be afforded to later supplies, and brick pits are the best for the purpose. Place soil in the pit to within 18 inches of the lights and make it moderately firm; it will not be necessary to use the lights until several degrees of frost have occurred. Make a final sowing of Batavian Endive at once, and water the seedlings whenever the weather is dry, for with all salads, growth that develops quickly is the more tender. When the plants have attained to their full size tie the leaves together to blanch them; but this work should not be done when the foliage is damp or the leaves may decay, rendering the plants unfit for use.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Strawberries in Pots.—The dry weather has caused in many cases a shortage of early runners for potting, and late runners should at once be placed in fruiting pots. They should be kept in the shade until they begin to grow, and afterwards transferred to an open, airy situation. Those already in fruiting pots, which have made considerable root growth, should be placed on boards or a trellis a few inches from the ground. If the pots are placed on soil or gravel the roots are apt to grow through the pots. The plants should be kept a good distance apart, so that light and air may circulate freely. They should be kept moist, and frequently watered with weak manure-solution. All runners should be removed as soon as they appear, and the strongest crown only retained. An overhead syringing on warm days will be beneficial, but the pots must be kept clear of weeds, which will probably appear.

Melons.—The flowers on late plants must be carefully pollinated. The plants must be kept moist until the fruit is set and beginning to swell, after which they may be a little drier. Over-cropping must be avoided, and all superfluous shoots and leaves should be removed. On bright days the plants should be syringed overhead, and the damping of paths and surfaces will be of benefit while the atmosphere is to be kept moist. The beds in the Melon house containing plants with fruit well advanced should be given a top-dressing of loam mixed with artificial fertiliser, and a light mulch of decayed manure. When watering the bed it should be thoroughly soaked. Fruits which are now ripening should be fully exposed to the sunshine, and a free circulation of dry, warm air should be admitted. The roots, however, must not be allowed to become dry. Melons in frames have done well this year on account of the unusual amount of bright sunshine. When the fruits are approaching the ripening stage they should be raised on a pot above the foliage. A little air may be admitted continuously at the top of the frame, and no water should be applied to the roots, or the fruit will crack.

Winter Cucumbers.—Cucumbers should now be planted in the fruiting house, so that the plants may be well established and in a bearing condition before the winter. Before moving them, however, the glass and wood-work in the house should be cleaned with soapy water with a little paraffin in it, and the walls lime-washed. If the bed is a shallow one, with a hot-air chamber underneath, at least six inches of good drainage should be provided. Fresh sods, grass side down, should be placed over the drainage, and over this, just sufficient soil to establish the plants. As they make fresh growth small quantities of compost should be continually added. An equally good method is to make a hot-bed of leaves and stable litter well mixed together, allowing the extreme heat to escape before putting it in the bed. The soil should be light and open, consisting of equal parts of turfy loam and well-decayed manure. The plants raised from seed early in August should now be planted at a distance of two feet apart. Until the weather becomes cold, a good deal of air may be admitted in order to check red spider and enable the plants to withstand the winter.

THE APIARY.

By Chloris.

Robbing.—When combs have had the honey extracted from them they should be returned to the hives for the bees to clean them up, and on no account should they be left about to attract bees or this will cause robbing to commence. The best time to return empty combs is during the evening when the bees are not on the wing. For this reason it is best to do all extracting indoors after sundown. It is well known by all beekeepers of experience that when there is plenty of nectar bees are rarely guilty of robbing, and consequently as soon as the honey flow ceases they take every precaution to prevent bees commencing this practice. Should any honey or syrup be spilled or left carelessly about the bees seem to become thoroughly demoralised, and commence robbing, generally attacking the weaker colonies, and if not discovered clear out the whole of the stores.

Signs of Robbing.—The first sign of robbing is an unusual commotion in the apiary, for there is an unnatural agitation, and when the entrances are examined bees will be seen tightly embraced in some instances, in others rolling down and falling off the alighting board. The ground will be strewn with dead and struggling bees.

Cure.—Close the entrances so that one bee only may pass at a time, but in some instances this will not be sufficient; if this be so, then the entrances must be closed for the day, taking care to give ample ventilation. Then after sunset open the entrance about three-eighths of an inch, and place a piece of glass in front of the entrance hole, so that the bees will have to pass out at each end of the porch thus formed. The robber bees will be prevented from entering because they will make straight for the entrance, and in a few days the sheet of glass may be removed. In some instances it has been found necessary to keep a rag on the alighting board, which has been soaked in a weak carbolic solution. It will be necessary to repeat the soaking as the carbolic is very volatile. A few drops of carbolic only will be necessary in the water, so that the water is slightly scented, and keep the fluid in a well-corked bottle.

Re-Queening.—After a queen's second year her laying powers decrease, and in consequence the productive power of the stocks materially decreases. For this reason it is wise to kill all queens that have passed their most fertile period, and introduce others of this season. Wise apiarists raise their own queens, doing so on the principle of careful selection, *i.e.*, choosing those that produce the greatest number of worker eggs, those least given to swarming and producing bees that work hard and are easy to handle. Where queens are not raised they must be purchased if the hives are to be made to pay. At the end of the season queens may be purchased cheaply, but at the same time we must remember that they are not always so suitable as earlier in the season.

Introducing the Queen.—When it is known that the queen will arrive on a certain date the old queen should be removed, and the operation is best performed at mid-day, when the queen will often be found on the centre comb. Seize her by the wings and crush her by squeezing across the thorax. In the evening it will often be found possible to introduce the new queen by opening the box in which she has travelled and allowing her to run in at the entrance. There is always a risk that the bees may not accept her, for often they form a ball round her and kill her. To prevent this many bee-keepers place the queen in a cage on the centre comb and leave her there for twenty-four hours, after which she is released, and the behaviour of the bees carefully observed, and should they not molest her it may be taken for granted that they have accepted her; but should they seize her by the legs or wings she must be re-caged and left thus for another day.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

APPOINTMENTS FOR SEPTEMBER.

TUESDAY, SEPTEMBER 2—
Newcastle-upon-Tyne Fl. Sh. in Recreation Ground, North Road (3 days). Scottish Hort. Assoc. meet Nat. Amateur Gard. Assoc. meet. Forest Gate Chrys. Soc. meet.

WEDNESDAY, SEPTEMBER 3—
Glasgow & W. of Scotland Hort. Soc. Sh. (2 days).

FRIDAY, SEPTEMBER 5—
Ashton-under-Lyne and District Hort. Soc. Sh.

SATURDAY, SEPTEMBER 6—
Soc. Française d'Hort. de Londres meet.

MONDAY, SEPTEMBER 8—
United Hort. Ben. & Prov. Soc. meet. Nat. Chrys. Soc. Floral Com. meet.

TUESDAY, SEPTEMBER 9—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. C. Herman Senn on "Stem Vegetables: their Dietetic Values, and Various Ways of Cooking Them.") National Dahlia Soc. Exh. at Crystal Palace Sydenham (2 days).

WEDNESDAY, SEPTEMBER 10—
Roy. Caledonian Hort. Soc. Sh. at Edinburgh (2 days).

THURSDAY, SEPTEMBER 11—
Nat. Rose Soc. Autumn Sh. at R.H.S. Hall, Westminster (2 days). Messrs. Dickson and Robinson's Vegetable Sh. at Manchester Coal Exchange (2 days).

MONDAY, SEPTEMBER 22—
Nat. Chrys. Soc. Executive and Floral Coms. meet.

TUESDAY, SEPTEMBER 23—
Roy. Hort. Soc. Coms. meet and Special Vegetable Competitions. (Lecture at 3 p.m. by Mr. Bernard Crisp on "Autumn Border Plants.")

WEDNESDAY, SEPTEMBER 24—
Kendal Fl. Sh. (2 days).

THURSDAY, SEPTEMBER 25—
Roy. Hort. Soc. Exh. of British-grown Fruits (2 days).

FRIDAY, SEPTEMBER 26—
Ann. Conference of Affiliated Mutual Imp. Soc. at R.H.S. Hall, Westminster.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 59.7°.

ACTUAL TEMPERATURES:—
LONDON—*Wednesday, August 27* (6 p.m.); Max. 76°; Min. 58°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Thursday, August 28* (10 a.m.); Bar. 29.9°. Temp., 68°.
Weather—Sunshine.
PROVINCES.—*Wednesday, August 27*, Max., 69°, England, S.; Min. 60°, Scotland, E. Coast.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY NEXT—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30 o'clock.

MONDAY, WEDNESDAY AND THURSDAY—
Dutch Bulbs, Bay Trees, etc., at 12.30. At Stevens' Auction Rooms, King Street, Covent Garden.

WEDNESDAY NEXT—
Bulbs in large quantities for the trade, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

FRIDAY NEXT—
Imported and established Orchids, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 12.45.

National Diploma in Horticulture.

The committee which has been engaged during the past year in drafting a scheme for a National Diploma in Horticulture has completed its labours. Its report has been accepted by the Council of the Royal Horticultural Society, and the syllabuses drawn up by the committee have received the approval of the Board of Agriculture. Thus the National Diploma is in being. As will be seen by a perusal of the regulations and syllabuses which we publish on page 157, the examinations for the Diploma are essentially practical. This, we feel sure, will meet with the approval of all gardeners who recognise that workmanship is the only test of proficiency in any craft, and who are repelled by the idea of submitting themselves to an exclusively "written" examination. Although the test for the Diploma is essentially practical it is not exclusively so. This also is as it should be; for a man who would rise in his profession must have some knowledge over and above the vital practical knowledge of how to grow things. Into the description of the various kinds of knowledge which the successful gardener must possess we need not enter now—the less so since the syllabuses which we publish indicate the nature of that knowledge with considerable detail. We believe that the decision of the committee to require from candidates for the Diploma evidence of general education will meet with approval on all sides, and for our part we hold that if this decision leads young gardeners to spend a part of their leisure in continuing their general education, it will have done a very valuable piece of work.

We are aware that there exist among horticulturists men of position and ability who set but small store by Diplomas. If by Diploma is meant the generally inartistic piece of parchment awarded to successful candidates, we share that view; but if it be suggested that the steady application, the determination and self-sacrifice which a young man bestows on his work are naught, we dissociate ourselves emphatically from the suggestion.

The immediate success of the National Diploma depends largely on the attitude which young and old gardeners adopt toward it. We believe that that attitude will be cordial, and that the establishment of a National Diploma will be found to mark a notable step in the progress of horticulture. It remains to add that the Diploma scheme will remain incomplete until a well-considered and generous system of scholarships is established; scholarships which shall give an opportunity to the capable young gardener of studying his profession in divers places, and which will set him free for a period from the necessity to think first and last and all the time of the need of earning his living. Scholarships are often, it is true, a source of danger. The scholar may become proud; he may develop idleness; he is prone to acquire a distaste for manual labour; but the weak will always contrive to find temptations, and will always dig pits wherein to fall. On the other hand, scholarships of the kind we contemplate should prove the means of discovering talent and of providing avenues of advancement for the young, energetic, and intelligent gardener who desires to rise in his profession.

We trust that head gardeners, who can do more than anybody to make the scheme a success, will bring it to the notice of the young men under their charge, and encourage these juniors to enter themselves forthwith as candidates for the Diploma.

Coloured Supplement.—The subject of the Supplementary Illustration represents a fine specimen of Cattleya Lawrenceana from Mrs. BISCHOFFSHEIM'S collection at The Warren House, Stanmore. The plant, the largest spike of which bore 8 flowers, was in flower during the greater part of March and April. Cattleya Lawrenceana was first discovered by Sir ROBERT SCHOMBURGK during his exploration of British Guiana in 1840-44 on the Roraima, and was mistaken by him for a form of C. Mossiæ. Early in 1884 Mr. SEIDL, collecting for Messrs. SANDER AND SONS, rediscovered the species growing on trees on the river bank in the same locality at an altitude of 3-4,000 feet, and a consignment was despatched to England. The species was described in the *Gardeners' Chronicle*, March 14, 1885, p. 338, by the late Professor H. G. REICHENBACH, and an illustration of it was also given in the same year, p. 375. It is one of the most distinct and showy Cattleyas, but the scarcity of the plant at the present time indicates that it is not so successful everywhere as at The Warren House, where, however, it is merely treated like other Cattleyas. The flowers, each 5 ins. across, vary in tint from the rose-purple as shown in the illustration, with darker labellum, to a uniform rose colour. The albino form is extremely rare, the white variety, Mary Regina, with which Messrs. CHARLESWORTH AND Co., Haywards Heath, won the Davidson Cup offered for the best and most distinct Cattleya at the Chelsea show this year, being still unique. C. Lawrenceana has been crossed with most of the large-flowered Cattleyas, several Brassavolas, Lælias, Lælio-Cattleyas, and Sophronitis grandiflora. The hybrids are free-growing and very floriferous garden plants.

EXHIBITS OF PAINTINGS AT THE R.H.S. MEETINGS.—The President and Council of the Royal Horticultural Society have adopted the following regulations for the exhibit of pictures at the Society's fortnightly meetings at Vincent Square during the months of November, December, January, and February of each year, during which months only such exhibits can be received, the spring and summer shows of the Society excepted:—(1) The Council, though allowing the exhibit of pictures at the fortnightly meetings in November, December, January, and February, are unwilling to express any opinion on their artistic merit, and will consequently not make any awards unless on the basis of their interest from a purely botanical or horticultural point of view. (2) No exhibitor may exhibit the same picture twice during the four months. (3) The space to be occupied must be arranged with the superintendent at least a week before the show. (4) All paintings must be of definitely horticultural interest.

HORTICULTURAL SCHOLARSHIPS. — The *Directory for Higher Education* (1913-14), issued by the Education Committee of the Staffordshire County Council, contains the announcement of a major Horticultural Scholarship of the value of £45, tenable at an approved institution. The scholarship will be offered in 1914, and is open to candidates whose parents or guardians are or have been for a period of six calendar months immediately preceding the examination resident in the Administrative County of Stafford. Further particulars may be obtained from the Director, County Education Offices, Stafford.

LÆLIO-CATTLEYA URANIA.—Mr. EUSTACE F. CLARK, Evershot, Dorsetshire, writes that Lælio-Cattleya Ursula was recorded for his cross between L. crispa and L.-C. corbeillensis in the *Gardeners' Chronicle*, October 21, 1911, p. 284. Hence the name is not available for the hybrid between L.-C. Ingramii and C. Mantinii for which Messrs. J. and A. McBEAN, Cooksbridge, were given an Award of Merit at the last meeting of the Royal Horticultural Society. Messrs. McBEAN therefore alter the name to L.-C. Urania.

APPOINTMENT FROM KEW.—Mr. PHILIP VALENTINE OSBORNE, a member of the gardening staff of the Royal Botanic Gardens, has been appointed by the Secretary of State for India in Council, on the recommendation of Kew, a probationer gardener for service in India.

National Diploma in Horticulture.—In 1912 the Council of the Royal Horticultural Society approached the Board of Agriculture on the subject of a National Diploma in Horticulture, with the result that the approval of the Board was given to the proposal, and authority from His Majesty's Government was given for the Diploma to carry the title "National." The project has now taken definite shape, and examinations will, as far as possible, be held in the latter part of June of each year. Among those for whose benefit the diploma is established are the following:—Florists, fruit growers, gardeners, horticultural inspectors, horticultural instructors, landscape gardeners, market gardeners, nurserymen, public park gardeners, and seedsmen. Horticulture is defined as follows:—"Horticulture is a definite craft of itself and not a department of Agriculture. Horticulture as differentiated from agriculture includes the more intensive cultivation (as usually practised in gardens) of fruit, vegetables, flowers, shrubs, and ornamental trees."

The scheme drawn up by the Royal Horticultural Society and approved by the Board of Agriculture and Fisheries is as follows:—(1) Candidates for the diploma must (a) register themselves with the Society, and (b) pass two examinations, a preliminary and a final. (2) The examinations are open to both men and women. (3) Candidates must register themselves at least four months before the date fixed for the preliminary examination, and may do so at any time after they have attained the age of 19. (4) In order to register themselves candidates must supply the Council of the R.H.S. with (a) a birth certificate as evidence of age, and (b) some documentary evidence of the sufficiency of their previous general education (paragraph 5). (5) To satisfy the requirements under (4b), the certificate of the College of Preceptors, the Oxford and Cambridge Local Examinations Boards, matriculation at any British University, or any similar certificate which may from time to time be approved by the Council of the Society will be accepted; candidates who are unable to produce any such certificate must submit themselves to (and pass) a qualifying test established by the Society in the simple subjects mentioned in Syllabus 1. (6) Registered Candidates, before sitting for the preliminary examination, must, by the date of the examination, (a) have reached the age of 21 years, and (b) have served at least four years (1) in a public or private garden or nursery, or (2) in an approved horticultural institution, and have received a satisfactory report as regards conduct and work from the authorities of such institution, or (3) partly as in (1) and partly as in (2). It is absolutely necessary for all candidates for the diploma to pass the preliminary examination before they can enter for the final, but the preliminary examination by itself does not entitle those who pass it to any form of diploma. (7) The final examination is only open to those who have passed the preliminary examination and have subsequently been engaged for not less than two years in the practice of horticulture. The practice of horticulture includes the following:—Florists, fruit growers, gardeners, horticultural inspectors, horticultural instructors, landscape gardeners, market gardeners, nurserymen, public park gardeners, and seedsmen. (8) Candidates for the final examination must give at least four months' notice to the Society of their intention to present themselves in order that sufficient arrangements may be made. (9) In both examinations the principal part will consist of tests of the candidates' practical acquaintance with plants and general garden work and practical knowledge of horticulture. The practical tests will be conducted in a suitable garden or nursery, and will be supplemented by viva voce questions and written papers. Candidates will be required to pass in all three parts of the examinations—practical, viva voce, and written—but no amount of excellence in the written part will qualify a candidate if he fail in the practical. (10) The examinations will, as far as possible, be held in the latter part of June of each year. (11) The entrance fees, which are payable in advance, are (a) for the preliminary examination £1, (b) for the final examination £3. Half the entrance fee will be returned to candidates unavoidably prevented from attending the examination. There will be no fee for registration, or for the qualifying test when that is necessary. (12) The fees payable by rejected candidates entering again will be 10s. for the preliminary examination and £1 10s. for the final. (13) The examinations will be held at different centres in Great Britain, regard being had especially to (a) the number of candidates in any district, and (b) the suitability of a locality for the practical part of the examination. (14) All particulars, forms, etc., may be obtained from the secretary of the Royal Horticultural Society, Vincent-square, London.

The syllabus has been set out as follows:—Candidates requiring to take the qualifying test (paragraph 5) will be expected to (15) write an essay on some given subject of general knowledge, as a test of their handwriting, spelling, and ability to express themselves clearly and grammatically. (16) Show an acquaintance with arithmetic up to and including decimals and elementary mensuration. The questions asked will usually be such as might occur in ordinary garden practice. (17) Have a general elementary knowledge of geography, such as the relative positions of the principal countries of the world, with some knowledge of their climates and of the causes which determine climate. At this stage no special knowledge of plants will be expected of the candidates.

The PRELIMINARY EXAMINATION will be based upon the general principles of plant-growing, and will involve an elementary knowledge of botany, chemistry, and physics, so far as acquaintance with these subjects is essential to an understanding of garden practice. Care will be taken to ascertain that the candidate is able to perform the operations of gardening with proper skill, and also that he understands the reasons for the methods employed. The examinations will be based on the subjects mentioned in the following syllabus, many more questions being asked than will be required to be answered, so that candidates will be given considerable choice.

SYLLABUS.—(18) Choice of site, laying out, levelling, etc., of a garden. (19) Composition of soils, and the manner of their formation. (20) Cultivation of the soil: trenching, digging, hoeing, raking, rolling; drainage and its effects upon soil and crops; the relation of the plant to the soil. The making of composts. (21) Preparation of the ground for crops, and rotation in cropping. (22) Nature and uses of manures in the garden. (23) The part played by root, stem, leaf, flower, fruit, and seed, in the life of the plant. The effect of water, air, light and temperature on the growth of plants, and the influence of these on the choice of aspect and soil. (24) Seed sowing, transplanting, and permanent planting. (25) Cultivation of kitchen garden plants. (26) Care of lawns, paths, flower-beds, herbaceous borders, and rock gardens. (27) Methods of propagation by seeds and vegetative processes. (28) Cultivation of ornamental plants under glass: ventilation, watering, and regulation of light and temperature. (29) Fruit and vegetable cultivation under glass. (30) Planting, pruning, and training of fruit-trees and bushes, in the open, on walls and otherwise. (31) Planting, pruning, and training of ornamental trees and shrubs, including Roses. (32) Knowledge of the ordinary names, Latin or English, of garden plants, shrubs, trees, and weeds. (33) Symptoms and treatment of the commonest plant diseases and insect pests. Methods of fumigation and spraying. (34) Use and care of tools and implements employed in the making and maintenance of gardens.

The syllabus for the FINAL EXAMINATION will be divided into sections, each dealing with one particular branch of horticulture. Candidates may enter for the branch in which they feel themselves most proficient. Syllabuses will be published later.

The British Association for the Advancement of Science and the Royal Society of New South Wales.—From the presidential address of R. H. CAMBAGE we learn that comprehensive and liberal arrangements are being made by the Commonwealth and the separate States to render the meeting of the British Association in Australia next year a success, both from a practical and a scientific standpoint. In Sydney various committees are already at work preparing for the reception of the coming scientists. Among other matters a New South Wales Handbook of about 500 pages is in course of compilation, dealing with the social and natural science of the State. It has also been arranged by the Federal Council that a Commonwealth Handbook for Australia shall be published; and the Commonwealth Government, at the instance of a sympathetic Prime Minister and the general approval of Parliament, has undertaken to provide £15,000 towards the expense of taking out at least 150 leading scientists, and is also providing the funds necessary to send an organising secretary to England to confer with the British Association in regard to all arrangements. It has been decided that the main party will visit Adelaide, Melbourne and Sydney, and an endeavour is being made to arrange for some of the Association's members to visit all the remaining States of Australia and the Dominion of New Zealand. Indeed, everything connected with the meeting is being arranged on a most liberal scale, and it is to be hoped that there will be a fully representative response from this country.

"Horticultural Directory" for 1914.—We are desired by the Editor of this work to ask head gardeners if they will kindly inform him, at 10, Essex Street, Strand, of any change of proprietorship or address that may have occurred since October last.

International Horticultural Congress, Ghent.—Volume I. of the preliminary reports presented to this Congress on the 7th to the 11th inst. has just been issued to the members. A paper-covered volume, containing the programme, regulations, and names of the organising committee, also includes the text of many of the papers submitted. Horticulture, fruit tree culture, market gardening, and other allied subjects have been dealt with by such writers and authorities as Messrs. A. BUYSSENS, NOMBLOT-BRUNEAU, DACHY, LORGE, BUCKMAN, DE RUDINA, ICKX, DE ROOVER, VENDELMANS, CALLUMBIEN, LORETTE, HELLINCKX, IDE, GUILLOCHON, CHITTENDEN, BOS, A. DE SMET, DOP, CYRIL HARDING, VOULOIR, ABBÉ TORFS JADIN, SCHILLINGS, MARECHAL, LEFEBRE, and others.

Mérite Agricole.—The French Senate, states our Parisian contemporary, *Le Jardin*, has authorised the Minister of Agriculture to make new regulations as to the bestowal of this decoration upon persons worthy of the distinction. A decree has just been signed by the Minister, and published in the *Journal Officiel* of the 3rd inst., by which the Council of the Order has been reconstituted and the maximum number per annum of recipients of the various grades of Chevalier, Officier, and Commandeur fixed. Ten years' service is now a *sine quâ non* before a candidate can be decorated with this order. The nominations are made regularly on January 1 and July 14 every year, besides a few others that are made on the occasion of special gatherings, such as exhibitions, congresses, etc., where agriculturists and horticulturists assemble.

Chrysanthemum Society of America.—The proceedings of the eleventh annual meeting, which was held at the American Institute, New York, on November 6 to 8 last, have just been published. The frontispiece is a portrait of Mr. CHARLES H. TOTTY, the president of the society,

and the text consists of his presidential address, report of the annual meeting, balance-sheet, secretary's report, scales of points for plants and cut flowers, special prizes awarded, floral committee awards, novelties of American and foreign origin distributed during the past year, and list of members.

RELIEF FUND FOR NURSERY EMPLOYEES.—A committee has been formed for the purpose of raising a fund for the relief of the distress caused by the recent motor 'bus accident which befell a party of employees of Mr. W. HAMILTON, nurseryman, of Waltham Cross. As the result of this accident five persons were killed and twenty-five were more or less seriously injured. Subscriptions may be sent to the chairman of the committee, Mr. J. CULL, 26, College Road, Cheshunt, or to the secretary, Mr. G. J. KITTERINGHAM, The Hollies, York Road, Waltham Cross.

FIG. 61.—MESSRS. SUTTON AND SONS' EXHIBIT OF FRUITS, FLOWERS, AND VEGETABLES AT THE SHREWSBURY SHOW (see p. 145).

SPORTING CARNATIONS.—The occurrence of sports or "sudden variations" in Carnations is not uncommon, but a specimen sent by Mrs. JANE R. PHILLIPS, from Lemonfield, Holywood, Co. Down, illustrates the phenomenon in a striking manner. The inflorescence bears four flowers, of which three are deep crimson and one is pink—the latter being mottled or lightly flaked with crimson. The explanation of the sporting is probably as follows. The plant which bears these flowers is a hybrid. It contains a factor for pink for which it is pure, and another "darkening" factor which converts pink into crimson. For this darkening factor, however, the plant is "impure" or heterozygous. That is to say, it inherited this factor from one parent but not from the other. Instead, therefore, of having two doses it has only one. Ordinarily every cell of the plant contains this darkening factor as well as the factor for pink, and hence, ordinarily, the cells which give rise to the petals produce crimson sap. But in the cell divisions which preceded the formation of the pink flower it happened that certain cells failed to receive the darkening factor, and hence the pigment which they produce is not deepened in tint by the action of that factor. In other words, the same thing has occurred in the vegetative growth as occurs normally in reproduction. Thus if seed were saved from the crimson flowers of this plant we should expect—on Mendelian grounds—three out of four seedlings to produce crimson flowers, and the fourth to produce pink flowers. This expectation is based on the following argument. Since the plant is pure for the pink factor, all the germ cells will contain that factor; but since the plant is impure for the darkening factor, half of the germ cells will contain that factor and half will not. This applies to both the male and female germ cells. Hence, if we represent the pink factor by P, the darkening factor by D, and its absence by d, the germ cells will be —female, DP and dP in equal numbers; male, DP and dP in equal numbers; and hence when the germ cells unite there will be produced on the average 1 DDPP, 2 DdPP, 1 ddPP. The seeds belonging to the first category will give rise to pure crimsons, those belonging to the second category will produce plants which appear to be pure crimsons, but which carry only one dose of the darkening factor, and those of the ddPP type will produce pure pink flowers. This process of segregation, which occurs normally in reproduction, occurs occasionally during the vegetative growth, with the result—in the case under consideration—that the hybrid nature of the plant is revealed by its flowers. It should be added that the case may in fact be more complicated than imagined above, and that it would be interesting to self-fertilize the two types of flower (some pollen appears to be present), and to raise seedlings and record their colours.

SPORTING ANTIRRHINUM.—An equally remarkable example of a vegetative sport in a plant known to be of hybrid constitution is provided by an inflorescence of Antirrhinum Scarlet King, which is sent to us by Mr. A. WATKINS, and is unique among some 900 sister plants. On the inflorescence are a number of flowers, all but one of which are crimson with a suggestion of yellow at the lip. The remaining flower is particoloured; one longitudinal half is of a purple-

crimson colour and the other half is pure yellow. The example is rendered peculiarly interesting by reason of the fact that this particular race has been under Mr. Watkins' observation for some time, and the crimsons have been throwing yellows—to the extent of some 20 per cent.—during the past three years. The significance of the parti-coloured sport is therefore evident. It has done sporadically in the growing point which gave rise to the parti-coloured flower what it does habitually in the formation of its germ cells—namely, produced cells some of which possessed the crimson-sap factor and some of which did not. This segregation took place at a very early stage in the formation of the growing point, and occurred in such a way that the cells on one side of the flower rudiment contained the crimson-sap factor, and those on the other did not. Hence in the mature flower the left side, produced from the former cells, is crimson, and the right side is yellow.

Potato Crops in Holland and Germany (Hamburg).—The Board of Agriculture and Fisheries have received a report dated August 20, from His Majesty's Consul at Amsterdam, stating that the Potato crop in Holland is estimated at between 102,000,000 and 104,500,000 bushels, which is fair in comparison with previous years. Prospects are fair and no disease is reported. Present market prices are influenced by prices in Germany, where prevalence of disease is reported, but they are, on the whole, not above the average. A report of the same date from His Majesty's Consul at Rotterdam states that in the northern districts where the white varieties such as Up-to-Date, King Edward, Kruger, etc., are chiefly cultivated, the crop is not so abundant as it was last year, but the acreage is larger and the yield will not be very much below 1912. The Borgers, an important variety, partly exported to Germany, also look very well, and are already being harvested. Prices range from 1s. 9d. to 2s per cwt. On the heavy clay soils in the southern provinces Potatos are not so plentiful as last year, but where in 1912 they suffered considerably from disease they now appear to be healthy. The same prices are quoted for Borgers as in the northern districts. For the country as a whole, dry weather and sunshine are badly wanted; the yield will be an average one, and, unless there should be an extraordinary demand from the surrounding countries, prices will be moderate, and may probably be 2s. 3d. to 2s. 6d. per cwt. f.o.b. and bags included, and even lower should there be no outlet abroad. His Majesty's Consul-General at Hamburg (August 20) states that this year Potatos are at present sound and very large, and are therefore suitable for exportation. Prospects are good, and the yield should equal that of last year.

The Export of Potatos.—According to the Agricultural Statistics of the Board of Agriculture, the quantity of Potatos exported in 1912 was exceptionally large, and amounted to 360,685 tons, valued at £1,431,971, as compared with 116,828 tons, valued at £431,962, in 1911. It is interesting to observe that the export of Potatos in 1912 was in excess of import by nearly 1½ million cwt.

Primula Tewfikiana.—A new Primula, which originated with MM. Vilmorin, Andrieux et Cie. from a sowing of P. Bulleyana, is described in *Revue Horticole* (No. 16, August, 1913). The novelty known as P. Tewfikiana is believed to be a hybrid between P. Bulleyana and an unknown species. It is a vigorous grower, and produces inflorescences 2 feet in height with several tiers of flowers. The latter are salmon-rose with a yellow eye. The new hybrid is fertile.

Imports of Horticultural Produce.—The Agricultural Statistics (Board of Agriculture) for 1912 estimate the total value of raw fruit and nuts imported in 1912 at £11,210,000, which sum is practically the same as that for the previous year. Supplies of Apples, Pears, Oranges and Bananas were larger, but those of all other fruits were smaller than in 1911. Apples, of which 3,882,000 cwt. were imported, showed an increase of 549,000 cwt., and about seven million bunches of Bananas came into the market. Imports of raw vegetables were markedly greater than in 1911. Of Onions 9,353,000 bushels were received, as compared with 8,600,000; 1,425,000 cwt. of Tomatos, as compared with 1,362,000; and 5,828,000 cwt. of Potatos, as compared with 3,253,000 in 1911. The Netherlands increased their consignments of Potatos from 166,000 cwt. in 1911 to 1,499,000 in 1912. France also sent larger quantities (996,000 cwt. in 1911 and 1,425,000 cwt. in 1912), and Belgium increased her exports to this country from 29,000 cwt. to 912,000 cwt. Imports of Hops in 1912 were 244,000 cwt., or 75,000 cwt. more than in the previous year.

Virginian Poke as a Vegetable.—A writer in *The Field* signing himself "Ensign" gives the following interesting particulars on the value of Phytolacca decandra as a vegetable:—"An inquiry as to whether the berries are poisonous caused me to look the matter up. As anticipated, as usual in such cases, all the available authorities maintain a discreet silence on the desired point, though a statement that at one time the berries were much used in Portugal to give a deep colour to the red port, until the taste being much complained of the Government ordered the destruction of the plant, appears quite sufficient as negative evidence, and while one condemns the root as poisonous, another refers to it as highly nutritious. But I have obtained some unexpected information from an old gardening paper, in which there is a note 'lifted' from an American paper, which has it that the plant, known as 'poke,' 'pigeon berry,' 'garket,' 'cocum,' 'cancer root,' 'skoke,' 'skoka,' and 'pecatacelleloe' in different localities, is one of the choicest of vegetables. 'Sometimes compared to asparagus, but it is not like that; it is a thing by itself, and as good in its way as asparagus in its.' The tender, just developing shoots are dressed like asparagus or spinach; apparently its use as a wild vegetable ('poke greens') is, or at any rate was, familiar in America, but the note referred to urges its cultivation as something of a novelty, the plants being reduced to 3 feet to 4 feet in height after cropping to keep them within bounds. I should like to know if Phytolacca has any reputation as a vegetable in England. It is not included in Vilmorin's *Vegetable Garden*, which is not encouraging, but I am going to put the matter to the test."

Royal Visitors at a Nursery.—The young Kabaka of Buganda, who is at present on a visit to England, visited Messrs. Sutton and Sons' Nursery on the 22nd inst. The Kabaka succeeded Mwanga, the late King of Uganda, while a mere child, and attains his majority next year. He was accompanied by five of his chiefs, who travelled with him from Oxford, where he has been staying. The visitors were extremely interested in everything they saw, especially in the seeds which were being packed for despatch to Africa. After inspecting the trial grounds, they drove to Wargrave Manor, where they were entertained to luncheon by Mr. and Mrs. Martin Sutton.

The Ripening of Fruits.—As bearing on the remarks in the leader for July 19, and those of our correspondents in the issues for August 2, 16, pp. 88, 122, the following paragraph from *Nature*, August 14, is especially interesting:—"The brown discoloration and unpleasant flavour acquired by Peaches shipped for long distances has been attributed to so-called 'ice-scald.' That this injury is not a temperature effect is shown by recent experiments by Mr. G. R. Hill (Cornell University Agricultural Experimental Station Bulletin 330), and evidence is adduced indicating the harmful effect to be due to an accumulation of carbon dioxide within the paper wrapper round the fruit during transit. During the investigations it was found that growing tissues, such as green Peaches and germinating Wheat, respire more than twice as rapidly aërobically as anaërobically, whilst ripe fruits respire as actively anaërobically as aërobically. Ripe Apples lose their colour, texture, and flavour, and assume the qualities of half-baked Apples by being kept for a sufficient length of time in oxygen-free gases. The softening of Peaches (hydrolysis of pectose) appears to be decreased greatly by carbon dioxide and to a considerable extent by hydrogen and nitrogen; under similar conditions the fruit becomes brownish, and acquires a very bad flavour. Good ventilation and refrigeration, therefore, would appear to be the essential conditions under which this fruit should be stored."

AUSTRALIA.

GARDENING IN AUSTRALIA.

The figures quoted by *Colonial Gardener* (see p. 408, Vol. LIII.) are quite possibly correct; but it would have been well if he had intimated that the prices are not those usually obtained for the produce to which he refers. His remarks would seem to show that to grow fruit and vegetables in Australia necessarily leads to the amassing of great wealth; but, having myself had some experience in this pursuit, and being familiar with our market reports for the last ten years, I should like to supplement the paragraph to which I refer with a few facts which have come within my own knowledge. It is hardly conceivable that Tasmanian Apples could be cheaper in England than they are in Australia, since in the Melbourne market on July 12 Apples only brought in 1s. to 5s. per case of about 40 lbs.; the average price obtained being far below the actual cost of landing a case of fruit in England. Further, the Market Report in the *Gardeners' Chronicle* of July 11 puts Australian Apples at 12s. 6d. to 16s. a case, while on the same date our local prices were 1s. 9d. to 4s. 3d. a case. By means of cool storing, at a cost of 4d. to 6d. per case per month, for six months, a grower may obtain 10s. or 12s. 6d. a case for the percentage of fruit which survives the ordeal; but the grower is obliged, as elsewhere, first to purchase the land and wait years for the crop, or pay a higher purchase price for a bearing orchard. He has also the expense of cultivating, pruning, spraying, harvesting, and finally the freight to the market. Probably *Colonial Gardener* compared your wholesale reports with the prices paid here by the consuming public; for here, as everywhere, there is a large and excessive difference between the expenditure of the consumer and the receipts of the actual grower, which exists in spite of many unsuccessful efforts to do away with it. I remember one day, in February, 1906, when Williams' Bon Chrétien Pears only brought in 6d. to 8d. a case of first-class fruit, finding that in Echuca (a town of 5,000 inhabitants, 151 miles north, with daily trains to and from Melbourne) they were selling at 6d. a pound. Another such instance is that of a Chinese grower of Tomatos at Echuca, who sent to Melbourne a consignment of 1,000 cases, leaving the freight to be paid, as usual, at Melbourne. The price obtainable in the market not being sufficient to cover the freight (10d. per case!), the agents refused to accept the consignment. Plums sometimes drop to 9d. a case of 50 lbs., but the average price is about 2s. per case. Jam factories usually offer £4 to £8 a ton for Plums, and £2 for Apples, both to be delivered at their Melbourne factory. *Colonial Gardener* mentions Potatos at £18 a ton, but to-day's price for the *best* is 45s. to 55s. per ton, and an average price for the last four seasons would not come to more than 95s. to 110s. In 1911 we had a very wet season, in consequence of which Potatos rotted considerably more than usual. It was suggested that they were suffering from "Irish Blight," and the Inter-state Governments wisely pro-

claimed prohibitive conditions on all Potatos imported from Victoria or Tasmania. All Potatos, before being admitted to Western Australia, had to be peeled and dipped in a solution; the result being that native Potatos at once rose to £31 per ton. Now, however, the committee of experts who were appointed to investigate the disease are of opinion that it was *not* "Irish Blight" at all. It may be argued that *Colonial Gardener* was not referring to Melbourne prices; but the Melbourne dealers are in touch with all the Inter-state capitals, and have a habit of "rushing" even the most distant markets when prices will justify their action. Both Adelaide and Sydney are within twenty-four hours' rail journey from Melbourne, and by boat the distance is hardly longer; the rates ruling in the Adelaide and Sydney markets are not more than 35 per cent. to 50 per cent. in advance of Melbourne prices. By reason of their cool climate Tasmania and Victoria are the chief growers of the products I have mentioned. For Cabbages, 7d. each wholesale is an exceptionally high price, 1s. 9d. to 2s. 6d. per dozen being usual. There is, however, frequent scarcity in vegetable crops, when the prices naturally rise to extreme heights. Last year, for instance, consumers were paying anything up to 2s. 6d. each for Cauliflowers. French Beans fluctuate between 17s. 6d. and 4s. per 100 lbs., the earliest crops sometimes fetching as much as 4s. per dozen lbs. wholesale. Certainly the prices of fruits and vegetables are on the upward grade; but as this rise is due mainly to increased wages and cost of production in general, it will mean little or no extra profit to the grower.

I am a native of Australia, and the news I obtain from English and American papers helps to convince me that no other part of the world offers so many chances of advancement to good and intelligent workers as Australia at the present time. Taking one season with another, a plentiful living may be made in market gardening and fruit growing, even at the low prices I have mentioned. We also much prefer Britons to foreigners; but the men who come out here must not expect to make a fortune out of nothing, and must be prepared to sell their Potatos and Cabbages at prices considerably lower than those given by *Colonial Gardener*. *G. Errey, Victoria.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

The Artificial Ripening of Fruits.—Most plant physiologists will agree with Sir W. Thiselton-Dyer that if carbon dioxide does indeed bring about a rapid ripening of fruit the mode by which it does so is obscure. There is, however, one set of observations which may perhaps be destined to throw light on the subject. In their work on the oxydases of the flower, Keeble and Armstrong show that a plant may contain substances which arrest the oxidation processes of the cell. These substances, of unknown nature, are described as oxydase inhibitors. Now the authors just cited have shown that carbon dioxide possesses the power of destroying these inhibitors, and thus sets the oxidising agents free to act. Whether, however, the latter are able to carry on the work of ripening in an atmosphere of carbon dioxide remains to be discovered. In this connection, however, it may be mentioned that, according to the researches of the Russian physiologist Palladin, respiration, in the sense of evolution of carbon dioxide, may go on to a remarkably large extent in leaves contained in an atmosphere of hydrogen. It is easy to procure cylinders of liquid carbon dioxide, and it would be an interesting experiment for anyone who has some unripe Grapes and a strong box to ascertain whether or not ripening is accelerated by subjecting fruit to high pressures of this gas. From the reports of the horticultural shows which I read in your columns, it appears that marks are often lost to exhibitors by their Grapes being not fully ripe, and it would be amusing if the enterprising exhibitor of the future were to speed up the ripening process and secure premier awards by having recourse to this simple and inexpensive "dodge." It remains, however, first to show that the "dodge" works. *Plant Physiologist.*

Large Cabbage.—A Cabbage in these gardens is 10 ft. 6 in. in circumference. It was planted with the ordinary spring Cabbages in October last, and the leaves do not appear in the least coarse, but as crisp as any spring Cabbage. It was planted as Sutton's Flower of Spring, and is still growing, being one of 1,500 that were planted at the same time. All the plants have had the same treatment, but we commenced cutting last April, and this one always promised to develop into a large specimen. I should think it is a record for a Cabbage (not Cattle Cabbage—Flat Poles). An idea of the size may be obtained by drawing a circle 3 ft. 6 in. in diameter. *F. R. Staddor, Sydmonton Court Gardens, Newbury.*

Government Subsidies to Co-operative Organisations.—The President and Council of the Royal Horticultural Society have asked me to communicate to you the following report of their Parliamentary Committee on Subsidies to Co-operative Organisations. Your Committee, whilst welcoming the subsidies given out of public moneys to agricultural and horticultural organisations, when such organisations confine themselves to educational, experimental, and research subjects, deprecates any subsidies from Government, County Council, and other public bodies being granted to any organisation which is allowed to embark in trading pursuits, holding it to be manifestly unfair to private traders to allow such subsidised organisations to be financially helped to compete with the trade. Your Committee desires also to point out a further aggravation of the injustice—viz., that often such subsidised organisations do not pay local rates and taxes nor income-tax, whereas private traders have to bear their full share of such burdens. The Parliamentary Committee of the R.H.S. was established in March last. Its object is generally to watch over the interests of horticulture in all its branches, and to advise the Council of the Society of opportunities (1) for using the great influence of the Society either in initiating legislation in favour of horticulture or for influencing measures in any way affecting horticulture which may at any time be introduced into Parliament, and (2) for informing the Department of Agriculture and Horticulture of the views, wishes, and wants of horticulturists, and (3) for co-operating with the Department in any useful and desirable horticultural movement. *W. Wilks, Secretary, R.H.S.*

Wasps.—Below I give a record of the number of wasps that have been destroyed on this estate during the past three seasons. The figures given for the present season are to the second week in August. For a fortnight we have ceased to destroy the wasps, and are already suffering from their depredations. For queens, which are destroyed until the end of May, one penny each is given, and for the nests 6d. each. For destroying them, cyanide of potassium is used, and every nest is dug out and burnt. Epping Forest adjoins our estate, and is close to the gardens. We are unable to go beyond the border of Copped Hall, and no doubt, owing to this fact, we shall never do more than keep the insects in check. I was speaking recently to some fellow-gardeners on the matter, and each of them declared that he had never heard of such numbers destroyed in one place. It would be interesting to know the experience of others. 1911, 176 queen wasps, 600 nests; 1912, 746 queen wasps, 272 nests; 1913, 340 queen wasps, 720 nests. *Arthur Bulloek, Copped Hall Gardens, Epping.*

The Standard of Living.—It is a commonplace observation that the standard of living has increased greatly of recent years and that the luxuries of a previous generation have become the necessaries of the present. The degree of truth attaching to the observation may be gauged by an examination of the comparative table in the Agricultural Statistics of the Board of Agriculture, which sets forth the quantities per head of population of foodstuffs imported in each year from 1892 to 1912. Needless to say the growth of the imports outstrips in almost every case the growth of population. Only in the cases of oats, rice, bacon, cheese and lard are the amounts of imports per head about the same as they were twenty years ago; and of these commodities it may be surmised that the falling off in the importation of bacon is due not to change in our feeding habits but solely to the great enhancement in the price of that commodity. A glance at the contents of the statistical table reveals those of the average breakfast table of the present and the past. On that of to-day is more wheaten bread and more sugar, more butter, and of less bacon. Eggs are half as many again as they were 20 years ago. The same tale is told in yet more striking manner by the dinner table of to-day, for the amount of meat served to the individual is no less than three times as great in 1912 as it was in 1892. It is a peculiarly interesting fact that at a time when the more wealthy classes are eating less meat the rest of the community is becoming more and more meat-fed. *Observer.*

The Future of the N.E.H.S.—*Yorkshire Gardener* is a shrewd type who sees the forces at work, and, personally, the only solution I see is to have three centres for the N.E.H.S., Newcastle, Manchester and Leeds. Then the Yorkshire section will have its freedom. But unless Art. II. is done away with the N.E.H.S. must try to be as broad as the North of England, notwithstanding the strong jealousies to be overcome and the prevailing local ideas of those who at present run Horticultural Societies. The good ship has had a bad list towards Leeds since it was launched, and it is this list which has prevented progress and handicapped officers in charge. *Another Yorkshire Gardener* I fear does not quite understand the proposed scheme of a Horticultural Institute. The Government are now offering horticulturists public money. Are we to let the opportunity pass? The N.E.H.S. need have no financial responsibility at all—but surely it should try to obtain for northern gardeners an institute, say at York, where northern men may be trained under northern conditions? "There are plenty of such places"—*i.e.*, Horticultural Institutes! I have yet to learn that we have a "Wisley," a "Kew," or a "Reading" in the north. When private individuals have offered no less than £475 to get such an institute started is it policy to refuse the gifts? As to the N.E.H.S. monthly meetings, I fear my good friend is forgetful. What about the September monthly meeting, 1911? And where were the ninety and nine sheep at the lectures given by Professors Theobald, Priestley and Crowther? As to the future of the N.E.H.S., we are all free now to make up our minds. I sincerely appreciate all the kindness and courtesy I have received as paid secretary. I shall still offer my humble services in an honorary capacity, if requested to help, but do let us try to be true to name and Article II., *i.e.*, every branch of horticulture, not exhibitions only. Having been sentenced to penal servitude for life, for that is what "the parson's freehold" means, I shall be free to help on a cause which I know is one which has the warm support of my friends. *Yorkshire Gardener* and *Another Yorkshire Gardener*. *J. Bernard Hall.*

Gold Medal Roses.—As one of those who for many years has taken rather more than a passing interest in those classes of the National Rose Society's show schedules that invite entries for this award, I welcome your leader in the current number of the *Chronicle* as likely to help in the ventilation of this much-discussed problem. *White Rose* has handled the matter with the discretion and tact that one would have expected from him, and has endeavoured to show that the dissatisfaction which exists amongst rosarians should be directed against the system rather than against those who may have to administer it. So far as the latter phrase refers to the judges I am in agreement with him, but I think a great deal of the dissatisfaction alluded to is due to the ignorance of the individual who, wanting a Rose for garden decoration, plants a variety without any knowledge as to whether it is a garden or an exhibition Rose; but there is a margin over and above that, a dissatisfaction amongst rosarians who are not likely to make the mistake above referred to, so that I am not inclined to agree that those responsible for the present system are entirely blameless. They have made it what it is, and, if it is not as satisfactory as it might be, they should alter it. At

the same time it must be admitted that it is not exactly for the absence of endeavour to remedy the dissatisfaction that those responsible are to be blamed, rather I think it is in the direction that they have not had the courage of their convictions that one would say the fault lies. It is admitted by those who know, and the Council of the N.R.S. may be considered to come within that category, that the only satisfactory method of judging new seedling Roses is to judge them where they are growing; but it has been held by the majority of the Council and the various committees appointed to deal with the subject that that is impracticable. Personally, I do not think that this method should be so considered any longer. The arguments used against it have been three in number :—1. That it was too expensive; 2. That judges could not be found willing to devote the necessary time; 3. That the public desire to see the Roses. 1. To a wealthy society like the N.R.S. the expense is a small matter. 2. I believe competent judges could readily be found. 3. The awards made on inspection could be provisional, and subject to a subsequent exhibit by the raiser at a N.R.S. show the same or following year. I am convinced that no one can satisfactorily decide on the merit of a new seedling until he has seen it actually growing in some quantity. The number of the Visiting Committee could be small, but I need not go into details. I would prefer to indicate only the general lines of a scheme that should at any rate be an improvement on the existing system. To return to *White Rose*, there are one or two other points in his most interesting article that call for comment. With reference to his remarks as to the gold medal awarded to the variety Colleen at the recent Gloucester show, I am inclined to think that the award (withheld at Belfast and London) was given at Gloucester because some of the judges had since grown the Rose, and others had had an opportunity of seeing it growing at Portadown (its birthplace), and I suggest that it was because of the knowledge so acquired that the award previously withheld was given. The quotation from Miss Austen is apt and amusing, and the conclusion that it helped him to arrive at as to the duties of the judges is sound; but I cannot quite agree with him on the question of the increasing number of these awards. I think such an increase is right and natural, and is the legitimate outcome of the increased interest in the flower and the far greater number of legitimate entries for the award. I cannot agree to *White Rose's* suggestion that only one gold medal should be awarded at each show. I pity the judge who would have to decide between the respective merits of such Roses as Irish Fireflame, George Dickson, Mrs. James Lynas and Old Gold. *White Rose* recognises the difficulty by suggesting there might be two classes, one for exhibition and one for decorative Roses; but while all exhibition Roses might perhaps be placed in one class to compete for one award, decorative Roses are far too numerous and their respective uses too divergent for this to be feasible. Imagine a climber placed in competition with a dwarf, or a single variety against one with more petals! *White Rose* further weakens his case by saying that two gold medals might be awarded in the case of two Roses of equal and exceptional merit. If two, why not three or four? I agree that some method of elimination should be adopted, and all Roses examined before any award is made. I see a good many rosaries in the course of twelve months, and I am bound to admit that no subject is of more perennial interest or more frequently discussed, and I think the general feeling is that something should be done. But exactly what that something is or should be is not so easy to determine: but I am sure if you would open your columns to a discussion it would be of very material assistance to the desired end. *Herbert G. Molyneux, Brantwood, Highfield, Southampton.*

Cytisus supranubius (see p. 121).—Mr. Ball's note on Cytisus supranubius opens up an interesting question as to whether shrubs and plants of the Canary Islands are hardier than they are considered to be. Some years ago I raised a batch of Arbutus canariensis. One of the trees was planted on fairly high ground (about 400 feet). It was surrounded with plants of A. Unedo from Killarney. Three years ago all the specimens of A. Unedo were killed by frost, whilst A. canariensis is alive and flourishing to this day, quite unharmed by the weather. The hardiness of Cytisus supranubius was established long ago. I remember very well seeing an established plant on a wall at the Trinity College gardens 20 years ago, and in my own garden it grows alongside and in like conditions with C. virgatus. C. œstriensis and C. Furcea. *T. Smith, Newry.*

SOCIETIES.

ROYAL HORTICULTURAL.

August 26.—The usual fortnightly meeting was held on Tuesday last in the Vincent Square Hall, Westminster. There was an excellent display of exhibits in all sections, but very few visitors were present.

The Floral Committee recommended twelve Awards of Merit to novelties, five to Dahlias in conjunction with a Committee of the National Dahlia Society.

The Orchid Committee granted two First Class Certificates and three Awards of Merit.

The Fruit and Vegetable Committee had more to deal with than usual, and granted an Award of Merit to a seedling Apple and four Medals to groups.

At the 3 o'clock meeting of the Fellows in the Lecture Room, an address on "Tuberous Begonias" was delivered by Mr. Blackmore and Mr. Langdon, of the firm of Messrs. Blackmore and Langdon.

Floral Committee.

Present: Henry B. May, Esq. (in the chair), Messrs. Chas. T. Druery, J. W. Moorman, C. Dixon, William H. Morter, Wm. J. James, H. J. Jones, Arthur Turner, Chas. E. Pearson, J. T. Bennett-Poë, W. P. Thomson, George Paul, John Green, Thomas Stevenson, W. J. Bean, W. A. Bilney, Jas. Hudson, J. W. Barr, and W. Cuthbertson.

Mr. A. F. Dutton, Iver, Buckinghamshire, displayed in 10 large baskets Carnation Mrs. A. F. Dutton, a deliciously-scented rich pink sport of great merit (Silver Flora Medal).

Messrs. Blackmore and Langdon, Bath, Somerset, arranged a splendid collection of tuberous Begonias. The double-flowered varieties, which greatly predominated, included Sir Gilbert Greenall (deep crimson), Lady Dorrington (white), Violet Langdon (pink), Mrs. Robt. Morton (deep orange, with pinkish reverse), and F. W. Walker (bright red). Several baskets contained such bedding varieties as Argus (scarlet) and Marquis of Stafford (Silver-gilt Banksian Medal).

Messrs. T. S. Ware, Ltd., Feltham, also staged an exceedingly good collection of double-flowered tuberous Begonias. The blooms were of great size but free from the slightest suspision of coarseness. Such varieties as Lady Cromer (pink), Princess Ena (orange-yellow), Lord Hopetown and Dorando (rich reds), being splendid (Silver-gilt Banksian Medal).

Messrs. James Veitch and Sons, Ltd., Chelsea, showed their strain of Streptocarpus, which is characterised by flowers of clear colours and in many instances with pure white throats, which greatly enhances their beauty.

Messrs. Stuart Low and Co., Enfield, set up a little group of Chironia baccifera. The plants were well grown and freely flowered.

Messrs. H. B. May and Sons, Upper Edmonton, interspersed a good collection of greenhouse Ferns with batches of Codiæum (Croton) edmontoniense, Ixora Williamsii, I. Fraseri and Alocacia argyroneura (Silver Banksian Medal).

Messrs. Kelway and Son, Langport, again exhibited a large collection of cut Gladiolus. Besides many varieties which we admired on previous occasions we especially noted Mrs. F. Field (white, with a suggestion of pink), Darkness, Golden Measure (very large, yellow variety), Duke of Richmond (bright red, with a white throat), John Jongleux (rich cerise purple), and James William Kelway) (a superb crimson flushed with carmine). In another part of the hall Messrs. Kelway also showed Andrew Carnegie (pale mauve), Mrs. Coddington (mauve, with purple splash), Lord Milner (scarlet, striped with white) and many other good varieties of Gladiolus (Silver-gilt Flora Medal).

M. Jules Ragot sent from Paris a collection of cut Gladioli, which included several good hybrids of G. primulinus (Bronze Flora Medal).

Messrs. Dobbie and Co., Edinburgh, showed Collerette Dahlias, including the beautiful varieties which received Awards of Merit. Large stands of Queen Anne and Frogmore, two somewhat similar sorts, with harmonious blendings of scarlet and yellow, were exceedingly decorative. Other desirable sorts were Maurice Rivoire (claret-coloured and white collerette), Meteor (maroon and white collerette), Goldstein (yellow self), and Madame Jules Buyssens (mauve, edged purple, with a white collerette) (Silver Flora Medal).

Messrs. John Piper and Sons, Bayswater, also showed an attractive collection of Dahlias, specialising with the decorative varieties. The outstanding varieties were Geisha, Germania, Mrs. R. Cooke, Cæsar, Hortulanus, Buddii, Liberty and King Leopold (Bronze Banksian Medal).

Messrs. Carter, Page and Co., London Wall, London, showed especially good single-flowered varieties in their exhibit of Dahlias. The most effective of the Cactus varieties were Amos Perry, Arthur Pickard, Caradoc, and Golden Wave (Silver Banksian Medal).

Messrs. J. Cheal and Sons, Crawley, showed a very representative collection of Dahlia blooms. The single and the Pompon varieties were especially charming. A little group of the new Cosmea-flowered variety, Crawley Star, attracted a deal of attention (Bronze Banksian Medal).

Mr. Chas. Turner, Slough, presented novelties of Collerette and single-flowered Dahlias.

Messrs. J. Stredwick and Sons, St. Leonards, showed a small but choice collection of Cactus Dahlias. White Star, Starlight (yellow, with lighter tips) and Pierrot (pale buff with white tips) are the names of the very finest sorts shown.

Mr. James Box, Haywards Heath, Sussex, filled a large floor space with a magnificent collection of hardy border flowers, arranged with great skill in his best manner. Besides large groups of herbaceous Phloxes and a great variety of Delphiniums boldly arranged, there were smaller selections of Montbretias, Gaillardias, Liatris pycnostachya, Rudbeckia purpurea, and tall stems of Lobelia cardinalis bearing vivid crimson flowers (Silver-gilt Flora Medal).

Messrs. Wm. Cutbush and Sons, Highgate, contributed a desirable strain of Antirrhinums (dwarf and intermediate types) of good colourings; Pentstemons in great variety, and bearing large flowers, of which the best were Mauve Queen, Rev. Murphy (bright red), Bianca (white, tipped with pink), and Persimmon (purple). A distinguishing character of these Pentstemons was the pure white throat of the blossoms. This firm also showed many Gladioli, such as Hollandia (terra-cotta) and America (pale heliotrope). (Silver Banksian Medal).

Messrs. Barr and Sons, Covent Garden, grouped Nepeta Mussinii, Salvia virgata nemorosa and Statice Lilac Queen at the end of a good collection of Gladioli. The last-named included Canicule (scarlet, with white blotch on the lip), La Nuit (dark purple), and Madame Mounet Sully (pure white, with blood-red blotch at the throat) (Bronze Flora Medal).

Messrs. W. Wells and Co., Merstham, arranged a collection of herbaceous Phlox, which included such sterling varieties as Arthur Rane, Elizabeth Campbell, General von Hentsz, Iris, Selma, Pynstroom and Dove. At one end of the Phlox collection there were vases of Romneya Coulteri and Delphinium Moerheimii and a box of Nierembergia rivularis (Silver Banksian Medal).

Mr. G. Reuthe, Keston, Kent, contributed a great variety of uncommon trees and shrubs. The former included Phyllocladus rhomboidalis, a very interesting conifer, Berberidopsis corallina, Abelia triflora, Andromeda polifolia and Dacrydium cupressinum.

Messrs. Whitelegg and Page, Chislehurst, filled a length of tabling with border flowers, of which large stands of Lilium speciosum magnificum, L. s. album and L. tigrinum plena were very prominent. The herbaceous plants included good strains of Phloxes, Sidalcea malviflora Rosy Gem, Helenium cupreum, Salvia nemorosa virginica and Nepeta Mussinii (Silver Banksian Medal).

Messrs. R. Wallace and Co., Colchester, showed varieties of Montbretias and, besides last year's novelties Star of the East and

Queen Adelaide, which received an Award, Hereward, Lady Hamilton, Comet, Prometheus, and King Edmund (Silver Flora Medal).

Messrs. A. Ll. Gwilliam, Sidcup, Kent, staged a collection of hardy border flowers, in which prominence was given to Achillea filipendula Parker's var. and Phlox Sheriff Ivory. At one end of the herbaceous flower display Messrs. Gwilliam showed blooms of double and single-flowered tuberous Begonias (Silver Banksian Medal).

Messrs. T. S. Ware, Ltd., Feltham, Middlesex, showed an interesting collection of hardy border flowers, in which the Phloxes which predominated were effectively arranged with sprays of the double-flowered Gypsophila paniculata. This exhibit participated in the Silver-gilt Banksian Medal awarded to the Begonias.

Mr. Amos Perry, Enfield, arranged an enormous quantity of Achillea Perry's White, encircling groups of Delphiniums, Duke of Connaught, Mrs. Creighton, and Lizzie.

Mr. L. R. Russell, Richmond, showed a very interesting variety of Heaths, interspersed with plants of Eulalia japonica variegata. Amongst the Ericas we noted E. vulgaris Foxii, which forms a very compact tuft, suitable for the rock garden, E. tetralix Mackayana; the true Scotch Heather; Erica cinerea alba major; the double flowered Heath, E. vulgaris fl. pl. and the golden-foliaged E. vulgaris cuprea (Bronze Banksian Medal).

Awards of Merit.

The following varieties of Dahlias were judged by a joint committee of the R.H.S. Floral Committee and the National Dahlia Society. The latter society awarded a First Class Certificate to each variety.

Dahlia Lily Reed.—A Cactus variety with incurving and spirally-twisting, long, claw-like petals, of a bright lemon-yellow colour. The flower possesses a good centre, refined form, and is seven inches in diameter. Shown by Mr. Shoesmith.

D. Aphrodite.—A Pæony-flowered variety with two or three rows of broad, flat, pure white ray florets and orange-yellow centre. The flowers are six inches in diameter, and are borne on stout, rigidly-erect stalks. The variety represents a great improvement in form on the older sorts. Shown by Mr. C. Turner.

D. Regulus.—A Pompon variety of a rich purple-amaranth colour. The flowers are small, being only 1¾ inches in diameter, very neat, and densely packed with well-formed, curled florets. Shown by Messrs. J. Cheal and Sons.

D. Tusca.—A Collerette variety with crimson, oval rays and tufts of rather broad, white quills half the length of the rays and standing out at a sharp angle. The base of the petals shows a narrow band of yellow surrounding the disc, and this yellow runs up into the quills. The plant grows 3½ft. high, and is extraordinarily floriferous. The flowers are not large, being 4 inches in diameter, but the rays and quills are in bright contrast.

D. Prince of Orange.—A Collerette variety, with larger flowers than the last (5 inches across) and more pointed segments. The rays and quills are a bright and very pleasing orange-salmon self colour; the quills the merest shade paler, and rather more than half the length of the rays, and lying almost flat on them. The stalks are unusually wiry and stiff, and the whole plant very decorative.

These two shown by Messrs. Dobbie and Co.

Gladiolus Lady Faire. — This variety is notable for its striking colouring rather than its form or spike. The flowers open cream and become pure white, and are brightly blotched with crimson on the lower petals. The floral segments are pointed and the flower triangular in form; the spike also was weak, carrying only twelve flowers and buds, of which only three were open together.

G. Lady Northcote.—A charmingly coloured variety with a dense, handsome spike. The centre of the flower is coloured soft buff-yellow, which gradually shades to salmon-pink at the edge. Only one spike was shown. This had twenty-one flowers and buds, of which nine were open together. The flowers are not large, but rounded and very pleasing.

G. Mrs. Bromet.—The flowers are large and of good form, in colour a pale creamy-sulphur, the inner petal sulphur and touched with purple at the base of the throat. Only one spike was shown, which had ten expanded flowers and thirteen buds.

These three shown by Messrs. Kelway and Son.

Rose Mrs. Andrew Carnegie.—This handsome hybrid tea, derived from Frau Karl Druschki × Niphetos, has already won the N.R.S. gold medal. (See *Gard. Chron.*, July 13, 1912, p. 38). The flowers are a full cream, of grand form, and sweetly scented, and the habit is dwarfer and freer than that of Frau Karl Druschki.

Scabiosa caucasica magnifica.—A beautiful seedling variety with saucer-shaped flowers of excellent form, crenate and frilled at the margin and the outer petals very evenly overlapping one another. The colour is darker than the type. It matches the "lavender blue" of the *Répertoire de Couleurs* (204), the edge being Shade 3, and this shades down to 1 at the centre.

These two shown by Messrs. Cocker.

Montbretia Queen Adelaide.—The colours of this new seedling are those of the popular Germania, but the flowers are larger, being 3 and 3½ inches in diameter. The petals expand well, becoming almost flat, and are coloured deep orange, shaded outside with red. The eye of the flower is yellow with a small blotch of red on each segment. The stems are vigorous, dark, erect, and branching. Shown by S. Morris, Esq., Earlham Hall, Norwich. (Gr., Mr. Henley.)

Chrysanthemum Improved Northern Star.—This is a delightful vigorous and decorative form of the annual C. carinatum (syn. tricolor). The flowers are 3½ inches in diameter, the rays full, neat, and flat, pure white with a narrow band of clear yellow surrounding the silver-purple of the disc, which becomes brown as the florets open. The stems cut from the open field from an April sowing were three feet in length, and we were informed that some of the flowers shown had been cut for eight days. Shown by Messrs. Dobbie.

Other Novelties.

Handsome plants of the Dittany of Amorgos Origanum Tournefortii were shown by Miss Willmott. In habit and grace it is the equal of O. hybridum, and it is much hardier. Plants are extremely rare in nature, being found only "in the clefts or rents of a hideous rock that overhangs the sea," and are hardly known in cultivation.

Flowering sprays of Crotalaria agatiflora, a new species from Tropical East Africa, were shown by W. F. Hamilton, Esq. The flowers are greenish-yellow, and carried on spikes, resembling those of Erythrina Cresta-galli.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair), and Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, W. H. White, W. Bolton, A. Dye, R. A. Rolfe, F. J. Hanbury, A. McBean, T. Armstrong, W. Cobb, J. E. Shill, R. Brooman White, Stuart Low, and Sir Harry J. Veitch.

There was an excellent show of Orchids, Lælio-Cattleyas being the chief feature. Messrs. Jas. Veitch and Sons, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Flora Medal for a very effective group, in which their new, dark type of Lælio-Cattleya callistoglossa, arranged with other showy Lælio-Cattleyas, made a fine feature. The new and fine L.-C. Etterick secured an Award of Merit. Brasso-Cattleya Ilene ampliator is a fine, bold rose-pink flower, with yellow disc to the fringed lip. Cattleya Hardyana, Epidendrum vitellinum, Miltonia vexillaria, Odontoglossum grande and other showy species were also well shown.

Messrs. Armstrong and Brown, Tunbridge Wells, were awarded a Silver Flora Medal for a group of fine hybrids, their showy Lælio-Cattleya Geo. Woodhams in several varieties being among the best of dark-coloured forms. Included in the group was a cross between the hybrid just mentioned and C. Lord Rothschild, of fine colour, Lælio-Cattleya eximia Orchidhurst variety, probably the largest and best form yet shown; L.-C. Baroness Schröder, and other Lælio-Cattleyas; the new Odontioda Seymouræ (Charlesworthii × Bradshawiæ), with equally broad Indian-red sepals and petals and lighter lip; and the fine Lælio-Cattleya Marquis de Wavrin Orchidhurst variety.

Messrs. Sander and Sons, St. Albans, staged an effective and interesting group, for which a Silver Flora Medal was awarded. In the centre was a good example of Vanda Sanderiana, two strong specimens of Anguloa Cliftonii, a distinct light form of Catasetum tabulare, the rare Stanhopæ Peruviana, Oncidium Sanderæ and other rare species. Among the hybrids were the new Odontonia Farnesiana (O. Edwardii × M. Warscewiczii), with densely branded spike of dark reddish-purple flowers, partaking much of the form of M. Warscewiczii; several of the fine dark Lælio-Cattleya Invincible, L.-C. F. Gott and other Lælio-Cattleyas; Cattleya Pittiana Colossa, a pretty hybrid Lycaste, Cattleya Mulleri, and another white Cattleya and other interesting hybrids.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Banksian Medal for a group of well-flowered Orchids, including Lælio-Cattleya amabilis, L.-C. St. Gothard, L.-C. Eurydice and other Lælio-Cattleyas; Odontoglossum ardentissimum xanthotes, O. Phœbe, the very pretty Brasso-Cattleya Monetia, Paphinia cristata, some good Vanda cœrulea, and Dendrobium Phalænopsis Schröderianum.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Banksian Medal for a neat group in which were four plants of Cypripedium Baron Schröder var. ardens, several Cattleya Source d'Or, C. Venus and C. Gertrude Pitt; Lælio-Cattleya Argus, Miltonia vexillaria varieties, and M. Bleuana; the new Odontoglossum Dioscorides (crispo-Harryanum × Ruckerianum Pitts variety), a prettily-marked flower; Lælia monophylla and Bulbophyllum barbigerum.

Messrs. Hassall and Co., Southgate, were awarded a Silver Banksian Medal for a small group of well-grown Orchids, which included several Cattleya guttata; two very handsome C. Hardyana, C. Iris, C. Dowiana aurea, C. Gaskelliana alba, good Lælio-Cattleya callistoglossa, L.-C. Rubens and a fine specimen of Cypripedium A. de Lairesse.

Sir Jeremiah Colman, Bart., Gatton Park (gr. Mr. Collier), showed the orange-scarlet Lælia monophylla with 25 flowers and buds; a fine form of Brassia brachiata, Pleurothallis ve'aticaulis with a large number of elegant erect sprays of small greenish-white flowers, and a grand specimen of Ornithidium Sophronitis.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), sent the handsome Cattleya Hardyana Goodsonæ, with cream-coloured sepals and petals and richly coloured lip.

Pantia Ralli, Esq., Ashtead Park, Surrey, sent a good red Odontioda Euterpe.

Awards.

First-Class Certificate.

Odontonia brugensis Eileen (*Odontoglossum Edwardii* × *Miltonia vexillaria Memoria G. D. Owen*), from J. Gurney Fowler, Esq, Glebelands, South Woodford (gr. Mr. J. Davis). A very remarkable and beautiful cross, in which the dark mask on the lip inherited from M. vexillaria Memoria G. D. Owen can be well traced. In the flat arrangement of the segments the flowers also adhere to the Miltonia. The spike bore six flowers, with nearly equal sepals, and petals of a clear lilac-purple colour with narrow whitish margins. The lip had the basal half dark rose-purple, the crest yellow, and the front half lilac. The original form was raised by Messrs. Sander at their Bruges Nursery.

Brasso-Lælio-Cattleya × *The Baroness* (*B.-C. Mrs. J. Leemann* × *L.-C. Ophir*).—This is one of the finest of yellow hybrids, its flowers are of good shape, fine substance, and delicate fragrance. The species involved in its production are Brassavola Digbyana and Lælia xanthina in each case, the other agent being Cattleya Dowiana aurea, so fine results were assured. The sepals and broad petals are clear, light yellow, the lip buttercup-yellow with red lines from the base, and a marbling of rose colour in front, the margin being lighter in colour and fringed.

Award of Merit.

Lælio-Cattleya Etterick (*L.-C. Bletchleyensis* × *C. Dowiana aurea*), from Messrs. Jas. Veitch and Sons, Chelsea. In this fine hybrid Messrs. Veitch have surpassed their famous L.-C. callistoglossa, which it may be said to resemble, but with larger and darker flowers. The broad

sepals and petals are purplish-rose, lip claret-crimson with gold markings at the base.

Laelio-Cattleya Marquis de Wavrin Orchidhurst variety (*L.-C. elegans* × *C. Hardyana*), from Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells. A charming hybrid, with beautifully formed fragrant flowers of fine substance and glowing colour. Sepals and petals rose-purple, lip broad, purplish-ruby crimson, deepening to maroon in the centre, the base white to yellow, with red lines.

Cattleya Hordyana Mrs. Waters Butler, from W. Waters Butler, Esq., Southfield, Edgbaston (gr. Mr. R. H. Jones). A grand form, with novel features, the most striking being that the greater part of the fine lip is bright chrome yellow, the violet purple of the front being much restricted in area compared with other forms. The splendidly-grown plant bore a stout spike of four very large flowers, with rosy-lilac sepals and petals.

Cultural Commendation.

To Mr. Collier, gr. to Sir Jeremiah Colman, Bart., for a specimen of the dwarf Ornithidium Sophronitis, with a profusion of its pretty red flowers.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (in the chair), Messrs. Jos. Cheal, J. W. Bates, John Barham, Edwin Beckett, George Woodward, Henry Hooper, A. R. Allan, J. Davis, H. Markham, G. Reynolds, A. Bullock, J. Willard, Owen Thomas, John Harrison, W. Poupart, and A. H. Pearson.

Messrs. Geo. Bunyard and Co., Ltd., Maidstone, showed 50 varieties of Apples and Pears. Early dessert Apples were represented by Lady Sudeley, Langley Pippin, Red Quarrenden, Beauty of Bath, Venus Pippin, Hitchin Pippin and James Grieve. Amongst culinary sorts we noticed excellent fruits of Rev. W. Wilks, which is a variety of great promise. It is said to do best on the Crab stock. Gold Medal and Norfolk Beauty were other good sorts. The Pears included excellent fruits of Triomphe de Vienne, Clapp's Favourite and Souvenir du Congrès from wall trees. (Silver-gilt Banksian Medal.)

Messrs. Spooner and Sons, Hounslow, were awarded a Silver Knightian Medal for a collection of Apples. Prominent varieties were Lady Sudeley, Potts' Seedling, Frogmore Prolific, Ecklinville Seedling, Ringer, Lord Suffield, Grenadier, Domino, Castle Major, Duchess of Oldenburgh and Stirling Castle.

C. E. Baring-Young, Esq., Oak Hill Park, East Barnet (gr. Mr. J. Walker), was awarded a Bronze Banksian Medal for a small exhibit of Peaches, Nectarines, Pears and Plums grown out-of-doors.

Messrs. Bakers, Wolverhampton, exhibited a collection of vegetables, for which a Silver-gilt Knightian Medal was awarded. This fine exhibit included excellent Autumn Giant and Supreme White Cauliflowers, Codsall Gem Cabbages, Telegraph Improved Cucumbers, Lyon Leeks, Blood Red and Ailsa Craig Onions, extra long French Beans, Selected Intermediate Carrots, Lettuces, Beets, Parsnips, Potatos, Marrows, Tomatos, Radishes, Kohl Rabi, Cress and other kinds of kitchen-garden produce.

Messrs. Bucks, Ipswich, showed a very prolific variety of Tomato named Tresco. One truss of fruits weighed 7 lb. 3oz., and contained 100 berries. The fruits are perfectly round and of good colour, but rather small.

Awards of Merit.

Apple Maidstone Favourite.—This new variety was raised from Irish Peach and Beauty of Bath. The fruits are round and flattish, with a deep eye, and short stalk set in a deep cavity. The skin is streaked with red and highly coloured on the side next to the sun. The flesh is said to be solid, crisp and juicy. The tree has short-jointed growth and is a free bearer. The variety is recommended as a market Apple to follow Beauty of Bath. Shown by Messrs. Geo. Bunyard and Co.

The Sub-Committee of the Fruit and Vegetable Committee met at Wisley on the 22nd inst., when the following awards were recommended, which were confirmed by the Council on Tuesday last:—

Awards of Merit.—*Potato*, Irish King (Barr and Sons); *Tomatos*, Holmes Ideal (Robert Sydenham, Ltd.), Holyrood (Dobbie and Co.), Hurst Marvel (Drover), Liberty (Alex. Dickson), Lightning (Barr and Sons), and Pear-shaped (Barr and Sons).

Highly Commended. — *Tomatos*, Garland (Dobbie and Co.), and Golden Sunrise (J. Carter and Co.); *Potatos*, Great Scot (R. Veitch and Son), No 28 (J. Carter and Co.), and Southern Star (J. Veitch and Sons).

HORTICULTURAL TRADES' ASSOCIATION.

August 26-28.—The annual meeting of the Horticultural Trades' Association was held this week. The session began on Tuesday with a dinner at the Hotel Windsor, London, when about seventy members were present. The President, Mr. W. J. Jefferies, occupied the chair. The annual business meeting was held after dinner, the reports being read by the Secretary, Mr. Charles E. Pearson. The report showed that the past year had been one of activity, much good work having been accomplished by the Council in the interests of the Nursery and Seed Trades, Workmen's Insurance, Government Competition, Phylloxera Laws, Unfair Trading, Railway Matters, and Rating questions being the most important subjects dealt with. The membership of the Association embraces most of the leading firms in the country, and is over 400 strong. The financial position is also satisfactory, there being a balance in hand of £729 15s. 9d. The retiring President, Mr. Jefferies, proposed the election of Mr. W. Cuthbertson (of Messrs. Dobbie and Co., Edinburgh) as his successor, which was seconded by Mr. R. W. Wallace, of Colchester, and carried with acclamation. Mr. Cuthbertson then took the chair, and after thanking the members for electing him as their President, proposed the re-election of the retiring members of the Council: Messrs. Basham, Bunyard, Green, Mortimer, Pennell, and D. W. Thomson. The thanks of the Association were voted to the retiring President on the motion of the President, seconded by Mr. Stuart Low, and Mr. Jefferies' health was pledged.

Mr. Todman proposed and Mr. Chalcroft seconded a vote of thanks to the Council and Secretary, which was acknowledged by Mr. A. W. Paul, and the Secretary.

Thereafter a keen discussion took place on the question of Foreign Competition, which was ably introduced by Mr. J. Brown, Peterborough. The debate was continued by Messrs. Perkins, Cull, Wallace, Walshaw, Chalcroft, Lake, and Stuart Low, who said that if the British nurserymen maintained the English standard a clientele for their goods would always be forthcoming. The President said the evidence which could easily be obtained of foreign firms offering in their catalogues discounts to gardeners of 10 to 15 per cent. should be collected. A strong representation should be made to the Government that such firms are breaking British laws, and the Government should be urged to deal with the matter. The Council was requested to consider the important points which had arisen in the discussion.

Mr. F. Perkins (Northampton) introduced a discussion on the Insurance Act. Mr. Perkins submitted figures showing that the actual benefits received by workmen in the nursery trade worked out at something like 10 per cent. of the total contributions. The Secretary confirmed this statement. Mr. Jefferies suggested that a form be sent to the members asking for full information on this point, and Mr. Low suggested that unless some strong organisation was formed, such as that which watched the interests of agriculture, there was little hope of any redress being obtained. This view was held by several other speakers, the President remarking in summing up that the Act was, after all, one for the nation as a whole. The question of issuing circulars as proposed by Mr. Jefferies was remitted to the Council and is likely to be adopted. The meeting was adjourned till the following evening. On Wednesday the members visited Colchester and on Thursday Windsor.

Mr. William Cuthbertson, J.P.
The New President of the Horticultural Trades' Association.

TAUNTON DEANE HORTICULTURAL.

August 14.—The annual Floral Fête held at Taunton on the above date was a complete success, and the weather extremely fine. In point of quality of the exhibits, there was a distinct advance over last year, although in certain

classes the effects of the unusually dry weather were apparent. There were several non-competitive exhibits. Messrs. Isaac House & Son, of Westbury, showed Tomatos and hardy plants; and Messrs. Kelway and Son, Langport, staged a large exhibit of Gladioli of various shades with very pleasing effect. Other non-competitive exhibits were those of Messrs. Vernon T. Hill, Langford; R. Veitch & Son, Exeter; and A. W. Walters & Son, Bath. The Gold Medal in the non-competitive section was awarded to Messrs. Kelway & Son; and Silver-gilt Medals to Messrs. R. Veitch & Son, Vernon T. Hill, W. E. & T. Cousins (Taunton), and Isaac House & Son. Sweet Peas were well shown, especially by Mr. F. Tomkins. Messrs. J. Cypher & Sons were awarded the 1st prize for a group of miscellaneous plants, and also for the best stove plant (Ixora Duffii) and the best greenhouse plant (Statice intermedia). In the class for cut flowers, Mr. H. Clarke, of Taunton, won the 1st prize with a fine show of Gladioli and Lilium tigrinum. Mr. J. Mattock exhibited a superb collection of Roses, and Messrs. Jarman & Co., of Chard, made an artistic display of different varieties of Dahlia. Messrs. Arthur R. Brown, Ltd., of King's Norton, staged an exceptionally fine exhibit of Carnations, the colours ranging from white to the darkest red. The exhibits of Honey were uniformly good, and lectures on bee-keeping were given in the tent devoted to this section. In the fruit classes Mr. H. St. Maur (gr. Mr. Richardson) was placed first, and this gentleman also won the 1st prize for four dishes of fruit.

ABERDEEN AND NORTHERN COUNTIES SWEET PEA.

The third annual exhibition was held at Aberdeen, and proved a great success, the number of entries being the largest on record. The leading competition in the professional classes was that for the best twelve bunches of Sweet Peas with waved standards, distinct varieties; no fewer than 84 vases, approximating 1,600 blooms, being staged. Sir Thomas Burnett, Bart., of Leys, Crathes Castle, near Aberdeen (gr. Mr. John Petrie), was awarded the 1st and 2nd prizes for magnificent exhibits, of which the most admired specimens were Agricola, Lady Millar, Melba, Edrom Beauty, Rosabelle, and Dobbie's Cream. Sir Thomas Burnett was also the 1st and 2nd prize-winner in the class for six bunches, and he won the 1st and 2nd prizes for (1) the best three bunches, (2) three bunches of Sweet Pea, novelties of 1912 and 1913, catalogued and offered for sale for the first time during 1912 and 1913. In the last competition Sir Thomas showed fine specimens of Agricola, Melba, Kathleen, and Pedestal. Mrs. Dunbar Dunbar followed in all the foregoing competitions.

An outstanding feature of the show was the very fine entries in the competition for a display of Sweet Peas arranged for effect on a space 6 feet by 3 feet. Sir Thomas Burnett's exhibit was again the best. 2nd, The Countess of Aberdeen, Haddo House, Aberdeenshire (gr. Mr. John McKinnon).

The best dinner table decoration, arranged on a space 6 feet by 4 feet, was shown by Mrs. Porter, Monaltrie, Ballater, Aberdeenshire, her display being very artistic in design, and composed of delicate pink blooms.

The leading prizes in the amateur section were won by the Rev. E. V. Kissack, The Orphanage, Aberlour, and Mr. R. W. Duncan, Kemnay.

Obituary.

Rudolf Stoll.—We learn from our contemporary, *Die Gartenwelt*, of the death of Herr Dr. Rudolf Stoll, formerly Director of the Königlichen Lehranstalt für Obst- und Gartenbau at Proskau. Dr. Stoll, who was born in Rome in 1847, and who studied in France, Germany and Austria, devoted much of his life to the study and practical amelioration of fruit. He was the author of works on Austro-Hungarian pomology and on American Early Peaches, and was Editor of the Austrian *Obstbau-zeitung*.

Answers to Correspondents.

Beech Diseased: *W. H. H.* The Beech Coccus is often confined to the trunk and main branches of the tree, when it can be eradicated by scrubbing the bark with a strong insecticide. Scrubbing may not be practicable, in which case you must resort to spraying. The following is recommended in the Board of Agriculture leaflet on this subject:—(1) The trees should be sprayed, when in the dormant condition, with the following emulsion-soda wash, as used at the Woburn Fruit Farm: Paraffin, 2 gallons; soft soap, 1½ lb.; caustic soda (98 per cent.), 6 lb.; water, 28 gallons. In order to prepare the wash the soft soap should be dissolved in a gallon of boiling water; the paraffin should then be added, and the mixture churned thoroughly until a cream-like mass results. The thoroughness of the churning is important. The 6 lb. of caustic soda should next be dissolved in the remaining 27 gallons of water, and then poured into the paraffin emulsion. The whole should be well mixed and used immediately. Experimental work at Woburn, however, indicates that there are advantages in using a wash composed of: Sulphate of iron, ½lb.; lime, ¼lb.; paraffin (solar distillate), 5 pints; caustic soda (98 per cent.), 2lb.; and water to make 10 gallons. This may be prepared for use by proceeding as follows: (*a*) Dissolve the sulphate of iron in about nine gallons of water; (*b*) shake the lime in a little water, and then add a little more water to make into a "milk"; (*c*) run *b* into *a* through a piece of coarse sacking to remove grit; (*d*) pour the paraffin into the mixture (*c*) and churn the whole thoroughly; (*e*) add the caustic soda in powdered form just before using, and stir thoroughly. In using either of these mixtures the face and hands must be protected, as the mixtures are caustic in character. One advantage of the caustic soda is that it helps to clear the tree of such growths as lichens and algæ.

Correction.—Colonel Rideout, Clury Nurseries, Langley, was awarded a Gold Medal for his exhibit of Carnations at the Shrewsbury Show, not a Silver-gilt Medal as stated in our report.

Horticultural Sundries and Manures: *A Lover of Fair Play.* It would be a difficult matter to interfere with a firm's method of conducting business on the score of selling too cheaply. Any publicity afforded the matter would only be the means of affording opportunity to others to take similar advantage.

Insects in Chrysanthemum Pots: *W. H., Bromley.* The material was all dried up, and it is impossible to identify the insect.

Insects on Abies: *W. M.* The Abies is attacked by the Aphis Chermes piceæ. Spray with nicotine, soap wash or paraffin emulsion. This operation must be done thoroughly, and it is best done soon after the masses of eggs hatch out.

"Mud" from a Stream: *G. C.* The manurial value of the silt obtained from streams and ponds varies according to the local conditions, but is often considerable. This silt is generally composed of soil and decayed leaves which have been deposited in the water, and grit. The deposits from streams which flow through densely-wooded districts where the natural soil is deep and rich may often be seen supporting very luxuriant vegetation. When required for garden purposes it is advisable to first "weather" the silt by storing it in heaps in an open position. After most of the water has drained, the silt should be turned occasionally, adding a little lime, until it has become moderately dry and less adhesive. It may then be used as a top-dressing for lawns, shrubberies, flower borders, and suchlike, or be mixed with the soil in any portion of the garden.

Names of Plants: *Journeyman.* 1, Dactylis glomerata variegata; 2, Malcomia sp. (specimen too scrappy for identification); 3, Polemonium cœruleum; 4, Erigeron macranthus var.; 5, Lychnis coronaria var. oculata; 6, Hieracium aurantiacum; 7, Ixia (seedling variety); 8, Helenium autumnale var. striatum; 9, Corydalis lutea; 10, Lilium tigrinum; 11, Cephalaria alpina; 12, Bocconia cordata.—*A. B. H.* Amorpha fruticosa.—*F. T.* 1, Cœlogyne lentiginosa; 2, Cœlogyne Rossiana.—*V. O.* 1, Oncidium flexuosum; 2, Oncidium barbatum; 3, Sigmatostalix radicans; 4, Not recognised.—*R. O. Y.* 1, Sophronitis cernua; 2, Aërides japonicum; 3, Angræcum falcatum.—*J. O.* Teucrium Polium.—*H. J. B.* We do not undertake to name varieties of Gladiolus. Send to some grower, who can compare them with plants in his collection.—*Lucan.* The Rose blooms were shattered; 5, Spiræa chamædrifolia; 6, S. ariæfolia.—*T. H. F.* Bocconia cordata.—*H. S.* 1, Tamarix pentandra; 2, Rhus Cotinus atropurpurea; 3, Rhus Cotinus; 4, Hypericum elatum; 5, Eucryphia pinnatifolia.—*J. F. G.* Potentilla argyrophylla var. atrosanguinea.

Names of Fruits: *Apple in Tin Box.* Early Kerry.

Potatos Diseased: *G. A. U.* The plants are badly affected with Wart disease of Potatos (Synchytrium endobioticum) as you suspect. The subject of Wart disease formed one of the series of articles appearing in these pages entitled "Scheduled Pests." (See *Gard. Chron.*, November 2, 23, 1912, pp. 327, 391.)

Preserving Sprays of Beech: *L. S.* The branches should be cut as soon as the leaves are mature, tied into conveniently sized bundles, and pressed between two boards in a cool shed. The foliage of various trees and shrubs, e.g., the Beech and the Mahonia (Berberis Aquifolium) persist for a considerable time if they are cut before the ripening process commences.

Seedling Rose: *A. A. T.* The bloom is small, but the colour is rather pleasing, and the flowers may become larger if they are worked on some suitable stock. This might be done now if suitable buds are available, but if not you should continue to grow the plant, and assuming it is in a pot, it would succeed best in the greenhouse. If the Rose is planted out-of-doors do not disturb it until the leaves have fallen.

Sweet Peas: *C. M.* We suspect that one cause of the plant's failure is excessive manuring, considering that you not only dressed the ground heavily in the autumn with phosphatic and potash manures, but also applied another heavy dressing in the spring. Trench the ground well in the autumn and add farmyard manure, not in layers but well mixed with the soil. Incorporate with the top spit a quantity of bone meal and soot; this, with a light dressing of sulphate of potash in the spring, should afford sufficient nourishment for the roots until the plants commence blooming, when they may be fed with some special Sweet Pea manure or liquid farmyard manure, or these stimulants may be applied on alternate occasions. After trenching the ground sprinkle lime over the surface freely. Retrench the ground which has been planted with Sweet Peas for the past three or four years, and instead of manuring it apply a thorough dressing of lime.

To Preserve the Green Colour in Fern Fronds: *E. W.* The fronds should be cut when of full size, and after having been lightly pressed between sheets of blotting paper, dipped in a weak solution of gum arabic.

Tree for Wind Screen: *B. H. M.* The best evergreen tree for your soil and situation is the Evergreen Oak (Quercus Ilex), but if space permits, a much more effective wind screen could be made by means of a mixed planting, using such species as Pinus pinaster, P. austriaca, Populus monilifera, Cupressus Lawsoniana, Pseudotsuga Douglasii, and Ulmus cornubiensis, in addition to the Ilex Oak.

Communications Received.—J. O.—W. R. C.—B. E. R.—C. E. F.—H. H. S.—Perplexed, Hertford—Geranium—Gardener, Dornock—T. L.—E. A.—Cestrian—H. W.—M. G. A.—C. G. A.—G. C. R., California—G. C, Malines—A. B.—T. P. E., Bros

CATTLEYA LAWRENCEANA

(From a photograph obtained in Mrs Bischoffsheim's Collection, Stanmore.)

THE

Gardeners' Chronicle

No. 1,393.—SATURDAY, SEPTEMBER 6, 1913.

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ILLUSTRATIONS.

THE MARKET FRUIT GARDEN.

AT last the second summer drought has been substantially broken. In the five weeks which ended on August 23 only 0.12 inch of rain was measured at my station; the first considerable fall in August occurring on the 26th, when the measurement was 0.18 inch. A steady downpour began in the evening of the 30th, and continued almost without a break until 6 a.m. on September 1, amounting to 1.12 inch, which brought the total for August up to 1.85 inch, and to 1.86 inch for six weeks.

There has now been rain enough not only to refresh vegetable crops ,but also to penetrate to the roots of fruit trees. Whether it has come in time to remedy to any considerable extent the stunting effect of the two summer droughts upon late Apples remains to be seen. That it will do so completely can hardly be hoped, as the fruit is already nearly mature. Lane's Prince Albert, as a feeble grower and heavily cropped, has suffered severely, so that the fruit is much smaller than usual; and even Bramley's Seedling and Newton Wonder are also below their normal sizes.

One Advantage of the Droughts.

Against the disadvantages of the recent droughts must be set the great advantage of the early disappearance of the aphis. Last season Apple trees, and particularly young ones, were badly infested until late in the autumn. Indeed, one variety of the pest was persistent in its attack until it was destroyed by frost. The injury to the development of the young trees was incalculably great. This season, in spite of the dryness of the soil, the youngsters, cleared of the aphis, have made splendid growth. Many trees, almost given up in despair at the spring pruning, have become fairly furnished with long and vigorous new shoots starting from the points at which the branches were cut back below the parts twisted by the aphis in 1912.

Another Advantage.

The help of the drought in the destruction of weeds by hand and horse hoeing is another great advantage, though against it must be set the extraordinary expense of the work. That which was executed by hand is to be more correctly described as "stubbing" than as hoeing. Ordinary hoes could scarcely be made to enter the iron-bound soil of the orchards, and I had some heavy 6 inch mattock hoes made for the men to use, instead of the usual 9 inch light hoes. In spite of the loss of width the men found they could get over the ground more quickly with the mattock hoes than with the others. The work, however, was extremely hard, and the men earned less than they do in ordinary seasons at piece-work, although paid 50 per cent. more per acre than usual. My ordinary price for hoeing all the land under trees, where the horse hoe cannot be used, is 12s. an acre, and the men usually do well at that rate. This year they earned less than usual at 15s. per acre, and in one case two hard workers earned barely 3s. a day, when I made the price up to 20s. an acre, instead of the usual 3s. 4d. to 4s. a day, which I like to see good piece-workers earning. This last case was in an old orchard of bush-shaped trees, awkward to work under, very grassy, and extremely hard. The exceptional hardness of the soil, of course, was due to drought following flood, together with the results of much trampling when Apple trees were pruned, and when spraying and fruit thinning were done.

The Most and Least Fruitful Apples.

With me the best crops of Apples this season are or have been those of Mr. Gladstone, Beauty of Bath, Lady Sudeley, Worcester Pearmain, James Grieve, Charles Ross, Domino, Queen, Royal Jubilee, Lord Grosvenor, Lord Derby, Lane's Prince Albert, Bramley's Seedling, Chelmsford Wonder, and Dumelow's Seedling (Wellington). Varieties bearing half to three-quarter crops are Early Julyan, Warner's King, Allington Pippin, and Newton Wonder. Almost fruitless are or were Irish Peach, Cox's Orange Pippin, and Gascoyne's Scarlet. Entirely fruitless was Duchess of Oldenberg. Some of the half or wholly fruitless varieties blossomed profusely. Royal Jubilee has given the greatest weight of Apples per acre of all gathered varieties.

Yields of Plums.

Among mature trees Czar alone gave a fair crop, Rivers's Early Prolific, Gisborne, Victoria, Pond's Seedling, Black Diamond, and Monarch being nearly barren. On young trees Czar gave a partial crop, Early Prolific hardly any. Pond's Seedling a good crop, Monarch only a very slight sprinkling, Coe's Golden Drop, Greengage, Denniston's Superb Gage, Oullin's Golden Gage, and Reine Claude Violette being barren.

No Pears.

My Pear crop is practically *nil*. The only tree in my small Pear orchard bearing as many as a dozen fruits is the stewing variety Verulam.

Filberts and Cobnuts.

Hardly a nut can be found on the few Filbert bushes here. On sheltered Cobnut trees there is a fair sprinkling, but not on trees exposed to wind. That the nut crop is an extremely short one is indicated by 7d. to 8d. per lb. quoted for Kent Filberts, and 9d. returned for my first lot of Cobnuts, compared with 2d. to 3d. returned last season. Rail and market expenses, of course, are to come off. Presumably consumers are to pay at least 1s. a pound for Cobnuts, and it may be supposed that new Brazils, quoted at 80s. per cwt. wholesale, will be as dear. By the way, the catkins of Cobnuts for next season's pollination are already half-size, fully six months before their services will be required. It is almost pardonable to suggest that Nature made a blunder in this connection, as the vitality of nut catkins is frequently destroyed by winter frosts.

Advantages of Prompt Marketing.

For several reasons there is a great advantage in the speedy marketing of early and mid-season Apples after the gathering. In the first place, prices almost invariably fall for at least two months after the start, especially when autumnal gales cause the markets to be glutted with windfalls, a misfortune escaped this season up to the time of writing. In the case of dessert Apples, it is hardly necessary to say appearance and flavour are deteriorated by keeping after gathering, though improved by allowing the fruit to remain on the trees until dropping begins to become a source of loss. Further, there is a loss by rotting when Apples, other than late keepers, are held back from market. Cracked or otherwise flawed fruit, which can be sold at some price when fresh from the trees, quickly rots, and communicates rotting to sound fruit. Some varieties of culinary Apples, too, become flabby or turn yellow by keeping, and thus lose market value. There is not much need for advocating prompt marketing, however, as the common mistake of too many growers is the premature selling of long keepers, which usually pay to hold so long as they keep well, where there is storage room in a frost-proof fruit chamber.

Pollination Observations.

Except in relation to two varieties of Apples my observations have failed hitherto to support the statements of cer-

tain authorities as to self-sterility. In the case of Charles Ross I have a few isolated trees, planted about eight or ten years ago, which have never borne an Apple; and this season, for the first time, I notice Cox's Orange Pippin trees bearing more fruit on outside rows next to other varieties than in the inside rows 48 feet from any other kind. Last season, on the contrary, the middle row in a piece of five rows 12 feet apart in another field fruited as well as rows next to Worcester Pearmain on one side and Mr. Gladstone on the other, while the outside of another patch, 72 feet from any other variety, also fruited well for the age of the trees. Last year, however, was a good one for Cox's Orange Pippin, and I am disposed to believe that, taking one year with another, the variety fruits better when it is cross-pollinated. In this connection it is to be observed that Mr. Gladstone blossoms too early to be of much use to Cox's Orange Pippin, which is one of the latest bloomers. Worcester Pearmain and Lane's Prince Albert are among the varieties which blossom at about the same time as Cox's Orange Pippin, and it is my intention to plant a few upright cordons of one of these two varieties at regular intervals in places now occupied by Black Currant bushes among the Cox's Orange Pippin trees. Other evidence as to lack of self-pollination based on my own observations is of a negative character. Lord Grosvenor trees 156 feet from any other variety have borne heavy crops in three successive seasons. Bramley's Seedling has fruited as well 24 feet from any other variety as where next to Lane's Prince Albert on one side or Warner's King on the other. In the cases of Lane's Prince Albert, Gascoyne's Scarlet, and Allington Pippin similar observations have been made, the distances of all but Gascoyne's of the middle rows from any other variety being much greater than in the case of Bramley's Seedling. Worcester Pearmain, 48 feet from any other variety, has fruited as well in three successive seasons as in the row next to Blenheim Pippin, with Allington one row beyond Blenheim; and this year young Worcesters, 84 feet from any other variety, bore as well as where trees adjoined Beauty of Bath or Gascoyne's Scarlet. In two young plantations of Apples there are some very wide breaks of certain varieties, and next season should afford a good opportunity of making careful observations as to evidence of self-pollination or cross-pollination from a considerable distance.

With respect to Plums, the only variety as to which I have reason to suspect lack of self-pollinative capacity is Black Diamond.

It is desirable to mention that bees are kept somewhat extensively close to most of my orchards, and that the latter are situated in the "sunny South." Moreover, it does not follow that where varieties are well pollinated they are self-pollinated, as they may be cross-pollinated by the action of wind or insects. This last remark should be borne in mind in relation to what is written above. *A Southern Grower.*

NEW OR NOTEWORTHY PLANTS.

ROSA SERTATA, ROLFE.

R. SERTATA belongs to the Cinnamomeæ section, its nearest allies being R. Webbiana, R. Willmottæ and R. macrophylla. The type specimen, named and described by Mr. Rolfe, was raised at Kew from seeds collected by Mr. E. H. Wilson in China. The plants form shapely bushes 4 feet to 6 feet in height, with long, slender, gracefully arching shoots. Even when not in flower or fruit, the bushes are attractive by reason of the glaucous, green foliage. The delicate blossoms, coloured rose or rose-pink, are borne several together at the ends of short branchlets, developed along the young, vigorous growths of the previous year. They are 2 inches to 2½ inches across, and appear from mid-June onwards, the period of flowering lasting about a month. The slender, ovoid, beaked fruits are coloured rich vermilion-red, about ¾ inch long with persistent sepals, hanging singly or several together along the gracefully arched branches.

R. sertata differs from R. Webbiana in its laxer habit; the stems are armed with a few slender, straight thorns, whilst those of R. Webbiana are densely clothed with spines; it differed also in the long, slender-beaked fruits, which in R. Webbiana are almost round.

R. sertata would make an attractive and impenetrable hedge, and is a useful plant for grouping in the shrubbery borders. Seeds from isolated plants may be expected to come true, but, like wild Roses generally, it crosses freely with other species. The plant may also be propagated from layers or cuttings. *A. O.*

Photograph by C. P. Raffill.

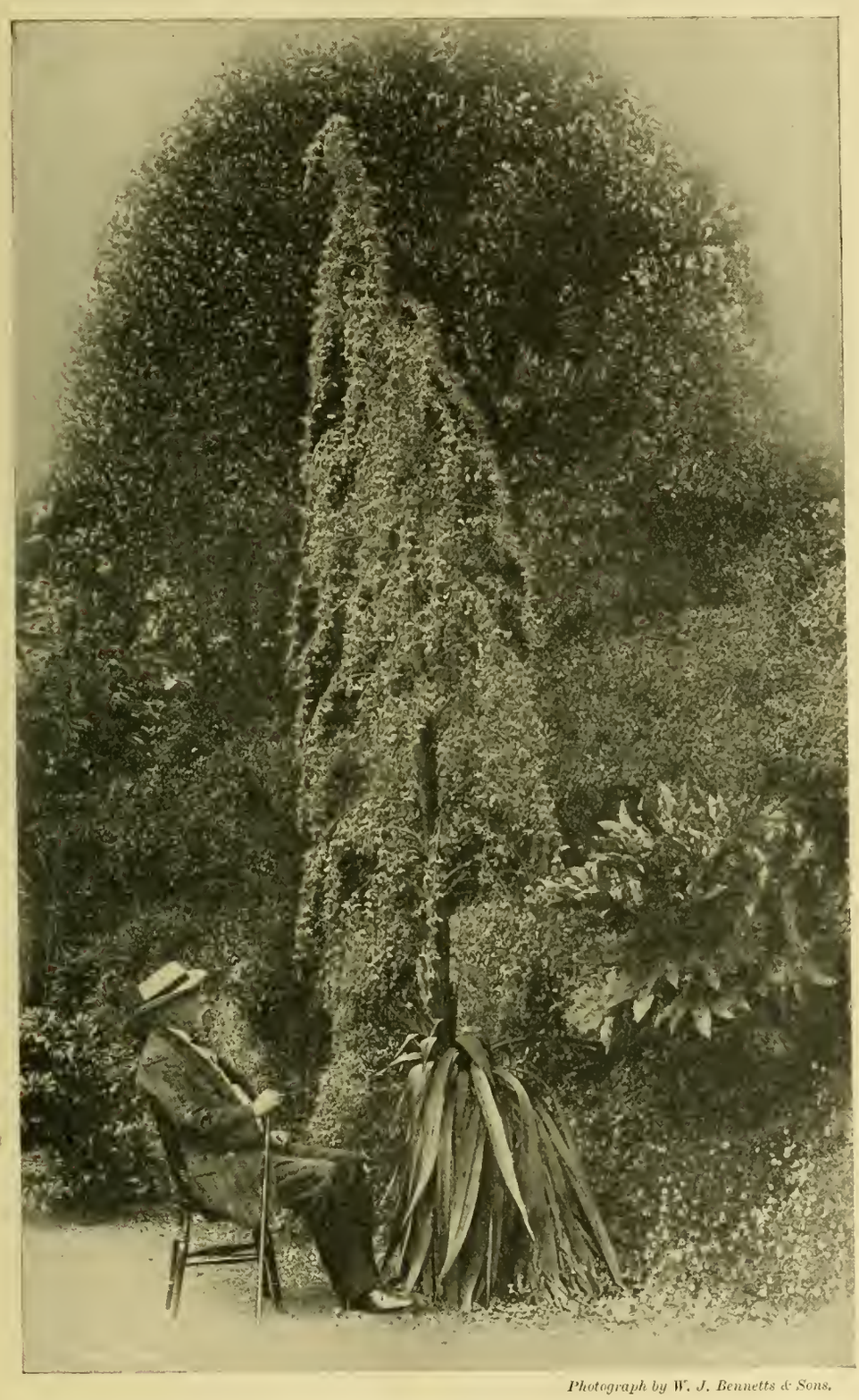
FIG. 63.—ROSA SERTATA: COLOUR OF FLOWERS ROSE-PINK.

FURCRÆA BEDINGHAUSII.

FURCRÆA BEDINGHAUSII was discovered in 1857 by the distinguished traveller and collector, Roezl, who found it growing on Mount Acusca in Mexico at an altitude of over 12,000 feet. The plant was shortly afterwards introduced into European gardens, and flowered for the first time in cultivation in the garden of M.

Bedinghaus, of Mons, in 1863, after whom it was named by K. Koch.

It is recorded as having flowered in several Continental gardens shortly afterwards, and in 1875 flowered in the famous garden of Mr. Dorrien-Smith at Tresco Abbey, Scilly. In these gardens, which are practically free from frost, although they are situated only 43 miles off the coast of Cornwall, the species thrives freely, and specimens there have flowered frequently. The plant illustrated in Fig. 64 was obtained from the Tresco garden some ten years ago, and planted in a sheltered position out-of-doors in the garden at Pendarves, Cornwall. It has thrived beyond expectation, and has recently flowered, sending up an inflorescence over 12 feet from the tops of the leaves, the total height of the plant being more than 16 feet, whilst the spread of the leaves exceeds 3 feet in diameter. The large, branching panicle bears many hundreds of pendulous flowers. These are 1½ to 2 inches in diameter, pale primrose on first opening, fading with age to pale greenish yellow. The perianth segments are spreading, ¾ inch long, elliptic-oblong, and hairy on the outside. The ovary is elliptic in shape and covered with short white hairs ¾ inch long.



Photograph by W. J. Bennetts & Sons.

Fig. 64.—Furcræa bedinghausii flowering in Mr. W. C. Pendarves' garden, Pendarves, Camborne.

The species seldom bears fruit, even in its native habitat, but in place of fruit many hundreds of small bulbils are developed on the inflorescence, and these furnish a ready means of reproduction. In some cases the bulbils are so numerous that their weight bears down the plant to the ground. Their development is rapid, and they are readily detached from the parent at an early stage of their development. The seeds when fully matured are black, prominently winged, and some ¾ inch in diameter.

The plant when not in flower has some resemblance to an Agave or Dracæna, the leaves being slightly glaucous-grey and finely serrate on the margins, in striking contrast to the generality of plants cultivated in the more favoured parts of the British Isles.

The Furcræas, of which there are about a dozen species in cultivation, are natives of the Andean region of Colombia and Venezuela, extending northwards into Mexico and southwards into Brazil. They are closely allied to the Agaves, but are not so succulent in their habit, and require moister conditions. Several species are largely grown on a commercial scale in tropical countries for the valuable fibre contained in the leaves, the best of these being F. gigantea and F. cubensis. *C. P. Raffill.*

DESTRUCTIVE INSECTS AND PESTS 'SCHEDULED' BY THE BOARD OF AGRICULTURE AND FISHERIES.

XIII.*—CUCUMBER AND TOMATO CANKER.

The disease to which the name "Cucumber and Tomato Canker" has been given in England was first known as a serious disease of Melons in the United States, where, so far as published reports show, it has not been found on Cucumbers or Tomatos. Tomatos and Cucumbers attacked by this disease, due to the fungus Mycosphærella citrullina, Grossenbacher, were sent to Kew in 1909, and since that date the disease has become more widely distributed and now does considerable injury to Tomatos. An investigation at Kew showed that "The spores from diseased Cucumber plants would infect young Tomato plants, and that spores from a Tomato plant would infect Vegetable Marrow plants." Thus Melons, Marrows, Cucumbers, and Tomatos may be attacked, though principally Tomatos in England. For example, the disease occurred on Tomatos at Waltham Cross in 1909, Bristol and Cambridge in 1911, and this year is common in Kent, where it is causing considerable loss. It is now widely distributed, although it is not infrequently overlooked or confused with other Tomato diseases. One grower lost hundreds of plants in 1909 and 1,000 plants in 1910, while another had a large number of houses devastated in 1909 and had not one per cent. of plants diseased in 1910.

The effects of attack are somewhat sudden, and the first indication of the disease is commonly the wilted foliage, at a stage when nothing can be done to prevent total loss of the affected plants. Wilting is followed quickly by the collapse and death of the plant. In America, Grossenbacher† noticed in regard to Musk Melons that "the dying petioles seemed to have a somewhat water-logged appearance at their junction with the vine. On a few nodes of this kind an oily-green coloured region was evident from which a few drops of resin-coloured gum had exuded." A week later he observed that "on the internodes beyond the fruiting zones the oily-green, water-logged character of the vine was very conspicuous."

* The previous articles appeared on September 27, October 12, November 2, and December 7, 1912; and on February 1, March 1, March 15, April 26, May 3, May 24, June 7, and August 16, 1913.

† *New York Agric. Expt. Sta., Tech. Bul.* No. 9, 1909.

The oily-green regions subsequently turned either "a dark and gummy or dry and grey colour, depending upon the relative quantity of gum presented and the extent of the cortical and sub-epidermal mycelial development that had taken place during the earlier stages of the disease."

Diseased Tomato plants are described ‡ as follows :—"In each case the base of the stem was considerably shrunken, and the cortex destroyed. . . . . In some specimens the nodes or joints of the stem were also attacked. Plants attacked as above promptly succumbed, a grower's statement being that they fell over like ninepins."

Another description illustrative of the attack on Tomatos is as follows§ :—"The symptoms which have most frequently been seen are the wilting of the whole or the top part of the plant, and the brown and sunken appearance of some part of the stem. Generally this patch is within an inch or two of the soil. It is dry and rather fibrous in texture, while the healthy part is rather green and sappy. In many instances the canker is found some distance up the stem, and here, as at the base, the stem shrinks inwardly."

The point of attack would appear to be a wound, such as an accidental injury, a puncture due to an insect, particularly near a node or joint, or a point where a leaf or shoot has been stopped. The disease has also been recorded by Brookes and Price‖ as attacking the fruits of Tomatos grown in the open. The fungus is now regarded as a wound parasite, though some doubt has been expressed as to whether it has not the capacity for direct attack without the medium of a wound. Experiments by Brookes and Price showed that "with green fruits infection would only result if the fungus, either in the form of mycelium from a pure culture on Tomato-gelatine, or of spores, was inserted into the wounded parts."

The discoloration of the stem externally is somewhat rough and has no marked boundary, but is "smudgy"; and the "shanking in" of the affected portion is usually well marked, while with a hand lens the pycnidia may commonly be seen as minute black specks. The disease is commonly mistaken for that caused by the wide-spread fungus Botrytis cinerea; in the cases of attack by the latter the affected points show as lesions clearly defined by an apparent hard line.

The fungus described as Mycosphærella citrullina, Grossenbacher, is now proved to be the pycnidial stage of Ascochyta citrullina, C. O. Smith, or Diplodina citrullina, Gross. On Melons in the United States two stages of the disease have been observed—a first, in which pycnidia are produced during the ashy-grey stage, followed by a second, in which perithecia with ascospores (resting spores) are produced when the host is dead or dying. Writing in January last (*The New Phytologist*), Brookes and Price stated that they could not find any record of the perithecia stage in this country, and perithecia were not produced in the course of their own experiments. It would appear therefore that in Britain the fungus is propagated by the mycelium or by the pycnidiospores.

The pycnidia (see fig. 65) are described by Grossenbacher as slightly depressed-globular and light brown to dark brown in colour, containing two-celled, more or less cylindrical spores with rounded or tapering ends. On germinating the pycnidiospores give rise to a dense mycelium. The perithecia are described as "roughish, dark-brown to black, depressed-globular to inverted-top-shaped." They produce somewhat cylindrical asci, each containing eight two-celled ascospores.

Comparatively little is known at present in regard to methods of remedy or prevention, and it is not yet clear how the disease is propagated from year to year, perithecia, which might otherwise survive the winter, apparently not being produced in this country. It is a safe measure, however, to burn all affected plants. The houses may be cooled down somewhat when plants are found to be diseased—since it is believed that the moist, warm condition of glass-houses is essential for the extensive development of the fungus. The plants should be repeatedly and thoroughly sprayed with Bordeaux mixture from the time they are quite young and before the disease appears, in order to prevent extensive infestation.

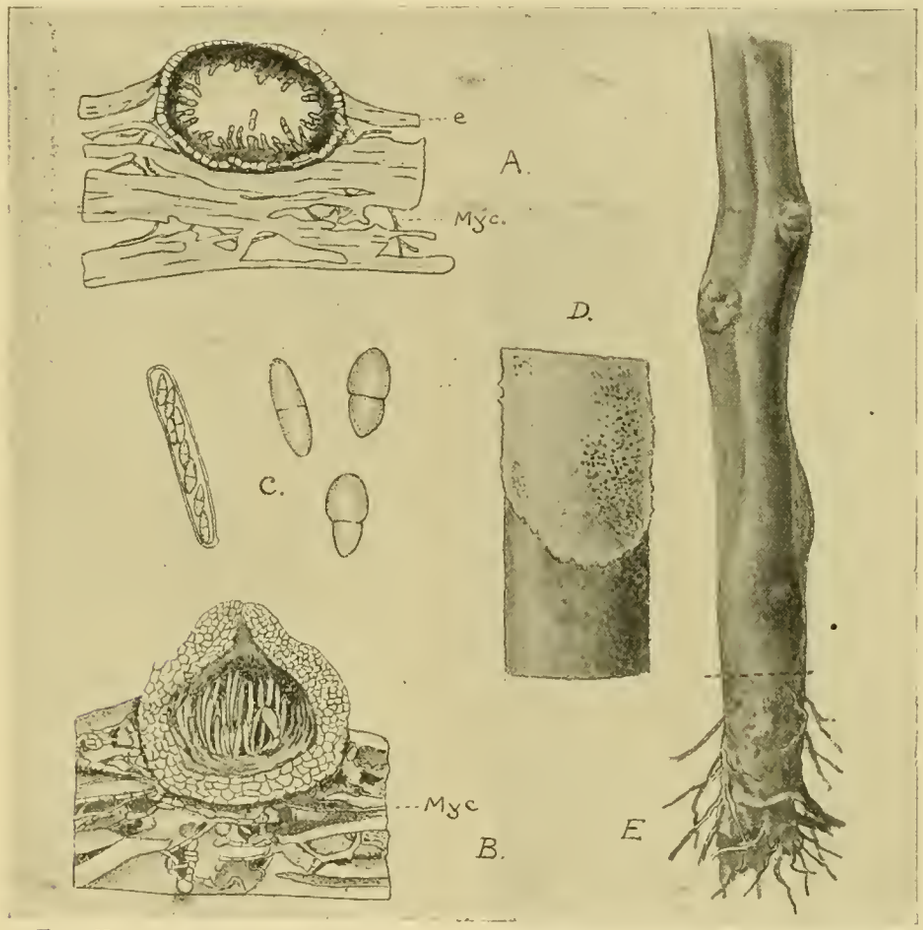


FIG. 65.—CUCUMBER AND TOMATO CANKER (MYCOSPHÆRELLA CITRULLINA, GROSSENBACHER).

A, Section of Musk Melon, showing pycnidium with spores: mycelium (*myc.*); epidermis of host (*e*). B, Section of perithecium with immature asci, on Musk Melon. C, An ascus with spores and three isolated spores. D, Portion of diseased stem, bearing pycnidia (enlarged). E, Diseased Tomato stem, showing the shrinking of the stem slightly above the ground level, and the darkened colour. (A, B, and C, after Grossenbacher.)

‡ Leaflet No. 230, Board of Agric. and Fisheries.
§ *Ann. Rept., Intel. Div., Part II.*, 1910-11, Board of Agric. and Fisheries.
‖ *The New Phytologist*, January, 1913.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT MESSRS. CHARLESWORTH AND CO.'S NURSERY.

A VISIT to the extensive establishment of Messrs. Charlesworth and Co. at Haywards Heath, mainly devoted to the raising and perfecting of new hybrid Orchids, discloses evidence of the most remarkable advances in all the main branches of Orchid hybridisation, some of the most satisfactory results being attributed to Mr. Charlesworth's knowledge of the structural characters in their finer details which he has acquired since he took up scientific microscopic study of the subject, his room devoted to this purpose now containing a large and interesting collection of preparations, showing the process of fertilisation in all stages, and the progress of the seedling until its first rudimentary root appears.

Entering the commodious block of houses arranged for the raising and growth of the innumerable fine crosses which may be expected to give a greater proportion of distinct showy hybrids than formerly, we find that in the seed-raising house there is scarcely a failure in the thickly-germinating sowings on the seed pots. Here, too, experience has brought success, for the minute organisms which used to be so deadly are no longer feared. House after house in succession contains an immense quantity of sturdy little plants, Lælio-Cattleyas, Brasso-Cattleyas, Odontoglossums, Odontiodas, Sophronitis crosses, and Miltonias predominating, although there are small batches of experimental crosses between widely-separated genera, which, a few years ago, it would have been considered folly to attempt. In this block the most important batches are retained until the plants reach a flowering size, and the houses contain promising batches of new crosses of Cochlioda, Odontoglossum Cervantesii, O. Rossii rubescens, Lælio-Cattleyas, etc., some of them being the result of crossing the best new varieties of well-known species, with a view to obtaining improved forms of the earlier favourites, such as L.-C. callistoglossa.

At the end is a house containing rare and unique varieties of species, together with a collection of albino Cattleyas. In the main block containing the general collection, which has houses running on each side of a connecting corridor, the first house gives a striking example of the advantages to be obtained by seeding. This house had a beautiful show of seedling Miltonia vexillaria and its hybrids, the most beautiful of which is M. Charlesworthii with its large blush-pink to rose flowers with ruby-crimson mask to the lip. The duration of Miltonia vexillaria in bloom used to be very short, the only late-flowering forms being the small-flowered varieties, superbum and rubellum. Here are seedlings of the best large-flowered type still well in bloom, and with

spikes in all stages to keep up the show until winter.

In another house the improvement in Odontiodas is shown by the many good forms of O. Charlesworthii and O. Bradshawiæ. O. Charlesworthii was so good that it was crossed again with Odontoglossum Harryanum, and the deep, bronzy-red Odontioda Brewii resulted, a small lot varying in tint, but all good, especially one now in bloom. At the end of one house is a selection of wide crosses in bloom, all interesting and graceful in habit, and including Odontocidium Hebe, Oncidioda Bella, Cooksoniæ, Charlesworthii, and Odontoglossum Edwardii crosses, which invariably retain the violet-purple of the parent.

The several houses of Lælio-Cattleyas, Cattleya and Brasso-Cattleya, have the occupants uniformly furnished with flower sheaths, but few are at present in bloom. Several clear, yellow Cattleyas and Lælio-Cattleyas are in bloom, C. Fauna (Chamberlainiana × Hardyana) being a pretty novelty, the contrast between its bright, yellow sepals and petals and widely-expanded violet-mottled lip being very effective.

The Odontoglossum houses have still some plants in bloom, including the best type of blotched O. crispum, O. ardentissimum in good varieties heavily blotched, and several of the clear white variety xanthotes. A batch of O. Jasper has a good show of pretty evenly-spotted flowers, whilst O. Doris, O. Rolfeæ, O. Lambeauana, and occasional plants of many other hybrids are also in flower.

SPECIES AND VARIETIES.

Although the main interest is in the hybrids, the species and varieties occupy quite half of the block. To glance at the most striking objects: we noted in one house an interesting selection of pretty and curious species in flower, including Bulbophyllum, Cirrhopetalums, Waluewa pulchella, Nanodes discolor, Polystachya bracteosa, Promenæa stapelioides, P. xanthina, Masdevallia gemmata (trichæte), M. triaristella, M. O'Brieniana, M. ionocharis, M. calura, and a number of others not so popular now as formerly, but which have only to "bide their time" for a return to favour.

The next house has a show of scarlet Cochlioda Noezliana with the pretty lilac Stenoglottis longifolia, Odontoglossum Uro-Skinneri, Habenaria Bonatea, and at the end a very fine lot of Sobralias in bloom, including the best white S. macrantha alba, large yellow S. xantholeuca, the pink and yellow S. Veitchiana and S. Lowii.

Then follows a batch of the true Oncidium luridum guttatum with its reddish-brown, yellow-spotted flowers vastly superior to the ordinary form, if not botanically distinct as suggested by Reichenbach; Anguloa Ruckeri, A. eburnea, A. Clowesii, the new and fine A. Cliftonii, Spathoglottis plicata Micholitzii with its pretty rose sprays, the rare Houlletia Wallisii, and some pretty Cymbidiums.

The next house contains a collection of Catasetums, Cycnoches, Mormodes, etc., with some in flower. Others in bloom include Dendrobium Dearei, D. Sanderæ, a number of D. Phalænopsis, and other species; the rare Calanthe violacea, and Peristeria elata with two flower-spikes. A house of Lælia anceps varieties in spike, L. autumnalis, L. Gouldiana, and Vanda cœrulea, with cherry-red Broughtonia sanguinea, and other pretty species; a warm house of Aërides, Saccolabiums and Angræcums, with good specimens of Eulophiella Peetersiana, E. Elisabethæ, Cymbidium Humblotii, Grammangis Ellisii; a house of Phalænopsis with Paphinia cristata, Habenaria Susannæ, Aërides Sanderiana with three spikes, and others in bloom; several houses of the showy Cattleyas in fine condition; a collection of the showier Masdevallias, with large specimens of Cryptophoranthus Dayanus and Restrepias, Pleurothallis, etc.; a batch of the charming little yellow Oncidium cheirophorum, and of the orange-scarlet Epidendrum vitellinum; houses of Cypripediums, both species and hybrids, all telling the tale of good cultivation. Mr. Charlesworth's country house, with its beautiful old garden full of superb Roses, vies in attractiveness with the adjacent Orchid establishment. At a short distance he has built two blocks each of three well-appointed dwelling-houses for the accommodation of the staff.

ODONTIODA ST. FUSCIEN, BROADLANDS VARIETY.

E. R. Ashton, Esq., Broadlands, Tunbridge Wells, sends flowers of a very fine form of this pretty hybrid between Odontoglossum Adrianæ and Cochlioda Noezliana, the original form of which was raised by M. H. Graire. The flowers, which are over 2½ inches across, are of distinct colouring, the chrome-yellow ground giving an unusual tint to the bright vermilion surface colour. The sepals, which are the darker, show a broad band of yellow at the back, the colour being also slightly visible beneath the scarlet of the surface. The petals are similarly coloured, but with more yellow, which appears in very thin wavy lines in the centre. The lip is pale yellow at the base, light lilac in front, with a large red blotch in front of the four-ridged yellow crest. The column is white tinged with purple.

BULBOPHYLLUM HAMELINII.

A fine plant of Bulbophyllum Hamelinii is in bloom in Sir Trevor Lawrence's garden at Burford. It is bearing a strong spike with a large number of blooms; but the flowers are malodorous, and hence prevent the species becoming popular as a garden subject. A description of the plant was given in *Gardeners' Chronicle*, August 13, 1904, p. 118. The species grows freely when suspended from the roof of the Cattleya house. At Burford it is growing in a basket furnished with only a shallow layer of Osmunda fibre. The old back pseudo-bulbs were removed last year and placed on a flat teak raft with only a little fibre underneath the rhizome. When growth is completed the plant needs to be kept moderately dry, but when in full growth an abundance of water at the roots is necessary. It is a fine, strong-growing species, and of much interest botanically.

NOTICES OF BOOKS.

Garden Work.*

The author of this work is of the opinion that this volume is a necessity, and in its pages he provides a vast amount of information of a purely scientific nature relating to soils, bacteria, parasites, etc., not usually found in books on gardening, no doubt because it has been found to be more economical to keep these matters separate from the more practical parts. There is no gainsaying that these elucidatory pages will be most helpful to amateurs and young gardeners. At the same time, they have been introduced at the expense of a curtailment of the practical portions to a degree which seriously limits the book's utility, and, in a word, it may be said that a great drawback to the usefulness of this book is the brevity with which it treats nearly all subjects. Numerous illustrations illuminate the text, the more useful being those in the purely scientific parts. There are also illustrations from photographs and some coloured illustrations. The book is beautifully printed in large and wide-spaced type.

A Book about Hardy Flowers.*

The Editor introduces the author of this volume as a recognised authority on the subject to which it is devoted, and the reader who studies the book will find that the encomium is deserved, though it is painfully evident that the writer has been seriously hampered for space, thirty-two of the pages being appropriated to illustrations, and others reduced in extent by smaller illustrations. The plan of the volume is very simple, the work being divided into three parts, of which the first contains all too brief chapters on cultural matters, various ways of using hardy plants to advantage, insect pests, and other subjects. The second part is a brief descriptive catalogue with remarks on the plants which the author esteems the most worthy of cultivation; but one misses the names of such indispensables as Nepeta Mussinii, Papaver pilosum, Senecio tanguticus, Antholyza paniculata, and many others. The third part consists of lists of plants for various purposes and suited to positions, dry, moist, shaded or open.

One forms the impression that Mr. Jenkins believes that the treatment of hardy plants for garden decoration is very imperfectly understood by the majority of gardening people. Yet wherever one goes, south or north, one finds abundant examples proving just the contrary, quite small gardens as well as large ones being treated in a manner which is beyond criticism. To the beginner in gardening this book will afford a guide in the elementary principles of hardy plant growing. We would have liked a little more careful regard to the requirements of the King's English, some paragraphs being hard reading. Why this should be it is hard to say, because the chapter on "Hardy Plants for the Wild Garden" is a charming composition. There is also a number of mistakes in the genders of the plant names, and botanical names might have been added when the vulgar ones are vague. What, for example, does the author mean by King Cup? The volume is beautifully printed, and is bound in a neat blue-green cloth. *R. H. B.*

Vegetable Growing Made Easy.*

Written by Messrs. Owen Thomas, V.M.H., and George Wythes, V.M.H., the cultural treatment of vegetables is passed in rapid review in six chapters, with an extra one on "Insect Pests" and another on "Vegetable Cookery." The title though alluring is illusory, for dipping into the volume to discover how, without the sweat of one's brow and the ache of one's back, an abundant supply of vegetables is to be obtained, sad disappointment was the result. Trenching is not abolished, nor the importation of heavy animal manures, nor indeed any of the practices that generations of gardeners have found to be imperative in order to produce good vegetables plentifully. Page after page was read in the vain search for some indication of the means whereby an easier life in the future would be opened up to the hard-working gardenman, and the book was closed with the deepened impression that the heritage of work left by the First Gardener to his seed is not yet to be eased. This, of course, demonstrates the book to be written on recognised principles, here and there diversified no doubt by idiosyncrasies of the writers, for all capable gardeners have little ways of their own of doing things, which they presume are the best ways. This is observable in the space devoted to each kind. For instance, the Turnip gets 2½ inches of space, and over leaf the Yam begins and fills nearly two pages! Salad plants are also rather slightly treated, and comprise Lettuce, Endive, Chicory, Corn Salad, Dandelion, Mustard and Cress, Sorrel, Watercress, Tomato and Radish; and herbs are dismissed in half-a-dozen pages, though the introductory remarks would lead one to suppose herbs were to be particularly nicely done by. Here a lamentable slip occurs. "Vervain is another 'divine weed' and is the parent of our adored Verbena triphylla, or so-called Lemon-plant"! There is a vegetable time-table for beginners, and about three dozen pages on the "Cooking of Vegetables," by Mrs. Francis Keyser, so it will be seen that a good return is provided for the investment of a shilling. *R. H. B.*

* *Garden Work.* A Book for Garden Lovers. By William Good. (London: Blackie and Sons.) 5s. net.

* *The Hardy Flower Book.* By E. H. Jenkins. Edited by F. W. Harvey. (London: George Newnes, Ltd.) Price 2s. 6d. net.

* *Country Life Library.* 1s. net.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

CALANTHE.—The new pseudo-bulbs of deciduous Calanthes are developing considerably. In order to obtain strong flower spikes and clear, bright flowers the plants should be placed well apart near to the roof-glass, so that each may obtain plenty of sunlight. Under these conditions the plants will dry quickly, and plenty of water must be afforded the roots, in fact they need more moisture at this season than at any other time. On alternate occasions liquid stimulants made from cow-manure will be beneficial. Strain the manure-water through a very fine sieve or piece of coarse canvas, for particles of solid matter will after a few applications stop up the pores on the surface of the compost and make it extremely difficult to ascertain whether the soil underneath is wet or dry. Now that the new pseudo-bulbs are advanced in growth and the plants well rooted, the manure-water may be used at a strength of half its volume with an equal quantity of clear rainwater. Calanthes of the Regnieri section are not quite so forward as those of a deciduous character, but if the plants are well rooted they too will be benefited by waterings on alternate occasions with liquid manure. Plants of the evergreen section, including C. veratrifolia, C. Masuca and C. japonica are also making their growth and should be supplied plentifully with water. The plants will grow best in a shady part of the Cattleya or intermediate house, and the foliage must be very near to the roof-glass. Brown scale is a great pest of these Orchids, and measures must be taken to destroy it.

MISCELLANEOUS ORCHIDS.—Well - rooted plants of Peristeria elata (The Dove Orchid) that are growing freely in the same house as the deciduous Calanthes will also need plenty of water, and must be exposed gradually to more sunlight. Plants of Chysis bractescens, C. aurea, C. lævis, C. Limminghii, C. Sedenii and C. Chelsonii that have been growing in an intermediate temperature should be removed to a warmer house, where they will mature their growths more quickly. The roots will require plenty of moisture until the leaves commence to change colour, when the plants may be removed to a sunny position in the Cattleya or Mexican house. Lælia anceps, L autumnalis, L. Gouldiana, Odontoglossum citrosmum, Epidendrum radicans, the pretty Barkerias, including B. Skinneri, B. elegans, B. Lindleyana, and B. cyclotella, together with other sun-loving Orchids in the Mexican house are growing rapidly, and their development should be encouraged in every respect. Except during the hottest part of the day afford the plants but little shade. Draw up the blinds early in the afternoon, close the top ventilators, and when the sun is shining brightly syringe the plants freely overhead. Do not practise overhead syringings when the weather is dull, as the young growths are easily rotted by water remaining about them. These Mexican plants appreciate plenty of fresh air at all times, and especially when the nights are warm. The rare Odontoglossum Londesboroughianum, although a native of Mexico, thrives best in a position close to the roof-glass in the intermediate house. Do not grow this Orchid in either a pot or basket, but on a flat raft made of Teak wood, and suspended horizontally near to the roof-glass. The roots spread out in all directions, apparently in search of atmospheric moisture. It is a shy-flowering species, and after growth is completed requires a long rest, such as is afforded to deciduous Dendrobiums. Well-established plants of Cœlogyne cristata need an abundance of water at the root, and, as the new pseudo-bulbs commence to form, occasional applications of weak liquid manure made from cow-dung will be beneficial. Place the plants close to the roof-glass, and accustom them gradually to more light and air. Dryness at the roots or in the atmosphere at this season is almost sure to result in small, weakly growths. In the cool house the majority of the Lycastes are in full growth, and the plants require copious waterings from now until the pseudo-bulbs are fully made up; the same remarks also apply to Odontoglossum grande, O. Williamsii, O. Schlieperianum, O. Insleayi and its variety splendens. The growths of these plants should not be sprayed overhead too heavily at any time, as they are prone to decay if water remains in them. All weakly plants of these Odontoglossums should be relieved of their flower spikes, for if the flowers are allowed to develop the next season's growths will deteriorate considerably.

HOT-WATER SYSTEM.—Everything connected with the heating apparatus should be put in order. The boilers should be overhauled and cleared of sediment, loose joints and cracked hot-water pipes made good, valves oiled and overflow and feed pipes put in good order. The fire-bars, flues around and over the boilers, also the chimneys and ash-pit doors should receive attention. While the fires are out temporarily the inmates of the warmer houses should be allowed to become comparatively dry, but if it is feared they may suffer from over-dryness, water may be afforded in about one-half the usual quantity.

THE FLOWER GARDEN.

By EDWARD HARRISS, Gardener to Lady WANTAGE, Lockinge, Berkshire.

FUCHSIAS.—The liberal use of stimulants will be necessary to keep the plants in good flowering condition until the end of the season. Coralle and Göttingen are two useful bedding varieties, the former a fine coral red and the latter a deep salmon. They both bear long, pendulous blossoms, and are much alike in habit. They look well in masses either in a bed or in the mixed border. They are easily propagated from cuttings either now or in the spring. Some of the more promising among the old plants should be potted at the end of the season, or kept in a close pit until they have recovered from the check. If the latter method is adopted they can afterwards be placed in a cool house and kept rather dry throughout the winter. If introduced into a moderately warm temperature in the spring they will have become fine specimens by the time they have to be bedded out again. Fuchsias grown naturally, plunged in grass, or planted in a mixed bed, should last for many years if re-potted annually and given liberal treatment. They can be grown either as specimens or as standards; but if the latter form is to be adopted next season the cuttings must be rooted at once. Strong, healthy shoots should be selected and inserted round the side of 5-inch pots in a light, sandy compost. The cuttings will root more readily if the pots are plunged in a moderately warm hot-bed in a close pit.

GENERAL WORK.—The chief work to be done this month will be the propagation of bedding plants. The more tender subjects have been dealt with in a former calendar. Some, such as Calceolarias, will need only the protection of a cold frame during the winter; the cuttings will root readily in these circumstances in sandy soil. Veronica Andersonii should receive similar treatment—a useful plant which can be employed in various ways. Violas, Pansies, Lavender, Mesembryanthemums, Phlox and Pentstemons can all be propagated in cold frames; Antirrhinums used formerly to be propagated by means of cuttings, but most varieties now come true from seed. The early batches of Sweet Peas will now be of little value and should be rooted up and burnt unless required for seed. If another sowing is to be made in the autumn, the ground should at once be prepared. It should be well trenched and plenty of soot and well-rotted manure dug in.

PUBLIC PARKS AND GARDENS.

By SUPERINTENDENT.

TREE AND PLANT NURSERY.—There is no more useful adjunct to a park than a well-managed and well-stocked nursery, the value of which does not, however, so much depend on its use for the actual raising and rearing of young stock as its serving as a handy place in which surplus plants can be stored until required. Where extensive planting operations are being carried out there must of necessity be such a ground, the area of which need not be great, although proportionate to the size of the park and gardens that have to be dealt with. At the end of the planting season one often finds that there are a number of surplus trees, shrubs or other plants, all of which can be lined out in the nursery ground for future requirements. From the flower garden hosts of intermediate plants such as Doronicum, Delphinium and others that tide over the period between bulbs and bedding-out time have to be planted back in the nursery ground; while Saxifrages, Primula Sieboldii, Arabis, Daisies and other edging plants which were used in conjunction with the various kinds of Hyacinths, Tulips and Narcissus have to find a place till the following spring. It is always advisable to retain in the nursery a few well-grown shrubs in pots that can be used to fill up unexpected blanks in the shrubbery or flower garden. The Golden Privet is useful for this purpose. Of course, in country parks the raising of trees and shrubs, whether from seed or cuttings, can be readily carried out, and is to be recommended; but not so in large towns, where the atmospheric impurities tell hardly on the constitution of young and tender plants. The soil in a nursery ground should be retained in a high state of cultivation, well pulverised by exposure to the weather and kept free from weeds. Thoroughly decomposed manure or spent refuse from pits and lights are excellent for a nursery border, while deep trenching and exposing the soil to a winter's frost will both purify and pulverise it. An occasional dressing of the surface soil of beds and shrubberies, particularly such as are situated in smoky localities, is to be recommended. In town parks it has been found a good plan to buy in young standards, say 4 to 6 feet high, of certain trees such as the Plane, Acacia, Lime and Elm, and to keep them in the nursery, regularly transplanted, till they attain the height for planting out permanently. By doing so they, like town turf, appear to get accclimatised, and so thrive better when placed in their final positions. It will thus be seen that the home nursery is an indispensable addition to the park and garden. Its value, both as a reserve ground and for the temporary laying in of odd trees, shrubs and herbaceous plants, is in direct proportion to the area of land that it serves.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

CINERARIA. — The early batch of Cinerarias should now be ready for transference to their final pots—6-inch or 7-inch size—and should be attended to before the old pots become too crowded. The compost should consist of three parts rich, fibrous loam and one part leaf-mould, coarse sand and decayed cow-manure in equal quantities. To each barrow-load of this soil a 7-inch pot of fine bones and soot should be added. The potting should be firmly done, and the plants finally replaced in the cold frame in a cool, shady position. A little soot should be sprinkled over the ashes in the frame under the pots, to destroy any slugs which may be present. While potting, the foliage should be examined, and if any signs of maggots are found the insects should be searched for and destroyed, removing and burning any badly infested leaves. A good preventive of the return of the pest is to syringe the plants late in the afternoon with weak soot water; the under-part of the foliage must be thoroughly wetted. Ventilation should be gradually increased as the plants develop, and finally, if the weather is warm enough, the lights may be left off throughout the night. As soon as frost appears the plants should be removed to a cold house, or slightly heated frame; but they should be kept as cool as possible, and artificial heat should not be used until absolutely necessary. Later batches of Cinerarias will be potted from boxes or pans as required.

CALCEOLARIA. — Plants which have been pricked off into boxes or pans will now be large enough to move into 60-size pots. The compost should consist of fibrous loam and coarse sand mixed with a little decayed cow - manure, the whole rubbed through a sieve. Before potting it is advisable to place the plants in a house which is being

fumigated to destroy any aphides which may be present. After potting, the plants must be thoroughly soaked with water and placed in a cool house.

CHRYSANTHEMUMS.—The large-flowering varieties of Chrysanthemums will now be making good growth. Disbudding should be practised and the plants regularly fed with artificial and liquid manure. Bush varieties should be disbudded according to the kind and the requirements of the grower. They should be regularly fed, and kept moist. If green fly should appear a syringing of Quassia extract will destroy the pest. The growths should be tied in to prevent damage by autumn winds. It is advisable to have the house ready for the reception of the Chrysanthemums at any moment. After the first week in September, especially in the North, frosts may be expected at any time. Last year much damage was caused by early and unexpected cold weather.

THE KITCHEN GARDEN.

By JOHN DUNN, Foreman, Royal Gardens, Windsor.

ONIONS.—Spring-sown Onions are ripening earlier than usual this season. They should be lifted at once, or a second growth may begin, which will injure the keeping qualities of the bulbs. All deformed bulbs should be placed by themselves, and used first, only those which are likely to keep throughout the winter being placed in the Onion loft. The bulbs should be exposed to full sunshine for ten days before being removed to their winter quarters.

CELERY.—Celery plants should be liberally supplied with water, and the soil between them stirred well with a Dutch hoe. The plants should be lightly sprinkled with soot in the early mornings as a deterrent to slugs and other insect pests. Plants in successional beds should be earthed up, but care must be exercised in order that no soil may penetrate to the heart. Celeriac should be frequently watered in dry weather, and the soil constantly hoed. Manure water may be applied with advantage.

CARDOONS.—As the plants become large enough for blanching the leaves should be carefully drawn together, and tied with some soft material. Brown paper bands should then be placed around the stems, and tied with hay bands, so as to exclude all light. The stems should be earthed up as in the case of Celery, several times during the season, the soil being arranged around them in pyramidal form, so that the rain may run off it. If the plants seem dry at the roots a thorough watering should be given them several days before earthing up.

FRENCH BEANS.—Further sowings of French Beans should be made in pits where a little fire heat is available in cold weather. The bed should be raised to within 18 inches of the roof glass, so as to prepare the plants for the lights which will be placed over them in the autumn. The seeds should be sown in drills 18 inches apart, and about 2 inches deep. The Belfast and Osborn's Forcing are good varieties; they are of dwarf habit, and can be grown without sticks if they are given sufficient ventilation in the autumn to keep them compact. Plantations made in cold pits last month will require plenty of water at the roots. Frequent light dustings of soot will keep red spider and other pests in check. Runner Beans should be kept moist; weak manure water may be freely given, and in dry weather it is difficult to over-water the roots.

WINTER SPINACH.— The ground between the rows of this crop should be constantly stirred with the Dutch hoe, and the plants thinned as soon as they are large enough. About 6 inches should be left between each plant. Frequent light dustings of soot will be advantageous in checking slugs and other insects.

TURNIPS.—Turnips for the winter should now be ready for thinning. Nine inches should be left between each plant, and the surface of the soil between the rows kept well stirred; frequent light applications of wood ash or soot will be found beneficial. Further sowings should now be made for a supply of Turnip greens in the spring. Advantage should be taken of the dry weather to hoe the earth between the rows of all growing crops.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith Palace, Midlothian.

VINES.—The wood of vines grown in pots for early fruiting next season should now be completely ripe and brown. A constant circulation of air should be maintained, and the vinery kept rather dry. All young lateral growths should be removed, and the foliage should be occasionally syringed with a mixture of soft soap and sulphur, to prevent attacks of red spider. The roots should still be carefully watered, and when the canes are sufficiently hardened the pots can be taken out-of-doors and placed in a sheltered and sunny position. The young vines which were planted in the border this year will require a warm temperature, with sun and fire heat, until the wood is thoroughly matured. Long lateral growths, which may have been left hitherto to induce root action, should be removed, so as to admit more light and air to the foliage and wood. The atmosphere should be kept rather dry while the wood is ripening, and means must be taken to check red spider and other pests by frequently syringing the foliage. Freshly-made borders must be well watered if the weather is dry; the outside borders will benefit by a mulch of half-decayed manure. The permanent vines, from which the Grapes have been cut and which are intended to serve again for early forcing, should now be pruned. One or two more eyes should be left than in the case of late pruning; the long spurs which will result can be cut annually to within an inch of the main stem, and will break again, forming fruit-bearing wood. An alternative would be to train in young rods from the bases of the vines and cut out the old ones. The spent soil from the surface of the border should be removed down to the roots and replaced with fresh turfy loam, mixed with lime-rubble and some good vine-manure. After the pruning the vinery should be kept as cool as possible. Any necessary painting or repairs should be done now if the weather permits.

TOMATOS.—Tomato plants raised from seed sown in June, and now in 6-inch pots, should be transferred, if ready, into 8-inch to 10-inch pots for winter fruiting. The soil at this stage should not be too rich; manure and other stimulants can be given later. A suitable compost would be a mixture of fibrous loam, lime rubble, and a little bone meal. The plants should be placed when potted in a cool house or pit, with plenty of space and air. As the days shorten and the nights are colder, artificial warmth will be necessary; but the plants will still need plenty of ventilation. When they become larger, all lateral growths should be removed, and a good strong stake supplied.

THE "FRENCH" GARDEN.

By PAUL AQUATIAS.

OLD MANURE BEDS.—The crops of Celery and Carrots need copious waterings during September, especially as the mass of manure is entirely filled with the roots of these plants. When the first batch of Celery has been marketed the old bed should be broken up and placed in a ridge for 8 or 10 days, to be broken again until it is fine enough for use as top-dressings for seed beds and nursery beds. Remove all side growths carefully from the winter batch of Red Celery, and place a few inches of soil around the stems. A small dressing of nitrate of soda will stimulate growth.

CAULIFLOWER.—This crop has proved very profitable this year, and the last batch set on the old cloche beds or among the Melons in July will also be very remunerative, especially if the roots are afforded plenty of moisture. The first sowing of Cauliflowers intended for a spring crop to be grown on hot or cold beds or in the open ground should be made on the 15th inst. This crop is grown exclusively under the intensive system of culture, as it is the only method by which a regular supply of heads may be had from the end of May until the middle of October. There are many excellent varieties suitable for this planting, and the following may be recommended: Snowball and Salomon for home culture, as the small inflorescences permit of close planting and the heads mature early; Half-Hardy of Paris, Erfurt and Le Noir, all suitable for planting in soil of a light texture; Driancourt and All Year Round, these being preferable for heavy ground. When the approximate quantity of plants required is known (one row of frames of 15 lights will hold 2,750 plants), select the site and well manure and dig the ground. Set the frames in rows, allowing a path 1 foot wide between each row. Place six barrow-loads of black soil in each frame. The seed may be sown in one or two of the frames very thinly.

LETTUCES.—Transplant seedling Lettuces raised in August at 2 inches apart in frames or under bell glasses, where they may remain until the end of the present month. Afford ventilation in favourable weather, especially for the White Passion variety. In gardens on the south coast of England and the south-east and east coasts of Ireland, a sowing of the variety Winter Giant may be made in a sheltered situation in the open. Thin the seedlings and transplant the remainder in the early spring. This crop will not be so good as that grown under glass through the winter. Prepare the winter quarters of Lettuces intended for cutting in the spring. A quantity of well-decayed manure will be required for top-dressing the roots later. Wash the cloches and dip them in sulphate of copper to destroy any fungous spores that may be present.

BEANS.—This crop should be covered with lights within 8 or 10 days to prevent the young blooms damping. Do not commence picking the Beans before the end of September, when the ordinary crop out-of-doors will be over. The foliage may be thinned in places to admit plenty of air and light to the plants.

SPINACH.—Spinach sown three weeks ago should be thinned and the ground hoed at an early date, as this will strengthen the growth of the leaves and render them less liable to attacks of mildew in November and December. Another sowing of Spinach may be made at once in drills at 1 foot apart.

THE APIARY.

By CHLORIS.

END OF SEASON WORK.—The honey flow has practically ceased and all who desire success next year must now commence their preparations. The stocks must be thoroughly overhauled and note made of the quantity of stored food in the brood chamber, which should not be less than 25 to 30 pounds to be quite safe, although some noted apiarists aver that 20 pounds will suffice. If the floor boards have much débris on them, they should be scraped, because the waste matter is the home of disease germs, besides forming the happy hunting-ground of the wax moth. Many beekeepers are in favour of one overhauling of the floorboard per annum, but when we remember how prevalent disease has been of late years, extra care in the way of cleanliness cannot but prove beneficial. The strength of the colony should now be our chief care. If it be weak, perhaps the queen is not worth retaining; in that case replace her by one raised this season where possible, and when two or more colonies are weak, unite them to form one strong stock, if driven bees cannot be obtained. Feed so as to stimulate the queen to produce as many eggs as possible, but where there is plenty of stored honey then only permit the bees to obtain enough for their daily wants by leaving one or two holes open in the feeder, using ten pints of water and five pounds of sugar, instead of ten pints and seven pounds of loaf (white cane) sugar where the stores are low. We resort to feeding all stocks in the autumn because all the bees raised now are those on which we shall have to depend to raise brood next spring, and the stronger the colony the more brood will be raised, because the queen lays only that number of eggs which can be covered by the inmates of the hive. Further, a strong colony will consume, pro rata, less than a weak one, because the natural heat of a small cluster is less than that of a large one, and the deficiency has to be made good by consuming more food.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, SEPTEMBER 8—
United Hort. Ben. & Prov. Soc. meet. Nat. Chrys. Soc. Floral Com. meet.

TUESDAY, SEPTEMBER 9—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. C. Herman Senn on "Stem Vegetables: their Dietetic Values, and Various Ways of Cooking Them.") National Dahlia Soc. Exh. at Crystal Palace, Sydenham (2 days).

WEDNESDAY, SEPTEMBER 10—
Roy. Caledonian Hort. Soc. Sh. at Edinburgh (2 days).

THURSDAY, SEPTEMBER 11—
Nat. Rose Soc. Autumn Sh. at R.H.S. Hall, Westminster (2 days). Messrs. Dickson and Robinson's Vegetable Sh. at Manchester Coal Exchange (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 58.5°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, September* 3 (6 p.m): Max. 67°; Min. 54°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, September* 4 (10 a.m.); Bar. 30.2°. Temp., 64°. *Weather*—Overcast.
PROVINCES.—*Wednesday, September* 3, Max. 61° Valencia; Min., 55° Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY NEXT—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, WEDNESDAY, AND THURSDAY—
Dutch and French Bulbs, at Stevens' Auction Rooms, King Street, Covent Garden, at 12.30.

MONDAY AND THURSDAY—
Established Orchids and Stove Plants (without reserve) at Stevens' Auction Rooms, King Street, Covent Garden, at 4 o'clock.

MONDAY NEXT—
First Annual Trade Sale of Winter Flowering and other plants at The Nurseries, Swanley, Kent, by order of Mr. P. Ladds, by Protheroe and Morris, at 11.30.

TUESDAY NEXT—
Annual Trade Sale of Winter Blooming Heaths, at Burnt Ash Road Nurseries, Lee, Kent, by order of Messrs. B. Maller and Sons, by Protheroe and Morris, at 11 o'clock.

WEDNESDAY NEXT—
Twenty-eighth Annual Sale of Pot Plants, at The Nurseries, Chingford, by order of Messrs. H. B. May and Sons, Ltd., by Protheroe and Morris, at 11 o'clock.
Bulbs in large quantities for the Trade, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

THURSDAY NEXT—
Thirty-second Annual Trade Sale of Winter-blooming Heaths and Ferns at Longlands Nursery, Sidcup, by order of Messrs. H. Evans and Sons, by Protheroe and Morris, at 11.15.

The Summer Drought.

The drought from which our gardens have suffered has broken at last, and the recent rains have repaired some, though by no means all, of the damage done by that spell of curiously inclement weather. Such recovery as there has been has come with dramatic swiftness, and we have seen grass swards which looked brown and well-nigh dead recover their greenness in an incredibly short space of time; but the plants of the herbaceous border, "having passed but once their prime, may for ever tarry." Many of those plants—at least in the garden the vicissitudes of which we have watched and deplored—remained during the drought in a state of suspended animation. They grew but little, looked prematurely old, and flowered with a parsimony which made even their few blossoms unwelcome. The sight of that border not only depressed us sorely, but set us thinking hard. This summer's drought, it is evident, was not like other droughts. No hot and continuous sunshine accompanied it. It was a drought of dull grey skies. Notwithstanding the absence of fierce sunshine, and notwithstanding the fact that the soil below the surface was by no means dried out, the plants showed clearly by their aspects that they were suffering from the lack of rain. Some showed their suffering frankly by their wilted leaves; others presented less familiar symptoms—they just stood still and did nothing.

The gardener whose soil was well supplied with organic manures reaped the reward of his outlay, and in his garden the plants bore bravely up against the drought. Those gardens in which water and labour for applying it were available presented themselves as smiling oases in a desert country; but in the garden which we describe none of these antidotes was available, and there the droughty summer gave premature birth to autumn.

Contemplation of the sorry scene led to speculation as to the immediate cause thereof. How comes it that a rainless period not accompanied by hot sunshine is thus resented by garden plants? The answer would appear to be that during the droughty period the stomata of the plants are, so to say, thrown out of gear. In the best of times and seasons these myriad openings in the leaf have a difficult part to play. Through them diffuses the water vapour derived from the liquid water taken up by the roots, and through them also must diffuse the carbon dioxide gas which serves as the raw material from which the plant manufactures its organic food. When the stomata are wide open these diffusion processes go on freely, and the rate at which water vapour is lost is determined by air and soil conditions. The drier or warmer the air, the faster the leaves transpire, and the moister and warmer the soil the greater is the rapidity with which the roots absorb water and make good the loss from the leaves. This is true, however, only within certain fairly narrow limits, for the stomata, the microscopic pores of the leaf, are not always open. The size of the stomatal opening is controlled directly by the leaf, and indirectly, by the atmospheric and soil conditions. If the air be very dry, or if, from lack of water in the soil, absorption by the root falls off, the plant closes its stomata, and the amount of water vapour which passes from the leaf falls very considerably. Thus automatically the plant protects itself in some measure from the risk of withering which it would run were its stomata to remain wide open in a time of drought. Some water is lost perforce even when the stomata are closed: for leaves are delicate, their outer surfaces, though they may be varnished, are not waterproof, and water vapour evaporates from the general surface of the leaf. Hence in times of hot drought leaves may droop and wither and plants may die although their stomata are closed.

But it will be apparent that in protecting itself from drought by closing its stomata the leaf shuts itself off from the atmospheric supplies of raw material. When the stomata are closed, but small quantities of carbon dioxide may enter the leaf; the green chlorophyll granules, each a sugar-producing factory, remain idle, and the manufacture of organic food is suspended. If, then, day after day the stomata are compelled to shut, and if their closure entails the closing down of the sugar-making apparatus, the lack of organic food becomes serious. In course of time growth and development are arrested, and the plant betrays by its aspect the fact that it is half starved.

Herein lies the explanation of the listless standstill of the plants during the recent drought. In obedience to the dictates of dry soil and cold easterly winds they closed their stomata. Thus they preserved themselves from death from desiccation, but in doing so they courted starvation. Metschnikoff has written of the disharmony of Nature, and poets have composed harmonious songs lamenting this disharmony, but nowhere is it more patent than in the hard, and at times impossible, task which Nature has laid upon the leaves of plants.

Coloured Supplement.—The subject of the coloured plate to be published in the next issue is the Large Larch Sawfly.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will take place on Tuesday, the 9th inst., in the Vincent Square Hall, Westminster. At the 3 o'clock meeting of the Fellows a lecture on "Stem Vegetables, their dietetic values and various ways of cooking them," will be delivered by Mr. C. HERMAN SENN.

R.H.S. BULB SHOW.—A special exhibition of forced spring bulbs will be held by the Royal Horticultural Society on Tuesday and Wednesday, March 10 and 11, 1914, the object being to demonstrate the varieties best suited for gentle forcing. Exhibits of small and large collections are invited from amateurs and the trade. R.H.S. medals will be awarded according to merit. The Council also offer (subject to the general rules of the Society) prizes presented to them by the General Bulb Growers' Society at Haarlem for 18 Hyacinths, distinct; for 12 Hyacinths, distinct; for 6 Hyacinths, distinct; for 4 pans containing Hyacinths, 10 roots of one variety in each pan—the blooms of each pan to be of distinctly different colour from those of the other three pans; the bulbs need not have been actually grown in the pans they are shown in; and for the finest decorative display of Hyacinths grown from first-size bulbs. The Gold Medal of the General Bulb Growers' Society of Haarlem is also offered for the finest decorative display of Hyacinths grown from first-size bulbs in a class open only to trade growers.

AUTUMN ROSE SHOW.—The National Rose Society's exhibition of autumn Roses will be held in the Royal Horticultural Hall, Vincent Square, Westminster, on Thursday and Friday, the 11th and 12th inst. Particulars may be obtained from the hon. secretary, Mr. EDWARD MAWLEY, Rosebank, Berkhamsted.

A DANISH COMMENT ON SMALL HOLDINGS.—A note in *The Times* (August 28) refers to a visit which the Danish Minister for Agriculture made recently to this country. In the course of his tour, which was made primarily with the object of observing the treatment accorded to Danish agricultural produce, the Minister visited a number of small holders in the North. His comment on these holdings that "they are either too small or too large" is worthy of careful consideration, if only for the reason that it comes from the official head of an industry which exports produce to this country to the daily value

of £50,000. The implication which the Danish Minister's comment carries with it appears to be that we are passing through a transition stage, and that our small holders have not yet made up their minds entirely in favour either of farming in the ordinary sense—for which their holdings are too small—or of intensive cultivation—for which they are too large.

Armour-Plated Plants.—In the course of an account in the June number of the *Journal of Ecology* of the various types of cushion plants mention is made of an Andine species, Azorella madreporica, the hardness of which is sufficient to justify the title of this note. The plant is proof against a shot fired at it point-blank from a revolver.

Killarney House Destroyed by Fire.—Killarney House, Lord Kenmare's beautiful seat in Co. Kerry, an illustration of which is reproduced in fig. 66, was entirely destroyed by fire on Sunday and Monday last. The erection of this splendid residence, which cost £200,000, was begun in 1875 and completed in 1881. The fire appears to have started in a room on the top floor of the right wing of the building. Great difficulty was experienced in obtaining sufficient water to cope with the outbreak—a remarkable fact considering the proximity of the Lakes—and the flames soon obtained the mastery, with the result that the greater part of the house was reduced to ruins. Many notable works of art were destroyed, although certain valuable objects of a portable nature were saved. The gardens and pleasure grounds of Killarney House, the beauty of which is famous, were illustrated and described in the issue for March 30, 1909, p. 180.

Tobacco-growing in England.—A valuable report of the state of the experimental plots of Tobacco which are being grown in this country is supplied by a correspondent to *The Times* (August 28). Certain of the areas have been laid down at the instance of the Tobacco Growers' Society—a non-profit-making co-operative association affiliated to the Agricultural Organisation Society and assisted by grants from the Development Commission. The society pays to approved growers their working expenses, including rent, manures, cultivation, and curing. It lends equipment and guarantees a minimum payment of £5 per acre. According to the report of *The Times* correspondent, some 130 acres of Tobacco are being grown in Great Britain. In England, Mr. Trevor Williams has a plot at Byfleet which promises to yield from 1,100 to 1,200 lb. per acre. Mr. Brandon, chairman of the Tobacco Growers' Society, has a large plot at Fleet, in Hampshire, and Mr. A. H. Clough is growing 3 acres of Tobacco at Burley, Ringwood. In Norfolk some twelve growers have about 10 acres under cultivation, and this experiment will be watched with much interest by those who believe that Tobacco is a promising crop for small holders. Lord Iveagh has 25 acres under Tobacco at Elvedon Hall, Suffolk, Messrs. Dennis and Son, of Kirton, Lincolnshire, are growing an acre, and 9 acres are being cultivated in Worcestershire. Generally speaking the crops are in excellent condition, although in some cases they have suffered from drought.

Fruit Trees in the City of London.—The City fruit crop is to have official recognition to-day (August 22). That is to say, this morning the head gardener of the pretty garden of Finsbury Circus will essay to pick a basketful of Mulberries to present to the Lord Mayor at the Mansion House. Seen yesterday, he was a little nervous about the adventure, for this is distinctly not a good City fruit year. The biggest collection of Mulberry trees in London is, of course, to be found in the Charterhouse, which, although not actually in the City, is right on its borders. Seventeen large trees can be discovered there. Eleven are in the master's garden, three in the entrance court, and three in other situations. The two little Service trees in Staple Inn have no fruit at all this year. In New Square, Lincoln's Inn, is but a single bunch of Grapes, while there are no Figs to be seen anywhere. *Pall Mall Gazette.*

Fig. 66.—killarney house, co. kerry (destroyed by fire on the 31st ult.).

Panama-Pacific International Exhibition.—An article in the *Florists' Exchange*, from which the following is an extract, describes the landscape-gardening preparations which are being made on the site of the 1915 exhibition:—"In addition to being strikingly beautiful and effective, the park system of the Panama-Pacific International Exposition in this city in 1915 will contain some features unknown to previous affairs of the kind, for the site chosen for the exposition and the rare qualities of the California climate will enable John McLaren, the landscape engineer, to carry out some ideas that will render the grounds singularly attractive. The great avenue will pass by the northern shore of the lagoon, separating

it from the broad, grassy esplanade, which will be a vast green park adorned with shrubs and plots of bright flowers. By skilful gardening this esplanade has been made green already. Where once was water, then sand from the bottom of the Bay, is now a fertile surface, where the grass and flowers spring up in tropical luxuriance. Tons of rich loam and clay have been brought from the interior valleys and placed thickly over the sandy subsoil, with plenty of fertiliser to start the verdure on its way. Automatic lawn sprinklers, continually in operation, have done the rest, and the final effect may be imagined from the present appearance of the broad and stately esplanade, which will be flanked on the south side by the great palaces of the exposition, with their noble architecture, and on the north side by San Francisco Bay, with the picturesque Marin Hills, Angel Island, Belvedere and Sausalito in the background. Of less extent, but no less beautiful, will be the garden in the great courts between the eight structures in the main group of exhibition palaces. These courts will be notable for their bright flower beds and pools with fountains designed by the ablest sculptors. On account of their special floral features one of these courts has been called the Court of Flowers and another the Court of Palms. While the vegetation of California will be most extensively represented in the parks, gardens and courts of the exposition, the whole world has been ransacked for special features to add to the arboreal and floral adornment of the grounds. Europe, Asia, Africa, Australia, North, South, and Central America, the tropical, the temperate and even the frigid climes, have been called upon to contribute their flora to the exposition park system. Thanks to the remarkable California climate this park system will endure, with blooming flowers and fresh green grass and foliage, throughout the period of the 'Winter to Winter' Exposition, one of the greatest of all the attractions of which will be the exhibit of the climate of 'California Evergreen, the Land of Fruits and Flowers.' A feature will be a lagoon, which is to be about 800ft. long with a varying width, and will have little semblance to an artificial lake. Natural effect has been sought in its design, the purpose being to produce a sample of the wilderness lakes of California. Natural rocks and boulders, appropriate and artistic shrubbery, Water-lilies and other marine plants, and plenty of deciduous flowers to give colour will be characteristics of the scene. At the north end of the lagoon there will be half a dozen islets with neither bridges nor balustrades to suggest the hand of man. Weeping Willows, Monterey Cypress, Italian Cypress, and other growths peculiar to waterways will predominate the shrubbery; the rocks will be mossy and the banks besprinkled with Ferns; creeping vines will be clustered here and there, the whole resembling a charming mountain pool in a shady glen. Midway on the lagoon's western shore will rise a rotunda, surrounded with thick shrubbery and lesser wild growths, the idea being to represent an ancient temple, weatherworn and overgrown with the vegetation of ages, somewhat after the last remaining structure of the old Panama city destroyed by Morgan and his pirates in the sixteenth century. This rotunda will be close to the entrance to the crescent-shaped Palace of Fine Arts, being really a sort of vestibule to it. It has been suggested that the lagoon be stocked with trout, steel head, salmon bass and other Californian fish, the better to give verisimilitude to the wilderness effect, which has been the aim throughout. At places along the banks there will be caverns and grottoes in the big rocks, with trailing vines and mosses and ferns about them."

CONSERVATORIEB ON STEAMSHIPS. — It is stated in the *Moniteur du Jardinier* that the *Cap Finistère* of the Hamburg South American line which plies between Hamburg and the Argentine is provided with a greenhouse for the cultivation of flowers during the voyage. The greenhouse is provided with heating and with cooling apparatus so that a uniform temperature may be maintained. It is added that on its arrival at Buenos-Aires, decked out with Lilac and Carnations forced during the voyage, the ship was greeted with amazement by the population, many of whom had never seen these flowers. All the town visited the ship, and the President of the Argentine congratulated the gardener on the success of his sea-gardening.

OTTO OF ROSE.—Bulgaria seems to be suffering to the full from the slings and arrows of outrageous fortune. Beside loss of territory, it appears that it runs the risk of losing its trade in Otto of Rose; for in Bulgaria's adversity the South of France has seen an opportunity to put on the market at a low price Otto of Rose of excellent quality.

POTATOS IN GERMANY. — His Majesty's Consul at Stettin (August 19) states that owing to the cold and wet weather experienced during the last few weeks the prospects of the Potato crop in Pomerania have become less favourable. The yield is, however, officially estimated at from average to good, and should the weather improve a good crop is generally expected. Present wholesale prices per cwt. in Stettin are as follows:—Early Red Potatos, 2s. to 2s. 6d.; Early White, 2s. 6d. to 3s.; Oval Blue, 3s. to 3s. 6d.; and Kidney, 2s. 6d. to 3s. Exports from this port in 1912 amounted to 139,934 cwts., of which 3,857 cwts. were exported to the United Kingdom. The corresponding figures in 1911 were 390,639 and 104,218 cwts., and in 1910, 625,542 and 2,274 cwts. His Majesty's Consul at Danzig, under date August 20, states that definite estimates of the yield of Potatos in West Prussia this year are not yet available, but if fine weather continues and disease does not set in good crops are expected. Current wholesale prices range from about 2s. to 2s. 6d. per cwt.

A NEW RACE OF HYBRID GLADIOLI.—A new race of early large-flowered Gladioli has been raised by MM. CAYEUX and LE CLERC. In drawing attention to this acquisition to gardens *Revue Horticole* points out that at present the Gladiolus which is earliest to flower in the neighbourhood of Paris is G. communis, a species which grows wild in the South of France. Like G. byzantinus, Miller, G. communis flowers in April to May. The hybrid Colvillei flowers next in the latter part of May. It is held to be a hybrid of the South African G. tristis and G. cardinalis, and is much grown for the supply of cut flowers. Early dwarf hybrids of doubtful, and probably much mixed, origin are also largely grown. Between the flowering of these strains and the most precocious of the gandavensis and Lemoinei sections is a long interval, during which gardens lack Gladioli. The new race of MM. CAYEUX and LE CLERC fills this gap. It originated in a cross between an early dwarf hybrid and a variety belonging to the Lemoinei section. The new hybrid has the stature of the Lemoinei parent, and bears large, brick-red coloured flowers, spotted in the three lower perianth lobes with dark carmine splashes.

KENT COMMERCIAL FRUIT SHOW.—The third annual show of the Association is to be held on Tuesday and Wednesday, October 28 and 29, in the Corn Exchange, Maidstone. The two previous exhibitions have been so successful that one may safely predict a satisfactory return for the care and pains so willingly and ably bestowed by the promoters. The schedule before us is an ample one, and provides classes to suit all kinds of growers. The number of classes for named varieties of Apples has been increased by two—for three boxes of Allington Pippin and Cox's Orange Pippin respectively. In all the classes for Apples (except those for small growers), the minimum quantity to be shown is three bushels. This enables a fairer decision to be made by the judges, and gives a better chance of effective staging. A new class has been introduced, in which the Apples exhibited are to be packed in three-bushel barrels. This is the first time that such a competition has been held in England, though in Ireland similar classes have been included in the schedule of the Ulster Fruit-growers' Show for two or three years. A competition for Apple-packing, divided into two classes, one for men and one for women, should prove of great interest, and indirectly of distinct utility. The Apples, packages, etc., will be supplied by the Association. The judging will be based entirely upon the quality of the packing, the time taken, and the general appearance of the box when finished. The prize list is an interesting one, and should prove effective in drawing a number of good exhibits. Messrs. COUPE AND SONS, of Covent Garden, offer a Challenge Cup, value twenty guineas, for the best exhibit of six boxes of named Apples in Classes 1, 2, 3, 4, or 6, open to Kent, Surrey, and Sussex market growers only. The Cup will become the absolute property of any exhibitor winning it three times in succession. Mr. T. J. POUPART, of Covent Garden, is presenting a prize of £10, and the proprietors of the *Fruitgrower* are giving a Silver Cup, to form together the first prize for Class 12, a combined competition for various kinds of Apples. Mr. GEORGE M. SMITH, of Maidstone, offers a Silver Cup for the best box of Apples in the show, and several other valuable prizes and medals will be given. The secretary is Mr. R. WELLINGTON, The College, Wye, and we may mention that the last date for receiving entries is October 1. On the first day of the show a luncheon will be given, at which the guest of honour is to be Mr. RUNCIMAN, the President of the Board of Agriculture.

THE LIFE HISTORY OF THE RED SPIDER.—In the course of a description of the mode of warding off attacks of red spider on Cotton, Mr. E. A. MCGREGOR mentions (U.S. Department of Agriculture Circular 172) the following interesting facts bearing on the life history of this pest: The female lays about 50 to 60 round, colourless eggs, which in summer-time hatch in about four days. The colourless, new-born spider has six legs, feeds at once, and moults in two days, becoming a primary nymph. The latter possesses eight legs, like the adult, and moults in two days, to form the adult. Mating and egg-laying then begin. Thus one generation matures in about 10 to 11 days, and there are probably 16 to 17 generations in a year. Spraying with flour paste or with lime sulphur and flour paste, as described already in these pages, checks the pest.

BRITISH ASSOCIATION BOTANICAL EXCURSIONS.— In connection with the Birmingham meeting of the British Association the following excursions have been arranged for those attending the Botanical section:—On the Saturday a half-day excursion to Sutton Park, and on the Sunday a whole-day expedition to Wyre Forest.

HORTICULTURAL AND AGRICULTURAL EXHIBITION, MALINES.—We learn from the director of the section devoted to horticulture that a sub-section in the forthcoming exhibition at Malines (Belgium) is to be devoted to horticultural literature. The exhibition will be held in September, and anyone desirous of obtaining further information should communicate with the secretary, Boulevard des Arbalétiers, 16, Malines, Belgium.

MONTBRETIA QUEEN ADELAIDE.— The new Montbretia Queen Adelaide, which received the R.H.S. award on the 26th ult., was shown by Mr. SYDNEY MORRIS, and not by Messrs. R. WALLACE AND CO., next to whose exhibit of Montbretias it was staged.

PUBLICATIONS RECEIVED.—***Mushroom Culture.*** By W. Dyke. (London: The Lockwood Press.) Price 1s. net. — ***Gruppenweise Artbildung.*** Von Hugo de Vries. (Berlin: Gebrüder Borntraeger.) Preis 22 Mark.

REMARKS ON CONDITION OF THE FRUIT CROPS.

(*Continued from page* 153.)

(*See Tables and Summaries, ante, pp.* 80-85.)

5.—SOUTHERN COUNTIES.

Berkshire.—Apples are plentiful, especially the varieties Peasgood's Nonesuch, Cox's Orange Pippin, Bramley's Seedling, The Queen, Belle de Pontoise, and that most useful late dessert Apple Fearn's Pippin. The fruits are very clean, but will be on the small side if the drought continues. Pears on an east wall are a fair crop, but the trees have been much infested with blight. Peaches on south and south-east walls are in splendid condition, after giving much trouble in the spring, owing to infestation of blister. The crop is very thin on most varieties, the fruits being chiefly on the top part of the trees, which points to ripened wood being a great factor in the cropping of this fruit. Bush fruits were a heavy crop, especially Black Currants, which do well on our heavy soil, the bushes being but little affected with big-bud mite. Both sweet and Morello Cherries have been good crops, the variety Guigne Annonay, grown as a cordon on a south wall, being very useful by the end of May. Plums on a west wall are good, but the orchard crop is very thin. The local market seems to have been well supplied with Plums up to the time of writing, but later varieties, I fear, are very scarce. *John T. Tubb, Bear Wood Gardens, Wokingham.*

Hampshire.—Although all trees blossomed abundantly we have a very poor show of fruit. Strawberries, Currants and Raspberries, however, were very good, otherwise it is the worst fruit year in this district for a very long time. *Henry Martin, Bartley Lodge Gardens, Cadnam, Southampton.*

—— Apples are a heavy crop of excellent quality, although some trees have been injured by aphis as well as Apple scab, notwithstanding systematic sprayings. Cox's Orange Pippin, Worcester Pearmain, Lane's Prince Albert, Bramley's Seedling, Lord Grosvenor and Ben's Red are the best cropped varieties. Strawberries were a large crop of excellent berries, Royal Sovereign and the Laxton being the finer varieties. Gooseberries and Red and Black Currants were full and good crops, but Plums and Damsons are a failure. The soil is of a heavy, tenacious character, overlying first a clayey pan and below a chalk subsoil. Much manipulation is needed to get the ground into working order. *E. Molyneux, Swanmore Park, Bishop's Waltham.*

—— The crops of hardy fruits are very disappointing, after such promise in the wealth of bloom earlier in the year. Of Apples some varieties are carrying good crops, notably those that bore lightly last season. The fruit is clean and of good quality, but the trees, as with all other kinds of fruit trees, were badly infested with aphis. Pear trees are almost fruitless, probably owing to the heavy crops of last year. Plum trees were badly injured by attacks of aphis, and, with the exception of the variety Victoria, are almost fruitless. Apricots are a failure with us, but a few fruits are observable in neighbouring gardens. Of Peaches and Nectarines we grow none outside, but the same remark applies to these, there being very few fruits, and the trees are suffering from aphis attacks. Strawberries have been abundant, and the fine, bright weather experienced during their season imparted a rich flavour to the fruit. Gooseberries, Black and Red Currants were good crops, but Raspberries were scarce. Our situation is low-lying; the soil is a clayey loam resting on a subsoil of London clay. *A. G. Nichols, Strathfieldsaye Gardens, Mortimer, R.S.O.*

Kent.—Apples, to use a Kentish expression, are "platty," which means that some orchards are bearing good crops whilst the next door neighbour has none or hardly any. Pears are nearly a failure. Of Damsons there are none. There were many more Cherries than was at first anticipated, and their prices kept up well. Raspberries, which are grown around here in great numbers, were very fine and of excellent flavour. The berries are dispatched in tubs to the London markets twice a day by motor-vans. Strawberries were a good crop of excellent berries. Loganberries, of which there are several acres in this district, are a heavy crop, and I should prophesy that when better known this fruit will become a most profitable crop. *G. Woodward, Barham Court Estate Gardens, Maidstone.*

—— The trees blossomed profusely, but severe frosts and cold winds in May destroyed the prospects. I never saw so few Pears. Apple trees that cropped freely in 1912 are bare of fruit, but an orchard of dwarf trees in 300 varieties is well cropped, and the fruit is very clean. The soil is lower green sandstone and very favourable for fruits of all kinds. *George Bunyard, Royal Nurseries, Maidstone.*

—— Apple trees are badly infested with vermin of various descriptions. Pear trees flowered well, and the fruits set freely, but the latter have fallen: in many instances, almost completely. Plum trees were badly attacked by blight, and the crop is almost a failure. Cherries dropped considerably during the time of long-continued cold, easterly winds. Strawberries were fairly abundant, but the season was exceptionally short. Nut trees were weakened by the heavy crop of last season, and nuts are very scarce. *Geo. Fennell, "Bowden," Tonbridge.*

—— Apples are a fair crop in some places, but in others they are very scarce, owing to the cold rains and dull weather when the trees were in flower. Plums and Pears are bad in most places, which I attribute to frosts in April. Cherries were good in most places. Raspberries were a heavy crop, whilst Strawberries also were very satisfactory. Gooseberries were a heavy crop, although in some places near here the crop was a poor one. Peaches are fair. Nuts are bad. *J. T. Shann, Betteshanger Park Gardens, Eastry.*

—— A mild winter, followed by an exceptionally wet and cold spring and prolonged drought in the late spring and early summer account for unequal and generally small crops of fruit. Strawberries were a poor crop owing to drought and cold winds, but Raspberries were better, as there were copious rains after picking had commenced. This crop totalled as much as two tons per acre. The soil is loam and gravel on "bull-head." *W. E. Humphreys, Blendon, Bexley.*

—— All top fruit was badly affected by aphis, and the crops suffered considerably for want of rain. The trees bloomed well, but the flowers were destroyed by 14° of frost in April. The crops of small fruits would have been fair if rain had fallen earlier. *H. Cannell and Sons, Eynsford.*

—— The fruit crops generally are disappointing. There was a marvellous show of blossoms on all kinds of trees, but long-continued damp, cold, and sunless weather spoilt the good prospects. In some cases the fruits appeared to set, but dropped later wholesale. Plums and most stone fruits, with the exception of Cherries, were practically a failure. Cherries varied considerably. Some of the orchards had excellent crops of good fruit. Pears are very scarce. Apples dropped freely in some cases before they started to swell. Strawberries were excellent. The soil, a clayey loam, is of a heavy, retentive nature. *J. G. Weston, Eastwell Park Gardens, Ashford.*

Middlesex.—All soft fruits were very satisfactory, and Apple trees are heavily cropped. Peaches are bad, the worst crop for many years past, whilst the leaves are badly blistered. The trees were never at rest in winter. Consequently the wood was soft and green, and the buds too forward. Although there was plenty of blossom the individual flowers were thin and weak. Plum trees on walls carried a mass of bloom and set ample fruits, which dropped later. The same may be said of Pears. We experienced 10° of frost when the trees were in full flower, but I do not think this is the entire cause of the Plum failure, as two standard trees in the open of the variety Gisborne are bearing good crops. *H. Markham, Wrotham Park Gardens, Barnet.*

—— There was early promise for a good Plum crop, but practically all the fruits dropped from the trees, and we have only a sprinkle of the variety Czar. This is the fourth year in succession that we have had no Victoria Plums. I am of the opinion that the wood did not ripen last autumn—hence the failure. *W. Poupart, Marsh Farm, Twickenham.*

—— The fruit crops are under the average, owing chiefly to the fact that they were caught in bloom by some of the early frosts. Apples appear to be the exception. There is a good average crop of these fruits in most places, and more than an average in some. Pears and Plums are particularly poor, and the failure will entail a severe loss to many market gardeners. Plums have not only been badly afflicted with silver leaf, but also with aphides, the latter pest being abundant in places where there is much weedy vegetation and lack of clean cultivation. *John Weathers, Talbot Villa, Isleworth.*

—— Notwithstanding an abundance of blossom on all Pear trees, the crops in this district are extremely light. On April 13 we registered 8° of frost, which proved distastrous to both Plums and Pears. But there are heavy crops of Apples, as the blossoms were not expanded at the time when frost appeared. The varieties Lane's Prince Albert, Peasgood's Nonesuch, Chas. Ross, and Allington Pippin are all carrying heavy crops. The crop of Strawberries was one of the best for some years past, and the quality of the berries excellent. We gathered our first berries out of doors on June 14, and the last (Laxton's Latest) on July 15. The new variety Utility is a Strawberry with a future. It combines the good qualities of strong growth and free cropping; it bears fine, glossy fruits of superior flavour, and is a mid-season variety. Small fruits were very good, but Cherries and Peaches are failures. *Jas. Hawkes, Osterley Gardens, Isleworth.*

—— Except for Apples and Strawberries this is the worst fruit season I have known for years. Plums in particular are very bad. The soil is a good holding loam on gravel. *J. W. Bates, Cross Deep Gardens, Twickenham*

—— The fruit crops vary. What promised to be a record year, judging by the amount of blossom, has in some respects turned out a failure. We have a large number of Apple, Pear, and Plum trees, and generally have a record crop of Pears, and an under-crop of Apples, but this year the usual order is reversed, for we have a good average crop of Apples and few Pears. Certain varieties of Apples, including Lane's Prince Albert, Lord Suffield, New Hawthornden, Frogmore Prolific, Warner's King, Newton Wonder, King of the Pippins, and Worcester Pearmain are carrying record crops. All young trees, which had a splendid show of blossom, have failed entirely. We registered no spring frosts, and there were scarcely any cold winds, yet the embryo fruits dropped from the trees. Plum trees, which showed an abundance of blossom on some trees for the first time during my five years here, set plenty of fruits, but when as large as Peas the latter turned yellow and dropped. We had an exception in the case of one tree, which bore 14lbs. of fruit. Cherries and Peaches also set well, but these crops have also failed. We had a record crop of Strawberries. Raspberries, Black and Red Currants and Gooseberries were under the average. We have a good crop of Cobnuts. The garden slopes to the north-east; the situation is cold and crops are late. The soil varies from light to good, yellow loam with a clayey subsoil. The crops usually suffer from late spring frosts and cold winds. *Wm. Bryden, Stone Hill Gardens, Winchmore Hill.*

Surrey.—Apples set well. The variety Cox's Orange Pippin had to be thinned. Pear trees blossomed profusely, but the fruits set poorly. Plums set abundantly, but a few cold nights caused the fruits to drop freely. Strawberries, Gooseberries, Raspberries, and Currants were all plentiful and of good quality. The weather of spring was very wet right into May, the rainfall for the first five months amounting to 13.91 inches, or 5.53 inches above the average. *James Watt, Mynthurst Gardens, Reigate.*

—— In some gardens in this district the Apple crop is over the average, and the fruits are of good quality. Pears blossomed profusely, but few of the flowers set, Williams's Bon Chrêtien being a notable exception, and of this variety an average crop is expected. Plums set well, but continued low temperatures at night caused the fruits to drop wholesale. Black Currants, Raspberries, Red Currants and Strawberries have yielded heavy crops of best quality fruits. Gooseberries yielded well in some gardens; in others, including Coombe Court, the crop was practically a failure. This I attribute to frosts while the bushes were in bloom. The soil is a medium loam over a clay subsoil. *Thos. Smith, Coombe Court Gardens, Kingston Hill.*

(*To be continued.*)

DITTON PARK, BUCKINGHAMSHIRE.

See Supplementary Illustration.

THE original residence at Ditton Park shared the unfortunate fate of so many of the country houses of England. In 1812 the mansion was burnt almost to the ground, and the present house was commenced in the following year. It is in the turreted or Tudor style, and, when viewed from across the broad moat and beyond a rich green lawn with a bordering of fine trees, presents a substantial appearance of spacious comfort. The moat at Ditton has no affinity with the moats of the tragic novelists, who delight in portraying a sombre, forbidding piece of water in whose depths danger lurks. At Ditton Park the moat is a wholesome and exceedingly pleasant feature, which, as is shown in the Supplementary Illustration, is of exceptional size, and furnishes a congenial home for various rushes and reeds as well as the white Nymphæa. Along its banks the pendulous growths of Bamboos, interspersed with the sweeping branches of Horse Chestnuts, Beeches, and Elms, add in a great degree to its attractions. The house and grounds in the moat enclosure occupy fully twenty acres, and the planting has been so skilfully done as to convey an impression of unlimited extent.

For many years Ditton Park, which is pleasantly situated about a mile from the village of Datchet, was the residence of the late Dowager Duchess of Buccleuch, but during the past few years it has been leased to Lord and Lady Wolverton. Mr. T. Foakes, who was gardener at Iwerne Minster, Dorsetshire, manages the whole of the Ditton Park estate with conspicuous ability. When in residence at Windsor Castle the late Queen Victoria was a frequent visitor to Ditton Park, and delighted in driving around the richly-wooded domain. Trees grow splendidly in the rich Thames valley soil, and in pleasing contrast to the lofty Elms and old spreading Oaks are many groups of shapely Thorn trees of great age, which are so characteristic of the older English parks in the home counties. Chestnuts and Walnuts also attain exceptional proportions; the latter and the sweet Chestnut usually fruit abundantly.

The south front of the house commands a splendid view across the moat to the richly-wooded ancient deer park, and on the western side there is an ample lawn bounded on three sides by mixed groups of Cedars and Yews, Beeches and Elms, with isolated specimen Tulip trees. On the left an inviting peep of the flower garden may be seen. Although of formal design this garden depends on the richness of the plants for its effect, as the design is for the most part a series of narrow parallelograms with Box-edging set out in gravel walks. The central feature is a Rose garden of rather more elaborate, yet on the whole simple, design. The season of the Rose is almost over at Ditton, but there remain ample evidences of a glorious summer display. The other beds are largely planted with distinct kinds of such herbaceous plants as the old favourite double Marigold, Pæonies and Michaelmas Daisies, whilst the larger, outer beds are of the nature of mixed herbaceous borders, where large clumps of Helianthus rigidus and rows of tall Hollyhocks rising from herbaceous Phloxes, Carnations, groups of Gladioli, notably of the variety America, supply abundance of floral beauty. Away to the right, past the eastern lawn, a small circular flower garden claims attention; here the planting is on conventional lines, such subjects as Pelargonium Paul Crampel, blue Lobelia, white Marguerites and Antirrhinums being used. From this point a splendid view of the moat and its attendant lake, through which the stream flows, is obtained. In the middle distance is a large island, effectively planted with forest trees and an occasional Cedrus atlantica, Taxodium distichum, and other exotics. This island contains the famous heronry where the herons build their nests and hatch their young. Along the inner bank of the moat, towards the boathouse, stands a row of tall Lime trees, which are heavily loaded on the upper branches with bunches of Mistletoe. Nearby the boathouse is an interesting Sycamore tree which long ago branched close to the ground, and in the fork seeds, apparently from the same tree, germinated, and now a younger tree, which girths 4 feet 4 inches at 6 feet from the ground, has grown straight up through the centre of the parent tree. The girth of the two trees is 27 feet 6 inches.

THE GLASSHOUSES.

Most of the glasshouses, frames, and garden buildings are situated alongside the walled kitchen garden in the park, and here are grown plants for supplying cut flowers, either for the house or to be sent to Queensberry House, Newmarket; or, as at present, to Scotland. Carnations are a favourite flower, and of them 1,000 "Malmaisons" are grown. The chief varieties are Princess of Wales, Duchess of Westminster and Coventry. Many of the plants, especially of the first-named variety, are grown in pots of unusually large size, Mr. Foakes being of the decided opinion that by this method more bloom is obtained, and the exceptional vigour and healthy appearance of the plants would seem to justify the practice. Rather fewer Tree Carnations are grown, but in order to obtain variety thirty-two distinct sorts are cultivated, the principal being Mrs. Burnett, May Day, Britannia, and Mrs. Clode. These plants are quite as promising as those of the Souvenir de la Malmaison type. Next in favour come Gardenias, which fill a span-roofed house where, in order to obtain a succession of blooms, a number of plants are set out in a prepared bed. Tuberoses are also grown in great quantities; fully 1,000 corms are potted each year. The plants find congenial surroundings in a Palm-house, where Kentias, Bamboos, Ferns, and similar subjects for house decoration are grown. Other glasshouses contained Campanulas, Liliums, Clerodendron fallax, Begonia Gloire de Lorraine, Cyclamen, and an excellent batch of Calanthes. Chrysanthemums are grown as bush plants to furnish cut blooms.

THE KITCHEN GARDEN.

In the four acres of walled garden many of the Peach trees which the late Mr. Lindsay used to crop with such conspicuous success still flourish against the south walls. Their present age one might safely hazard to be 50 years, and although they have now passed their prime a good crop was produced last season. This year, as has unfortunately been the case in so many gardens, the crop is decidedly "under." Greengages are also a failure, but many of the espalier Pears, especially trees of Doyenné du Comice and Catillac, are well furnished with fruits. A double row of bush trees of Cox's Orange Pippin Apple, about 10 years old, is heavily fruited. In the orchards the best crops are of Worcester Pearmain, Blenheim Pippin, and Cox's Orange Pippin. The vegetable quarters, both within and outside the walled garden, are filled with the customary crops in a healthy condition—Celery, Brussels Sprouts, Cauliflower and Dell's Crimson Beet are especially luxuriant. *A. C. B.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

GOLD MEDAL ROSES.—I am pleased to note that *White Rose* has had the courage to write on the subject of "Gold Medal Roses," and it is in the best interests of the National Rose Society that this question should be dealt with as soon as possible. It is part of my duty to correspond with enthusiastic amateur rosarians in all parts of the country and I also meet them at various shows. I am thus in a position to feel the pulse, as it were, of a by no means negligible portion of the Rose world. To say that dissatisfaction exists with the present system of granting awards to new Roses is putting it very mildly. On the principle of awarding medals or cards of commendation to flowers which are the produce of maiden plants, I may remark that two-thirds of the Rose-growing public can never hope to grow plants on any such system, but without further reference to this aspect of the question I will pass on to the subject of "Gold Medal Roses." If the National Rose Society expects the vast body of amateur growers of this country to appropriate new Roses at the present rate of output, it is, I venture to think, mistaken; and its present policy in this respect cannot be commended. The public is really suffering from a surfeit of new Roses, and the Society is on the point of losing its influence and authority upon the flower it has ably represented for so many years. Apart altogether from the question of merit or improvement upon existing varieties, how many growers are there in a general way, leaving cost out of consideration, who can find room for twelve or thirteen Gold Medal Roses every year? Had these newcomers been tested as cut-backs under some rational system of trial, there might be some encouragement to the amateur to buy them, but under the present method of granting awards there is no guarantee to purchasers that these Roses will displace some of the old and proved favourites. The problem of new Roses is a serious one also to the trade growers; but they have the remedy in their own hands, and this aspect of the subject need not concern us now. There was never in the history of the Rose a more numerous and enthusiastic band of cultivators than at present, and the National Rose Society should realise that it has to cater for a most intelligent public. If raisers of new Roses are inclined to increase their output of novelties in consideration of the immense popularity of these flowers, it behoves the National Rose Society to take measures to limit the number of awards. It seems to me that they might with advantage take example by the National Sweet Pea Society. That organisation has been called upon to deal with an enormous number of novelties during the past ten years, and it has power to award a Silver Medal to the best new variety every year. The novelties have been many, the Silver Medals have been few. The National Sweet Pea Society does not grant awards until the new varieties have been tested in a trial ground controlled by it, and few new sorts out of the many placed in commerce annually have passed this test. Is it impossible for the National Rose Society to initiate a similar test for new Roses? It is a wealthier and much more influential association than the National Sweet Pea Society, and has surely ample funds (or facilities for obtaining them) to start a trial ground under its control. France has now a successful and useful trial garden, but the Bagatelle results are not of much value so far as this country is concerned, since climatic conditions are altogether different. If the National Rose Society is to maintain its prestige and authority with the vast body of amateur Rose growers in these islands, it must adopt a more sensible method of making awards. In his notes upon the subject of "Gold Medal Roses" your correspondent *White Rose* observes that twelve premier awards have already been made this season by the National Rose Society—three at the London show and nine at Gloucester. I think only eight Gold Medals were given at Gloucester, not nine, which would make the total, so far, eleven. But your correspondent has evidently omitted to include the result of the Spring Show of the Society in London, at which three Gold Medals were awarded, so that the total for the year is now fourteen. Of course, as *White Rose* remarks, the autumn show is still to come, and more awards may be given there. I am not in accord with your correspondent's suggested alteration in the method of awarding Gold Medals to the best exhibit of new Roses. I am of the opinion that such a system would be no

improvement upon existing methods whatever, and trial by growth in a garden controlled by the National Society seems the best and most practical method *George M. Taylor, Mid-Lothian.*

———The growth and testing of new Roses is a subject in which I am much interested, and the practice gives me a good deal of insight into the habits and qualities of the plants. The subject of the awards given to the various new sorts has also received a good deal of my attention, and I am surprised to find so much dissatisfaction expressed at the manner of their making. For my part, I consider that the present system of award has much to recommend it, when the undoubtedly high quality of all the Roses so honoured is taken into consideration. It would be difficult to disparage any of the varieties to which Gold Medals have been awarded during the past ten years. Indeed, so far as I know, no complaints have been made against them by those who have grown them. Why, then, should a system so successful be supplanted? Take the list given by *White Rose* (p. 129). I would challenge any grower to point out real faults in any of those named. Moreover, the list is not confined to exhibition varieties; there are decorative Roses in numbers—and will anyone say that Old Gold, for example, has undesirable qualities? With regard to those which possess undoubted advantages, both for exhibition and for the garden I will briefly run through the list. A. Hill Gray is one of the best of the yellow varieties. His Majesty is a Rose of first-class form, fragrant and freely-flowering. Simplicity is a charming white-flowered single Rose. White Dorothy is at the moment (August 29) one of the most attractive Roses in the garden. Of the 1909 list Claudius is shapely and fragrant, and Lady Pirrie one of the finest of flowers, possessing all the points which should be found in a Rose. In the list for 1910 Edward Mawley is in every respect first-class, Lady Hillingdon possesses numberless advantages, and Mrs. Cornwallis-West is perfect in form, colour, and perfume. Mrs. F. Hobbs is unequalled for exhibition, and Rayon d'Or, for bedding or cutting, has no equal among the orange yellows. 1911 gives us George Dickson, the finest dark-red Rose in cultivation, and one of the freest growers. Mrs. Sam Ross presents a charming combination of colours, delicate and effective. The number for 1912 shows an increase over any other year, but it would be difficult to name one in the list which is not worthy of honour. British Queen is magnificent for any purpose. Mrs. A. Carnegie is both distinctive and beautiful; St. Helena is not only a first-class exhibition variety but is also freely-flowering, and suitable in every way for the garden; it has yielded this year in my garden a very large number of blooms. The colour of the variety Mrs. C. Pearson is quite dazzling; whilst Old Gold, as I have before implied, is in every respect satisfactory, continuously throwing up strong, profusely-flowering shoots. The current year has given us many charming varieties; Mrs. James Lynas has produced in this garden dozens of shapely blossoms, the petals of marvellously delicate colour and texture. Queen Mary, Gorgeous, and Brilliant all answer to one's expectations, and many others might be given which as fully justify the honour bestowed upon them. *E. Molyneux, Swanmore Park.*

——— There are too many Gold Medal Roses. I try nearly all the new varieties as they are sent into commerce, and find that quite half of them are not worth the coveted distinction. I am glad that *White Rose* has started a discussion. I think that the raisers might help a great deal in this direction. In my opinion a gold medal should never be awarded unless the variety is distinct in its class from any other in cultivation. *Red Rose.*

Peach Exquisite.—While staying in Kent I visited Kemsing Flower Show. One of the exhibits was a dish of Peach Exquisite, and I was informed that the average weight of each fruit was 12½ ozs.; the heaviest of the six fruits turned the scales at 14 ozs. Fruit had been picked from the same tree weighing between 15 and 16 ozs. The Peaches were beautifully coloured. *F. C.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

August 26.—*Present:* Mr. E. Bowles (in the chair), Dr. Bateson, F.R.S., Messrs. Bennett-Poë, John Fraser, W. Hales, J. W. Odell, W. Cuthbertson and A. Worsley.

Mr. Chittenden reported that the Violet leaves sent by Mr. Druery were attacked by the Gall Midge, Cecidomyia violæ.

Double Gladioli.—A letter from Col. Sandeman was read in connection with the alleged doubling of Gladioli. As no specimen came with the letter the Committee could not decide the point raised. Incidentally, Dr. Bateson remarked that if the fact were established it would be interesting, as there were several families or orders, such, for example, as the Labiatæ, that although having peloric forms do not show true doubling of the flower.

Campanula disease.—Mr. Edwards, of Sylfaen Gardens, Welshpool, sent leaves of Campanula persicifolia affected with Puccinia Campanulæ (Plowright and Berkley)

Late brood of Sawfly.—Mr. Edwards sent a brood of the Sawfly (Gooseberry) caterpillar, Nematus ribesii. The Committee thought this should be recorded owing to the very late period of hatching.

Matricaria suaveolens = M. discoidea.—Mr. Odell showed this little Composite from N.W. Middlesex. It is a recent immigrant to this country, and has been recorded by Mr. E. Bowles from Essex and Hertfordshire, and by Mr. J. Fraser from Aberdeen.

Fasciated Aloysia citriodora.—Mr. Odell showed stems of this plant fasciated, and having a very mixed phyllotaxis, with the terminal parts showing the normal terete stem and normal phyllotaxis. Dr. Bateson remarked that the condition was similar to that of the Crown Pea, Pisum umbellatum, where from a densely fasciated stem normal shoots were developed with flowers.

HORTICULTURAL TRADES' ASSOCIATION.

August 27-28.—The members attending the annual meeting, a report of which was published in the last issue, visited Colchester on the 27th ult. In the forenoon they visited the Rose nurseries of Messrs. B. R. Cant and Sons and Messrs. Frank Cant and Sons. Messrs. Bunting and Sons' nurseries were also visited before lunch, and several acres of Lilies inspected. Lunch was given by the Colchester nurserymen in the famous Moot Hall. Alderman Frank Cant presided, the speakers after lunch being the Chairman, Mr. Worthington Evans, M.P., Mr. Cuthbertson (the President of the Association), Mr. Pearson (the Secretary), Councillor R. W. Wallace, and other local gentlemen. The afternoon was spent in visiting the castle and museum, the nurseries of Messrs. R. Wallace and Co., and Messrs. D. Prior and Son.

On Thursday, the 28th ult., Windsor was visited. An hour was spent in the castle viewing the State and other apartments, Mr. MacKellar acting as guide. Thereafter the gardens of the castle and of Frogmore House were inspected. The extent not only of the gardens, but of the glasshouses, was a surprise to many of the visitors, and the signs of good cultivation everywhere testified not only to Mr. MacKellar's skill as a gardener, but also to his powers of organisation. The kitchen garden extends to sixty acres. The principal range of fruit-houses is 1,000 feet in length, and altogether the area under glass extends to several acres. Sir Dighton Probyn's rock garden (see *Gard. Chron.*, August 22, 1908, Figs. 59 and 60 and Supplementary Illustration) was much admired. Mr. MacKellar joined the party at lunch in the White Hart Hotel and was cordially thanked for his kindness.

PRESCOT HORTICULTURAL.

August 22 and 23.—This society has lately been reconstructed, and the show held on the above date is the first under the new auspices. Unqualified success crowned the efforts of the promoters, the attendance and the exhibits (both in quantity and quality) being most satisfactory. Mr. Rowed (gr. Mr. T. Taylor), of Eccleston Park, won the 1st prize for three Gloxinias, with some very well grown plants, and Mr. Crooks (gr. Mr. J. Barton) was second. In the class for a specimen Pelargonium Mr. Amos Worrell was placed first, his plant being an exceptionally fine one. Mr. Wareing obtained the 1st and Mr. Rowed the 2nd prize for six Cactus Dahlias; and for hardy cut flowers Mr. Rowed and Mr. Crooks were placed 1st and 2nd respectively. There were a number of very attractive exhibits of Sweet Peas, which made an effective show, and were displayed with much taste. Mr. Bullock obtained the 1st prize and Mr. Halsall the 2nd. The vegetable classes were well filled, and the quality of the exhibits was almost uniformly good. Mr. Bullock and Mr. Rowed carried off the chief honours for exceptionally creditable collections.

LITTLE THURROCK (ESSEX) AND DISTRICT HORTICULTURAL.

August 20.—The fifth annual show of the above society took place on the foregoing date, and was a great success; the weather was all that could be desired, and the attendance in consequence larger than on any previous occasion. The exhibits were on the whole very satisfactory, though the quality of some of the produce showed the effects of the drought. The cottagers' and allotment-cultivators' sections were the largest, and there were many creditable exhibits, especially of vegetables. Several local nurserymen staged trade groups not for competition, among them Mr. David Russell, who contributed a collection of Plums and some fine Roses and perennials.

CHESTER AGRICULTURAL.

August 27.—The horticultural show held in conjunction with the Cheshire Agricultural Society proved a great success; the exhibits, and especially those of cut flowers, vegetables, and hardy fruits, were exceptionally fine. The entries were well up to the average; in many of the classes they numbered more than twenty.

In the class for 6 stove or greenhouse plants, Orchids excluded, A. Tyrer, Esq., Chester (gr. Mr. A. Ellams), was successful with medium-sized plants.

E. Peter Jones, Esq., Chester (gr. Mr. W. Dodd) won in the class for 4 Ferns distinct.

The best Pelargoniums were shown by Mr. W. Dodd.

Mr. Thomas Coathup, Spital, excelled in the class for 12 Cactus Dahlias, showing well-coloured flowers, and in a similar class for 6 blooms Mr. C. Foster, Whitby, was successful.

For 12 Asters A. D. Pitcairn Campbell, Esq., Bangor-on-Dee (gr. Mr. E. Griffiths), was awarded the 1st prize.

For 12 Roses, not fewer than eight varieties, Mr. E. H. Herbert, Acton Bridge, was placed in the 1st position with charming blooms of lovely colour. In the class for six varieties J. D. Greenshields, Esq., Christleton (gr. Mr. H. Twiss), showed the best exhibit.

In the class for 12 bunches of herbaceous cut flowers W. G. Townsend Currie, Esq., Christleton (gr. Mr. T. Sanders), won with a choice collection, whilst Mr. E. Griffiths showed the winning six bunches.

B. J. Tanby, Esq., Sandiway (gr. Mr. Geo. Gears), excelled in the class for 12 vases of Sweet Peas, and in a similar class for 6 vases Mr. Jos. Roberts, Gresford, was successful. For 9 vases P. T. Davies Cooke, Esq., Mold (gr. Mr. W. Weaver), was placed in the 1st position. Mr. H. Twiss excelled in the class for 6 vases of summer-flowering Chrysanthemums.

In the Fruit section, Mr. W. Owen, Colwyn Bay, showed the best 2 bunches of black Grapes, staging Madresfield Court, which was good in berry and colour; for 2 bunches of a white variety the same exhibitor was successful with well-coloured Muscat of Alexandria.

P. H. Ashworth, Esq., Gresford (gr. Mr. H. Young), was awarded the 1st prize for 6 Peaches, showing good fruits of the variety Exquisite.

In the class for 6 Apricots the Rev. C. E. M. Wilson, Eccleston (gr. Mr. J. Youens), excelled. Mr. W. T. Roberts showed the finest Melon, and Mr. W. Dodd had the best Plums in Kirke's Seedling. Apples were shown in excellent condition. Mr. J. Beckett, Chester, staged the best culinary variety, and Mr. R. Clarke, Warrington, the best dessert variety.

For a collection of hardy Fruits, E. PERCY ECCLES, Esq., Caldy (gr. Mr. W. H. Faulkner), was successful.

In the Vegetables section there were no fewer than 37 entries for Peas. Six classes were provided by nurserymen for a collection of 6 kinds. The 1st prize-winners were Mr. C. GRIFFITHS (Messrs. Dicksons', Chester, class); Mr. E. DEAKIN, Hay Mills (Messrs. Sutton and Sons' class); Mr. W. WEAVER (Messrs. Clibrans' class); Mr. JOHN EDWARDS, Ruabon (Messrs. McHattie and Co.'s class); Mr. J. TOMLINSON, Northwich (Messrs. Ed. Webbs and Sons' class); and Mr. CHARLES PARKER, Waverton, Chester (Messrs. Dickson and Robinson's class). Messrs. DICKSONS were awarded a Silver Medal for a non-competitive exhibit of cut flowers, which included bold masses of Liliums, Gladioli, and Chrysanthemums.

ROTHESAY HORTICULTURAL.

AUGUST 19.—The annual show of the above Society was held in a marquee on the Esplanade. The chief feature was the display of cut flowers, the Sweet Peas and Roses being exceptionally fine. Large pot plants were also well represented, and many fine specimens were on view. Several well-known nurserymen competed, notably Messrs. LISTER, who won several first prizes. Mr. SMELLIE also made an excellent display. The entries for vegetables were numerous, but owing to the dry weather the exhibits were not quite up to the usual standard. Fruit was very well represented, and the agricultural section was a popular feature. The exhibition was in every way a success, and the proceeds amounted to slightly more than last year.

ABERDEEN ROYAL HORTICULTURAL.

AUGUST 21, 22, and 23.—The annual exhibition under the auspices of this society was held on these dates in the Duthie Public Park, Aberdeen. Rain fell on the opening day, but beautiful weather prevailed on the two following days. The entries numbered over 1,400, and were thoroughly representative of the north-eastern districts of Scotland. Three large marquees accommodated the exhibits, devoted respectively to cut flowers, pot plants and vegetables. The gate receipts during the three days amounted to £402.

CUT FLOWERS.

The displays of cut blooms proved one of the best features of the exhibition. The Silver Challenge Cup offered for the best 18 Rose blooms, distinct varieties, was won, after a keen competition, by Mr. JAMES IRELAND, Park Place, Brechin, who had splendid flowers of Gustave Piganeau, Hugh Dickson, Lady Ashtown, Beauty of Waltham, Dean Hole, Duke of Portland, Gladys Harkness, Lady Ursula, and Bessie Brown. 2nd, Mr. JOHN SIMPSON, Panmure Gardens, Carnoustie. Mr. CHARLES LAING, Derncleugh, Cults, Aberdeenshire (gr. Mr. Alex. Rose), excelled in the class for 12 Roses, distinct. It was a capital collection, and included fine examples of Beauty of Waltham, Countess of Gosforth, Countess de Moray, White Lady, Oscar Cordel, Dr. Amory, and Gustav Grünerwald. Mr. BARNETT, gardener at Summerfield Hospital, Aberdeenshire, was placed 2nd. Colonel GILL, of Dalhebity, Aberdeenshire (gr. Mr. Alex. Brebner), and Mr. J. IRELAND, Brechin, were prominent exhibitors in the class for decorative and Tea or Noisette varieties.

Dahlias were well shown. Mr. WILLIAM LOCKART, Craigiebuckler Cottage, Aberdeenshire, showed the best Cactus-flowered varieties and the best Collerette varieties. Lord SEMPELL, Fintray House, Aberdeenshire (gr. Mr. William Smith), was a notable winner in the class for Gladioli.

The finest exhibit of border flowers was from SUMMERFIELD HOSPITAL GARDENS, the 2nd and 3rd prize being won by Sir THOMAS BURNETT, Crathes Castle. For 20 distinct varieties of cut flowers and foliage Misses MCLENNAN, Springhill, Aberdeenshire (gr. Mr. William Sorgie), were placed 1st. Lord Provost MAITLAND, Rubislaw Den House, Aberdeen (gr. Mr. A. Duncan), was awarded the 1st prize for 6 bunches, trusses, or blooms of cut flowers; 2nd, Sir THOMAS BURNETT. Mr. JAMES ANDERSON, Constitution Street, Aberdeen, was easily 1st for Violas and Pansies, and this gentleman also led for Chrysanthemums. The most charming features in this section were the displays of Sweet Peas. As at the recent Aberdeen Sweet Pea Society Show, Sir THOMAS BURNETT was the most successful exhibitor. Some of the spikes shown by him carried no fewer than five blooms. The bouquets of Sweet Peas were much admired. Mr. JAMES SMITH, 210, Union Grove, Aberdeen, won both the 1st and 2nd prizes with fine entries.

An uncommonly fine feature in this marquee was the display made by nurserymen and florists. Messrs. JAMES COCKER AND SONS, Aberdeen, put up a grand collection of Roses for the Challenge Cup offered for the best 36 blooms H. P. and H. T., or either, and right worthily won the trophy. Messrs. ADAM AND CRAIGMILE, Rubislaw Nursery, Aberdeen, were placed 2nd. Mr. ALEX BURNS, New Market, Aberdeen, and his daughter, Miss ALICE BURNS, Victoria Road, Aberdeen, won the principal prizes in the decorative classes. Between them they gained no fewer than six 1st, five 2nd, and two 3rd prizes.

POT PLANTS.

Colonel GILL, of Dalhebity, who for many years has taken a prominent place in the prize list for pot plants at Aberdeen, gained the Silver Medal offered for the best specimen plant in flower with Disa grandiflora. Professor BAILLIE, Norwood, Cults, Aberdeenshire (gr. Mr. John Elder), won the 1st prizes for (1) best specimen foliage plant; (2) four specimen foliage plants; and (3) two specimen palms, with remarkably well-grown exhibits. Colonel GILL showed the best Ferns. Mrs. HUNTER, Temora, Cults, Aberdeenshire (gr. Mr. Alexander Leith), Ardo, excelled with Begonias. Carnations and early-flowering Chrysanthemums were best shown by Mr. COUTTS, Sunnybank Place, Aberdeen, while the best exhibit of Petunias came from the gardens at SUMMERFIELD HOSPITAL.

FRUIT.

The best collection of hardy fruits was shown by Mrs. DUNBAR DUNBAR, Seapark, Forres (gr. Mr. J. A. Grigor). Mr. G. MCLENNAN, Fetteresso Castle, Kincardineshire, had the best Strawberries. The finest Gooseberries were exhibited by Mr. FERGUSON, Linton House, Cluny. Grapes were shown in rather larger numbers than usual, the best by Sir THOMAS BURNETT. The Misses MCLENNAN, Springhill, had the best Melons, Peaches and Nectarines. Pears were not particularly noteworthy, but those shown by Mrs. DUNBAR DUNBAR, and from DALSWINTON, were good. Apples were fairly numerous and of good quality. Lord SEMPIL won easily in the class for Plums; whilst Professor BAILLIE, Norwood, excelled in the class for Tomatos.

VEGETABLES.

The display in the marquee devoted to Vegetables was quite up to the high standard expected at Aberdeen, and, as usual, the outstanding feature was the grand collection of Potatos. The 1st prize for the best collection of Vegetables was awarded to produce from DALSWINTON; 2nd, the Misses MCLENNAN, Other prominent prize-winners in the Vegetable classes were Mr. REITH, Fernbank, Crathes (Cabbage); Mrs. RIVIERE, Park House (Carrots); MCKENZIE, Lower Bucksburn, Aberdeenshire (Cauliflower); Colonel GILL (Cucumbers); Mrs. DUNBAR DUNBAR (Onions and Leeks) and Mr. LAWSON, Cornhill, Aberdeen (Potatos).

NON-COMPETITIVE EXHIBITS

Honorary displays were contributed by Messrs. DOBBIE AND CO., Edinburgh; Messrs. THYNE, Downfield Nurseries, Dundee; Messrs. COCKER AND SONS, Aberdeen; Messrs. W. SMITH AND SON, Aberdeen; Mr. M. H. SINCLAIR, Aberdeen; Miss BURNS, Aberdeen; Messrs. BEN. REID AND CO., Aberdeen; Mr. JAMES ROBERTSON, Aberdeen; Mr. PETER MCHARDY, Aberdeen; and Mr. WILLIAM A. DUSTAN, Aberdeen.

DUMFRIES AND DISTRICT HORTICULTURAL.

AUGUST 29, 30.—The two-day exhibition of flowers, pot plants and vegetables promoted by the Dumfries Horticultural Society was opened by the Duchess of Norfolk. Sir Mark McTaggart Stewart presided and was accompanied by Lady Stewart, the Duke and Duchess of Norfolk, and Sir James and Lady Crichton-Browne. The attendance at the show was very good and the number and quality of the exhibits most gratifying. All the classes were well filled, the entries numbering 660, and competition was exceedingly keen. The Drill Hall, a lofty and spacious building, is well suited to the effective display of the exhibits, and was tastefully arranged. The main feature of the show was the fine display of Sweet Peas, which occupied a considerable space and attracted much attention. The 1st prize for 12 vases was awarded to Mr. THOMAS CARRUTHERS, Cargenholm, and the 2nd to Mr. JAMES M'GILL, Kirkconnell Gardens. Hardy border flowers were also very good. In the class for a table of cut border flowers Mr. C. G. M. MURRAY, of Cowhill Tower, was successful in winning the 1st prize, while the 2nd was awarded to Mr. JAS. M'GILL. Early-flowering Chrysanthemums made a pleasing display; the prize for the best pot plant in this section was won by Mr. JAS. HENDERSON, of Elmbank. In the class for table decorations there were eight entries, all the tables being arranged in good taste. The best exhibit was that of Mr. W. J. NICHOLSON, Douievale. Two competitors entered for a group of cut flowers; the winner of the 1st prize was Mr. R. A. GRIGOR, Dalswinton Gardens, Dumfries. To this competitor was also awarded the Silver Cup as the most successful exhibitor in the show, winning no fewer than 22 1st prizes. The display of vegetables was a very fine one, and the competition extremely keen in most of the classes. Mr. R. A. GRIGOR won the 1st prize for a collection, but the 2nd prize display (Mr. C. G. MURRAY'S) was nearly equal to the 1st prize exhibit. In the amateurs' classes the 1st prize collection was shown by Mr. D. J. MAXWELL, of Newtownards. Fruit made a very creditable show, the number of amateur exhibits being especially gratifying. There were a number of fine trade exhibits which added considerably to the effectiveness of the general display. Messrs. BARR AND HUNTER, of Maxwelltown, arranged a beautiful stand of hardy and greenhouse flowers in great variety, and Messrs. J. PALMER AND SON, of Annan, showed Roses of the highest quality. Messrs. T. KENNEDY AND CO.'S stand was conspicuous from all parts of the hall, and comprised a large number of striking and beautiful floral designs; the same firm also showed choice collections of cut flowers of various kinds. Gold Medals were awarded to Mr. W. MYERS, Dumfries; Messrs. T. KENNEDY AND CO.; Messrs. J. BOGIE AND SON, Dumfries; Messrs. BARR AND HUNTER; Mr. W. A. MCALISTER, Dumfries; Messrs. G. FAIRBAIRN AND SONS, Carlisle; and Messrs. G. MAIR AND SONS, Prestwick.

DUNDEE HORTICULTURAL.

AUGUST 28, 29, and 30.—This annual exhibition was held on the Magdalen Green, Dundee, on these dates in beautiful weather. The entries were fewer than those of last year, when the British Association visited the city. Exhibits of Sweet Peas proved a great attraction.

PLANTS IN POTS.

The Dundee shows have a reputation for pot plants, and although some of the larger varieties lacked the size and profusion of those shown last year, others, and especially the Codiæums, were better coloured than usual. For the best table 12 feet by 7 feet, of stove and greenhouse plants, Mrs. W. L. BOASE, Binrock, Dundee (gr. Mr. James Beats), was, as has been the case for many years at this show, the 1st prize-winner; 2nd, Mr. C. E. GILROY, The Grange, Monifieth (gr. Mr. James Bethel). The best six stove or greenhouse plants were shown by Mr. G. REID, Inverstay Gardens. 2nd, Mrs. BOASE. Exhibits of Ferns were well up to the average. For four exotic Ferns, distinct, Mr. REID was again successful. 2nd, Mrs. BOASE. Begonias were well shown. For double-flowered varieties Mr. A. S. HENDERSON, Seathwood, Dundee (gr. Mr. George Scott), was awarded the 1st prize, whilst for singles Mr.

BROWN, Balcairn Gardens, was successful. In the class for foliage plants Mrs. BOASE secured the 1st award. The chief prizes for flowering Chrysanthemums were divided between Mr. HENDERSON, Seathwood, and Mr. JOHN M. NAIRN, Elmslea (gr. Mr. William Benvie).

CUT FLOWERS.

The first prize for a decorated dinner table was awarded to Mrs. BOASE; 2nd, Mr. HENDERSON, Seathwood, and this lady also excelled in the class for (1) hand bouquets and (2) a display of cut flowers arranged for quality and effect. The 1st prize for Sweet Peas was awarded to Mr. J. H. CROSBY, The Ross, Comrie; 2nd, Mr. GEORGE REID, Rouken Vale, Downfield. Chrysanthemums were well shown, the 1st prize being won by blooms from Invertay Gardens. The 1st prize for hardy herbaceous flowers was won by Mr. HENDERSON, Seathwood (gr. Mr. Scott). For annuals, 8 vases distinct, Miss GIBSON, Invertay, was the winner. Carnations made an uncommonly fine display, Mr. DAVID HALLEY, Roycroft, Broughty Ferry, being the most successful exhibitor. Mrs. BOASE excelled in the class for 12 trusses or bunches of stove or greenhouse plants, nine varieties, not more than two trusses or bunches of Orchids. Roses were not quite so good as in some former years, but Mr. JOHN IRELAND, Park Place, Brechin, well deserved the 1st prize. Mr. DAVID HALLEY was placed 1st for 12 Carnations of the Souvenir de la Malmaison type, with fine blooms. Begonias were well shown. Mr. A. DUNN, St. Ann's, Brechin, proved a good 1st prizewinner for these flowers. Mr. HENDERSON, Seathwood, showed the best Pelargoniums, and Mr. WILLIAM HENDERSON, West Park, Dundee (gr. Mr. William Nicholl), the best Asters. In the nurserymen and florists' classes for Roses, Messrs. ADAM AND CRAIGMILE, Aberdeen, were placed 1st for 24 H.P. or H.T. varieties, distinct; 2nd, Messrs. D. and W. CROLL, Dundee. This order was reversed for 24 Roses, Tea or Noisette, Messrs. CROLL gaining first prize.

FRUIT AND VEGETABLES.

In the class for a collection of Apples, grown in the open, 12 distinct varieties, named, there was a keen competition, there being no fewer than 9 entries, and the winner proved to be Mr. HENDERSON, Seathwood (gr. Mr. George Scott), who showed an admirable exhibit. Grapes have always been a strong feature at Dundee. The black varieties were very fine, but the Muscats should have been better considering the sunshine they have received. Mr. JAMES BEISANT, Castle Huntly Gardens, Longforgan, won many 1st prizes in these classes, and other 1st prizes were awarded to Mr. A. MONCUR, Rockfield, Dundee (gr. Mr. William Balfour), for Lady Downes variety; Mr. WILLIAM HENDERSON, West Park, Dundee (gr. Mr. William Nicoll), for Muscat of Alexandria; and JOHN BIRRELL, Glassingall House, Dunblane, for Black Hamburgh. Mrs. BOASE showed the best scarlet-fleshed Melon, whilst Mr. BIRRELL, Glassingall House, Dunblane, excelled for a white-fleshed variety. For Peaches and Nectarines the 1st prizes were awarded to Mr. D. A. MILN, Linlathen, and Mr. JAMES STEWART, St. Fort Gardens, Newport, Fife, respectively. Mr. HENDERSON, Seathwood, was placed 1st for orchard-house fruit. Mr. MILN, Linlathen, excelled for a collection of six dishes of hardy fruit. There were more than a dozen classes for Apples, the majority of which were well filled. 1st prizes were won by Mrs. BELL, Hazelwood, dessert; Mr. GEORGE FAIRWEATHER, Glencarse, culinary; Mr. WILLIAM GOODALL, Errol (Warner's King and Duchess of Oldenburg); Mr. C. WOOD, St. Ann's, Brechin (Lord Suffield); Mrs. BLACK, The Croft, Errol (Ecklinville Seedling); Miss GIBSON, Invertay (Lord Grosvenor); Mr. C. E. GIBSON, The Grange, Monifieth (James Grieve); Mr. JOHN SUMMERS, Broughty Ferry (Cellini Pippin); and Mr. HARRY TAIT, Cuba Villa, Errol (Worcester Pearmain). For Plums Mr. SHIELDS, Pitfour Castle, was successful for yellow and purple varieties, whilst the 1st prize for red varieties was won by Mr. HENDERSON, West Park. Pears were best shown by Mr. C. E. GILROY, The Grange, Monifieth; Pitfour Castle; and Miss NIVEN, Port Allan, Errol.

VEGETABLES.

Vegetables compared very favourably with those of former years. The blue riband of the show—the Dundee Corporation Cup—was offered for a collection of 12 kinds, distinct, arranged on a space 5 feet by 3 feet. The competition was very keen, but Mr. A. A. ALLAN, M.P., Tulliebelton, Perth (gr. Mr. William Harper), showed best, being awarded 65½ points. The produce of the kitchen garden at Tulliebelton has for years past taken a very prominent place in the prize lists of shows in Scotland. Cauliflowers, Peas, Celery and Onions were the best vegetables in the Tulliebelton exhibit; 2nd, Mrs. WEINBERG, Fernbra, Dundee (gr. Mr. James Kinnear), with 61½ points; and 3rd, Mr. J. B. MCNAB, Keithock, Brechin (gr. Mr. George Hendry), with 55 points. Among others who won prizes for vegetables were Mr. C. E. GILROY (Tomatos), Mrs. WEINBERG (Leeks), Mr. MCNAB (Cucumbers), Mrs. BOASE (Onions), Mr. D. HAMPTON, Pitmilly, Boarhills, Fife (Parsnips, Kidney Beans and Cauliflowers), Mr. DAVID MATHERS, Rocklodge, West Ferry (Beetroot), Mr. ALLAN, Tulliebelton (Peas), Mr. JOHN EDNIE, Carnoustie House (Potatos), Miss GIBSON, Invertay (Carrots), and Mr. BIRRELL, Glassingall House, Dunblane (Cabbages).

AMATEUR CLASSES.

The leading prize—the Corporation Cup—was offered for the best six stove and greenhouse plants, distinct, three foliage and three in flower. There was a keen contest for the trophy by Mr. WILLIAM ROBERTSON, Blyth Place, Dundee, and Mr. A. E. EASTON, Lochee, Dundee. For the past nine years the first-named gentleman has carried off the premier prize, invariably closely followed by Mr. EASTON. This year, however, the honour deservedly fell to Mr. EASTON.

HAARLEM (HOLLAND) GENERAL BULB GROWERS.

The following Awards were made at the meetings of the committees held in May and June last :—

FIRST CLASS CERTIFICATES.

Darwin Tulip Olifant, dark violet-blue; *D. T. Sir Trevor Lawrence*, violet-red; *D. T. Venus*, satin pink; *Iris Regelio-cyclus Cenaphore; I. Aphrodite*, standards light blue, veined dark velvet, falls yellow, maculated brown : a hybrid from I. Gatesii; *I. pallida Princess Royal*, violet-blue; *Anemone Single Feu Brillant*, fiery red, white centre; *Delphinium Princess Juliana*, semi-double, indigo-blue and dark purple, black centre.

AWARDS OF MERIT.

Darwin Tulip Anton Mauve, violet, bordered silvery-white; *Iris Regelio-cyclus Freya, I. R.-c. Isis, I. R.-c. Medusa, I. R.-c. Elvina; Camassia esculenta Orion*, dark blue; *Astilbe America*, Cattleya-red, *A. compacta rosea*, pink, *A. Rubens*, pink, obtained from A. Queen Alexandra; *Anthericum (Phalangium) algeriense major*, pure white; *Geum coccineum fl. pl. Mrs. Bradshaw*, semi-double, brownish-red; *Polygonum sericeum*, creamy white; *Hemerocallis Aureole*, flowers orange-yellow; *Iris Berkheyde*, standards blue, spotted yellow, falls dark blue; *I. van der Helst*, sulphur yellow, falls spotted dark yellow; *I. Jan Both*, standards creamy-white, falls canary-yellow; *I. Jan de Bray*, standards light sulphur yellow, falls yellow; *I. Kockkock*, standards light yellow, falls yellow; *I. Rachel Ruysch*, standards white, shaded lilac, falls orange-yellow, spotted; *Iris Hart Nibbrig*, standards violet-blue, falls clear light blue; *Anemone Double Carmine Queen*, carmine-red; *Ranunculus Sulpherine*, sulphur-yellow; *R. Salmonetta*, salmon-pink, striped lilac, yellow centre; *Iris hispanica Prins Hendrik*, a seedling of dark bronze colour; *I. anglica Loveliness*, light greyish-blue; *Delphinium Ida R. Elliott*, ultramarine blue; *Gladiolus nanus The King*, soft blush, spotted creamy-white, bordered carmine.

DEBATING SOCIETIES.

BRISTOL AND DISTRICT GARDENERS'.—The monthly meeting of the above society was held on the 28th ult. Mr. Barton presided. The evening was devoted to questions put by the members, and it resulted in good discussions on various subjects. The 1st prize offered by Mr. J. C. House for the most tastefully arranged vase of hardy flowers was won by Mr. H. Wiltshire.

THE WEATHER

GENERAL REMARKS.

September 2, 1913.

Weather was generally of a rather changeable character, but in the middle portion of the week nearly all districts experienced a large amount of bright sunshine, and a fairly high temperature. Thunderstorms occurred on Sunday in Eastern and Central England, and on Friday or Saturday in nearly all parts of the country. A faint aurora was seen on Monday night at Carrick-on-Suir.

Temperature was above the average, the excess ranging from about 3½° in most of the English districts to less than 1½° in Ireland. The highest readings occurred very commonly between the 27th and 29th, when the thermometer rose to 80° or slightly above it in many parts of England; in Scotland North and Ireland North it did not reach 75°. The lowest readings were observed mostly during the earlier half of the week, and ranged from 36° in England South-east and 39° in the Midland Counties to 47° in Scotland North and to 48° in the English Channel. On the surface of the grass the thermometer, early on the 25th, fell to 30° at Marlborough, and to 32° at Fulbeck. At a depth of 1 foot the temperature of the soil was above the average, but at a depth of 4 feet it was in most places slightly below the normal.

Rainfall was less than the normal, especially in the western and extreme northern districts; in Ireland North the total for the week did not amount to more than half-a-tenth of an inch. In the West and South of England considerable falls were experienced locally on the 29th or 30th, the largest daily amounts reported being 1.0 inch at Shrewsbury on Friday and 1.2 inch at Bognor on Saturday.

Bright Sunshine was in excess of the average in all districts, excepting Scotland North and England South-west. The mean daily duration ranged from 7.6 hours (56 per cent. of the possible amount) in England North-west, and 7.4 hours in England East to 4.9 hours in Scotland East, and to only 2.9 hours (20 per cent. of the possible) in Scotland North.

Barometer and Wind.—At the commencement of the week when a depression of moderate intensity lay to the northward of Iceland, and small secondary disturbances were passing eastwards across the United Kingdom, the prevailing winds were from between south-west and north-west, and light to fresh in force. After the 25th, however, a large anticyclone extended from the southern portions of the Atlantic over practically the whole of north-western Europe, the wind becoming variable, and afterwards shifting to the north-east over all the more southern portions of these islands. Towards the end of the period a shallow cyclonic system spread gradually northwards from the Bay of Biscay, the baric minimum reaching our south-east coasts on the 29th, and causing the heavy local falls of rain mentioned above. The wind at the same time backed to the north, but remained generally moderate in force.

THE WEATHER IN WEST HERTS.

Week ending September 3, 1913.

The Wettest Week for Four Months.—On the first day of the week the highest reading in the thermometer screen reached 82°, making this with one exception the hottest day as yet recorded here this year. On the contrary, on two days at the end of the week the same thermometer did not rise above 58°, or 10° below the average for the time of year. All the nights proved more or less warm. Both at 1 foot and 2 feet deep the ground is at the present time 1° colder than is seasonable. Rain fell on four days, and to the total depth of ¾ inch. This, although only a moderate quantity, was, however, sufficient to make it the wettest week since the beginning of May, or for nearly four months. Some rainwater came through the bare soil percolation gauge on each of the last two days of the week, but previous to this no rainwater at all had passed through either gauge for over five weeks. The sun shone on an average for 2¾ hours a day, which is only about half the usual duration at the end of August. On the one bright day the sun was shining for ten hours, but during the last three days of the week no sunshine at all was recorded. For the twelfth week in succession the winds have been very light, and on one day the mean velocity at 30 feet above the ground was less than a quarter of a mile an hour. The average amount of moisture in the air at three o'clock in the afternoon exceeded a seasonable quantity for that hour by as much as 13 per cent.

AUGUST.

Seasonable in temperature, very dry and gloomy, with an exceptionally calm atmosphere.—Taken as a whole, this was a month of about average temperature. On the warmest day the highest reading in the thermometer screen rose to 82°, a rather high extreme maximum for August. On the coldest night the exposed thermometer fell to 34°, which is a low minimum reading for the month. Rain fell on thirteen days, and to the total depth of 1¼ inch, which is less than half the mean quantity for August. The sun shone on an average for five hours a day, or for nearly an hour a day short of the usual duration for the month. This proved an exceptionally calm August—in fact, the calmest I have yet recorded here. In no hour did the mean velocity exceed eleven miles—direction S.S.W. The average amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 2 per cent.

THE SUMMER.

A cold, exceptionally dry, and gloomy summer.—June and August were of about average temperature, while July proved very cold. All three months were very dry, and more particularly was this the case in June. Taken as a whole it was with but three exceptions (1864, 1887, and 1898) the driest summer recorded here during the past 58 years. June was a bright month, but in both July and August there was a marked deficiency of bright sunshine. *E. M., Berkhamsted, September 3, 1913.*

Obituary.

RICHARD EVANS.—We regret to record the death, on the 29th ult., of Mr. Richard Evans, who was for some years gardener at Leaton Knoles, Shrewsbury. He was an active member of the Shropshire Horticultural Society, and contributed not a little to the success of the Shrewsbury Show in its early days, preserving to the last an unflagging interest in its affairs.

HUGH LEE.—*Horticulture* announces the death of Mr. Hugh Lee, originator of the Bridesmaid Rose. Mr. Lee, who was aged fifty-nine years, was a native of Ireland.

C. LESLIE REYNOLDS.—Mr. C. Leslie Reynolds, for thirty-nine years employed in the U.S. Botanical Gardens, Washington, died of heart disease on August 13, we learn from the *Florists' Exchange*. He was fifty-five years old, and a native of Silver Springs, Montgomery Co., Maryland. Mr. Reynolds worked in the Botanical Garden, being for thirty years assistant superintendent there. After the death of the late Wm. R. Smith, in July, 1912, Mr. Reynolds succeeded him as acting superintendent, and was given the position of superintendent by Congress in September, 1912. Mr. Reynolds was married twice. One son by his first wife, Mr. W. Reynolds, survives him, and also a widow and two brothers.

J. R. SHELDON.—*Nature* records the death of Mr. J. R. Sheldon, a well-known agriculturist, at the age of seventy-three years. Mr. Sheldon was appointed to the chair of agriculture at the Royal Agricultural College, Cirencester, in 1877, being subsequently lecturer on dairy farming at Downton Agricultural College. He was the author of *Dairy Farming* and *Live Stock in Health and Disease*.

ROBERT MACK, J.P.—It is with great regret that we have to announce the death of a well-known Rose-grower, Mr. Mack, whose name is familiar to every one connected with horticulture. A principal in the noted firm of seedsmen, Mack and Miln, of Darlington, Catterick, and Scorton, Mr. Mack had been for some time in failing health, but it was not known that his illness was of so serious a nature, and to his many friends his death came as a great shock. Mr. Robert Mack was the son of the late Mr. Robert Mack, of Newcastle. He was born in 1856, and was apprenticed when a youth to a firm of nurserymen and seedsmen. Later he entered business with his father, and acquired the Rose nurseries at Catterick, finally joining Mr. T. E. Miln in establishing the firm which bears their joint names. Mr. Mack was successful in both businesses, and won especial fame as a grower of Roses. His own Rose garden at his house in Catterick was an unfailing source of delight to him. He leaves a widow, but no children. We understand that the Catterick and Scorton Nurseries will be continued under the present efficient management.

JOHN M'CORMICK.—We learn with regret of the death of Mr. John M'Cormick, gardener at The Manse, Linlithgow. His death followed injuries caused by slipping on the stairs leading to his dwelling-house.

Answers to Correspondents.

ACONITUM ACKERMANNII: *B., Java.* Aconitum Ackermannii is a garden form of A. Napellus. It is not a species and has never been described as such. The plant grows about 2½ feet high and flowers in August.

APPLE LEAVES: *C. E. F.* Two species of fungi, viz., Cladosporium fulvum and a species of Phyllosticta, are present on the browned leaves. It is probable, however, that these attacked the leaves only when the latter were dead or dying. The disease, known as "fire blight," is of physiological origin. It is not due to fungous or insect pests, but to unfavourable conditions of soil or season.

BURNING BUSH: *Inquirer.* The plant is Dictamnus Fraxinella, and may be obtained from any nurseryman who deals in hardy border flowers.

CARNATIONS: *H. W.* The plants are affected with disease. Spray with potassium sulphide, ½ oz. in 2 gallons of water. Do not allow the specific to wet the woodwork, as it blackens paint.

CARNATIONS DISEASED: *Gardener, Dornoch.* The plants are attacked by Bacteriosis of Carnations (Bacterium Dianthi). They may be kept free from this disease if the foliage is kept dry and free from aphides. Spraying with potassium sulphide is to be recommended.

ELODEA CANADENSIS: *Elodea.*—Rake out as much of the weed from the pond as is possible, and then treat the water with copper sulphate. If there are no fish in the pond, 1 part (by weight) in 1,000,000 (or 1 lb. of copper sulphate to 100,000 gallons of water) may be applied without rendering the water dangerous for drinking purposes. Ordinary commercial copper sulphate should be used, and, in standing water, may be easily applied, the only important point being that the copper sulphate must be thoroughly and rapidly distributed throughout the pond. In small ponds, the copper sulphate, broken small, and enclosed in a bag of loose texture, may be tied to the end of a pole and drawn backwards and forwards through the water. In large ponds the bag should be towed behind a boat, which should be rowed to and fro along parallel courses not more than from 10 to 20 feet apart. The plant reproduces itself very rapidly: every portion of the stem that is detached will form a fresh individual. For further information on the destruction of pond weeds see *Gardeners' Chronicle*, August 3, 1912, p. 97.

FERN P. PARKERI: *Enquirer.* P. Parkeri is, we presume, Polypodium vulgari var. grandiceps Parkeri. This has very heavy crests, the fronds being usually merely stalked branching tassels. Like the rest of the species, it has a creeping, fleshy root-stock, and forms loose clumps of fronds, 9 or 10 inches high. The plant grows best in open soil containing plenty of leaf-mould.

FUNGUS ON GRASS: *L. D. K.* The grass is affected with the Red Grass Gelatinous Mould (Isaria fuciformis). Spray the turf with a weak solution of iron sulphate.

GRAPE ROT: *Berry* and *A. L.* The berries are injured by the Grape rot, caused by Gloeosporium ampelophagum. The only thing that can be done now is to remove the diseased berries. In the winter thoroughly drench every part of the vine with sulphate of iron at the strength of 1 lb. to 25 gallons of water. Give two dressings at intervals of a month before the buds commence to swell.

GRUBS ATTACKING CYCLAMEN: *W. E. B.* The grubs that are attacking your Cyclamen are the larvæ of the weevil. It is sometimes difficult to kill these pests without causing injury to the plants. Turn the plants out of their pots occasionally, and pick out all larvæ that are visible with a pointed stick and destroy them. If this treatment proves ineffective, shake the roots entirely free from the soil and larvæ, and then re-pot the plants in an uncontaminated compost. Place traps of pieces of vegetable, such as Carrot or Potato, near where the damage is done, and examine them at night, as weevils are most active when it is dark. Another way of killing the grubs is to turn the roots out of the pots and spray the soil with carbon-bisulphide.

GRAPE MUSCAT OF ALEXANDRIA: *A. W.* When your bunches of Muscat Grapes are gathered, or perfectly ripe, you may shorten the shoots as you suggest, leaving a couple of leaves beyond a bunch, and five or six on other laterals, also stopping the leaders.

MELON DISEASED: *Perplexed. Hertford.* The specimen was packed so badly that the leaves were covered with the soil from the roots, rendering investigation a matter of difficulty. The trouble is apparently due to the Cucumber White Mould. Badly affected plants should be destroyed, and the remaining plants dusted with flowers of sulphur.

NAMES OF FRUITS: *A. B. S.* Apple Lady Sudeley.—*A. Y. S.* The fruit reached us in a condition of pulp.—*G. A. C.* 1, Red Joaneting; 2, Margaret.—*Constant Reader.* The Plums were packed too ripe; send fresh specimens not so far advanced.—*P. Clow.* 7, Allington Pippin; 8, Yorkshire Beauty; 9 and 12, Worcester Pearmain; 10, Lady Sudeley; 11, French Crab.—*F. P.* Newberry Domino.—*A. K.* Resembles an imported fruit of Sturmer Pippin.—*W. G. W.* 1, Jefferson's; 2, Oullin's Golden; 3, Denniston's Superb; 4, Winesour.

NAMES OF PLANTS: *R. T.* 1, Oncidium concolor; 2, Neobenthamia gracilis; 3, Polystachya luteola.—*L. G. P.* Plumbago Larpentæ.—*R. S.* Daphne Laureola.—*D.* 1, Abies Nordmanniana; 2, Pseudotsuga Douglasii; 3, Abies nobilis; 4, Thuya plicata (Lobbii); 5, Abies Pinsapo; 6, Cupressus Lawsoniania.—*G. F.* Pentstemon barbatus.—*Old Subscriber.* 1, Chlorophytum elatum variegatum; 2, Nephrodium sp. (too scrappy to identify); 3, Leontodon autumnalis.—*J. M.* Santolina incana.—*Geranium, Yorks.* We do not recognise the variety. Send a specimen to some grower who can compare it with those in his collection.—*A. B. Steele.* 1, Euonymus europæus (Spindle Tree); 2, Orobanche minor; 3, Raphanus sativus (Radish); 4, Claytonia sibirica; 5, Lycium chinense.

NECTARINES: *Admiral G.* 1, The Nectarines arrived in too advanced a stage of decay for the original cause of disease to be ascertained.

PEACH DISEASED: *W. O.* The Peach is affected by the Peach mildew. As soon as the disease is detected dust the leaves with flowers of sulphur whilst they are damp; or, when the attack is serious, the water pipes should be painted with sulphur when they are very hot, closing the house for an hour or two afterwards, performing the operation when it is dusk.

PLUM LEAVES: *W. R. C.* The leaves are attacked by the Silver-leaf disease, which is caused by the fungus Stereum purpureum, but no certain method of combating it has been discovered. Stereum purpureum gains access to the plant through an injury to the superficial tissues, such injury being sometimes caused by cold winds. It has been claimed by New Zealand growers that sulphate of iron will check the disease. The spores of the fungus are developed on dead branches, therefore a vigilant watch should be kept on diseased trees, and their dead branches should be removed and burned without delay.

PRIMULA ROSEA DISEASED: *B. E. R.* The plants are attacked by the Primrose White Mould (Ovularia interstitialis). Spray the plants with a fungicide.

STOCKS: *J. G.* The fungus Rhizoctonia is probably responsible for the trouble, although we cannot determine this with certainty, as the fungus is not in the sporing stage. Remove all diseased plants and burn them, and spray the remainder with phenol, one ounce to one gallon of water.

TOP-DRESSING FOR CROQUET LAWN: *Bone Meal.* The old potting soil will be very suitable for top-dressing the croquet lawn, but wood-ashes, though beneficial in some respects, will tend to encourage the growth of clover. A suitable dressing would be obtained by mixing 1lb. of superphosphate with the quantity of soil and ashes to be spread over each forty square yards of the lawn. A dressing of sulphate of ammonia at the rate of ½oz. per square yard may be given in early spring. Soot may be freely applied; its fertilising value lies in the ammonia which it contains, and its use will improve the colour of the grasses.

Communications Received.—G. F.—Old Subscriber—D.—R. E.—F. W. N.—W. K.—E P., Torquay—B. J. M.—H W. H.—F. J. F.—A. B. S.—R. S.—X. Y. Z.—Old Reader—A. H. C.—T. P. E. Bros.—M. G. A.—J. F. G.—H. W.—B. K.—C. N. W. R. W. & Co.—M. B., Java.—F. J.—R. W.—H. J. C.—J. D.—Mrs. K.—W. H.

Photograph by H. N. King.

MOAT AT DITTON PARK, THE RESIDENCE OF THE LORD WOLVERTON.

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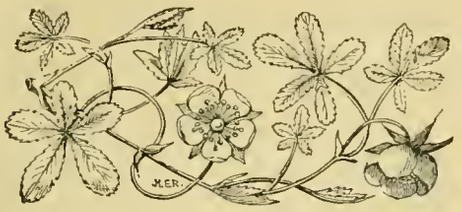

THE

Gardeners' Chronicle

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CONTENTS.

ILLUSTRATIONS.

LONDON AND WISE.

THESE two gardeners and nurserymen are famous for their translations with emendations of the three noted French works I shall refer to presently. Of their history not very much is known. London first attracted public attention as a nurseryman when, with three others, Lucre (sometimes Lukar), Field and Cooke, he established the long-famous, Brompton Park Nursery. He had been trained in the Royal Gardens under Rose, who sent him to the Continent for special instruction, and on his return got him appointed to the charge of the Bishop of London's celebrated gardens at Fulham Palace. He left there in 1681 to become a nurseryman along with the three above-named gardeners. In 1684, or, according to another report, in 1686, Messrs. Lucre and Field died, and by some accounts Cooke the same year sold his share of the business to Henry Wise, but by another account it was not till 1689 that Cooke disposed of his share to Wise. At the Revolution in 1688, while King James II. was at Salisbury the Princess Anne became so alarmed because of a dread of her father's anger on his return that she decided to remove out of his way. Bishop Compton was at this time in hiding, but Lady Churchill managed to find him, not improbably by the help of London, who accompanied the two with the Princess in her flight to Nottingham. This proved a fortunate step for London, who was shortly afterwards appointed superintendent of the Royal Gardens under William and Mary, with £200 per annum for his services as a page to the latter. The firm had the re-making of Hampton Court Gardens, and so great an influx of business among the nobility and gentry that many of the best gardens in England were placed under their care, while Blenheim Palace, Wanstead, Melbourne Hall, and others were laid out by them. Longleat was one of the earliest of their gardens, and was completed before the commencement of the Revolution. The nursery is one of the gardens mentioned by Gibson in 1691, and from his account we learn that it contained a large greenhouse for the preservation of the less hardy exotics over winter; here also were preserved "the King's greens which were in summer at Kensington." "Their garden," he also states, "is chiefly a nursery for all sorts of plants, of which they are very full." In extent it covered more than 100 acres, and the stock was valued, according to Switzer, at £30,000 to £40,000. Evelyn was highly interested in the nursery, and "carried" Waller, the poet, there in 1694, "where he was in admiration at the store of rare plants." In 1698 London paid a second visit to the Continent along with the founder of the Portland family. He there studied the French styles of designing and fruit culture; but, on the whole, he seemed to think England was quite the equal of France. Later in the same year, according to Evelyn's Diary, he, along with Sir C. Wren, estimated the damage done by Czar Peter to the gardens at Sayes Court. Evelyn calls him Sir C. Wren's gardener! In the following year Evelyn paid him a very high compliment by inserting a lengthy description of the nursery and its contents in his translation of Quintiney's book of fruit culture. London appears to have spent his later years in travelling, Wise having charge of the nurseries. Switzer notes that he would ride 50 to 60 miles a day on horseback visiting and inspecting gardens, and that he covered England twice annually. We know from a remark of Langley that it was customary for the upkeep of gardens to be let to an "Undertaker," who supplied labour and everything that was necessary, and probably these journeys and inspections of London would be taken to look to the proper upkeep of gardens which the firm had undertaken to manage. Johnson relates that the fatigue induced on one such journey culminated in a fever, of which he died after a fortnight's illness near the Christmas of 1713; but Switzer, one of his old pupils, says he languished for some months previous to his death. Following his death we find the nursery, or "Plantation" as they called it, in the hands of Smith and Carpenter in 1714, and through many vicissitudes it continued to be a nursery till 1851, when the ground was sold for building purposes, one of the last proprietors having been the late Dr. Robert Hogg, who was interested in it from 1845 to 1848. Here in 1847 emanated the *Manual of Fruits*, by Gray, Adams and Hogg, obviously *The Fruit Manual* of Hogg in its primitive form.

The first publication of London and Wise was "The Complete Gard'ner: or, Directions for Cultivating and Right Ordering of Fruit-Gardens and Kitchen-Gardens. With the *Gardener's Kallander*, directing what is to be done every Month in the Year. By Monsieur De la Quintiney. Now compendiously Abridg'd, and made of more Use, with very considerable Improvements. By George London and Henry Wise. To which is prefix'd an Address to the Nobility and Gentry. By J. Evelyn, Esq. London, 1699, with editions in 1701-4-6-10-17 and -19." The subject matter is preceded by an Advertisement to the Nobility and Gentry, in which they are put upon their guard against dealers who offer trees from their seed shops and others who "ply about the *Exchange* and *Westminster-Hall*," and against a sort of men who call themselves *Gardeners*, who, on the strength of having "exercised the *spade* and the *barrow* for twelve months, puts on an apron, sets up for a professed *Gardener*, and a *Place* he must have." This is followed by "An Advertisement of J. Evelyn," and by some Rules for the Defence of the Garden, in which London animadverts on the French gardens, and concludes by repudiating the desire of the editors to push their own goods, it being their "best and only true interest that all we do should prosper." Quintiney's chapters where they clash in their teaching with that which the compilers esteem suited to the English climate receive scant courtesy, many being suppressed and others abridged beyond recognition. The Catalogues of Fruits are given in full, with their description, and the pages are lavishly illustrated with French cuts, and show the various cultural methods recommended. The part devoted to vegetables is arranged in alphabetical order, and contains John Evelyn's "Directions Concerning Melons." Cauliflowers were lifted previous to winter to preserve the heads from frost, and perhaps the earliest distinctive remarks on Celery culture occur here. This part is followed by the *Gardener's Kallander*. Here and elsewhere the "Translator" exhibits difficulties in obtaining English equivalents to the French names, or even in identifying the plants referred to in the original edition.

The success of this volume may have been the means of inducing the firm to produce another translation from the French generally thought to be of one book, but really of two. This was *The Retir'd Gardener*, containing the Methods of Making, Ordering and Improving a Fruit and Kitchen Garden, etc., in two vols. Quarto. 1706. The first half is a translation (published also in the same year by the title of *The Solitary or Carthusian Gardener*) of a work called *Le Jardinier Solitaire*. The second part, all of which with the exception of the beginning, which

appears in the first volume, is a translation of Liger's, is the more interesting of the two. The first part is arranged as a series of questions and answers between a gentleman seeking information, and a gardener, and here, as in the former work, the two editors make free with the author, but not to such an extreme degree, interpolations of their own being made where the teaching is not in accordance with that which their experience had proved to be correct. Liger's portion is solely occupied with the flower garden and its furniture. It is profusely illustrated with plans of flower gardens, parterres, etc., and in the Appendix with the plan of a garden at Nottingham which the firm designed and laid out for M. Tallard, the French General whom Marlborough defeated at Blenheim. Many of the designs are foliated, but not to the same extent as in Le Blond's book. Here it may be noted that it is made clear that these elaborate designs were not intended to be furnished with flowers, but with coloured earths, with gravel and grass as the other furnishings. It is evident, therefore, that those who copy these designs to-day only partially carry out the intention of the designers when they lay them out in grass and use only grass, flowers and shrubs. But Liger was not simply a designer, he was also a florist, and he waxed very wroth sometimes with those who pretended to be florists but were not. In one place he says, "There are a sort of People who when they come into a Garden are never satisfy'd unless they can touch the Flowers they like with their Hands. They cannot be contented with barely looking on them, but must be feeling them too, which is an unsupportable Custom to all that are true Florists." And, the "sort of People" survive to this day! The Editors have very few remarks in this portion, but of these some are not without interest. Thus in a note on Candy-Tufts it is remarked, "The Plants of this sort we call Hardy Annuals," perhaps the earliest appearance of the designation. In the chapter on Bell-flowers there is an interesting note on the furnishing of the "Half-space before a Chimney" (fire-place), Campanula pyramidalis being placed in the centre, Scarlet Lychnis at each extreme, and between each a pot of tuberose, and in front low plants of sweet Basil and Marum syriacum (Teucrium Marum). Orange trees, we are informed, were imported from Genoa, that they were "three months in the passage," and the methods of packing are described. Of Myrtles it is stated that "In England we cultivate ten species," and the sprigs were used "to dress up Basons with variety of Flowers for the ornament of our Rooms and for Nosegays." As in "The Complete Gard'ner" so here the translator was puzzled with names, and it is strange that neither of the partners corrected his mistakes. Under Monkshood the Tropæolum is treated: the "Blew Polyanthus" is not, as at a first glance might be expected, an early and long-lost kind of Primula, but a variety of the Hyacinth. More exasperating still is the discovery that under "Carnations, otherwise call'd English Gilly flowers," the plant is not a Dianthus but Hesperis matronalis, and it is only when we arrive at the Pink that we are reassured that the Carnation is not neglected.

The Retir'd Gardener in six parts was republished in one volume 8vo in 1717 by Joseph Carpenter, who was a proprietor of the Brompton Park Nursery. *R. P. Brotherston.*

NEW OR NOTEWORTHY PLANTS.

PODANDRIA MACRANDRA, ROLFE.

Our illustration represents this curious and rare species now flowering in the gardens of Sir Frank Crisp, Bart., Friar Park, Henley-on-Thames (gr. Mr. Philip Knowles), famous for plants of remarkable structure. The various sections of the genus Habenaria which have flowered

FIG. 67.—PODANDRIA MACRANDRA, ROLFE (HABENARIA MACRANTHA LINDL.)
Upper segments and the lower filaments white, tinged with green; upper half of spur white, lower part pale green.

at Friar Park provide an interesting example of the diversity which exists between the members of the genus.

Habenaria macrandra was described by Lindley in the *Journal* of the Linnean Society, Vol. VI., 1862, p. 139, from a specimen collected by Mann on the banks of the Bonny River, West Africa. The specimen illustrated was found in Uganda, and the drawing made by Miss Alice L. O'Brien.

The flowers are white with a slight green tint on the sepals, and the plant is evergreen so far as it is known.

In growth and in some particulars of structure it is separated from other Habenarias of its section, so much so that Mr. R. A. Rolfe includes it in his monotypic genus Podandria (*Flora of Tropical Africa*, VII., p. 205).

It is a very singular species, and ornamental even when not in flower. The only other specimens appear to be in the collections of the Hon. N. Charles Rothschild and Mrs. Bergheim.

ORCHID NOTES AND GLEANINGS.

SPIRANTHES AUSTRALIS.

A spray of this elegant little orchid is sent by Mr. C. Wright, gardener to the Hon. N. Charles Rothschild, Ashton Wold, Oundle, who states that it came up with a specimen of Phalænopsis amabilis Rimestadiana, imported from Java. This accords with the only previously recorded flowering of the species with Messrs. Hugh Low and Co., March, 1906, the plant on that occasion growing on a tuft of Vanda tricolor, also received from Java.

At first it was taken to be Spiranthes gracilis, a North American species nearly allied, and it was believed to have been imported in the Osmunda-fibre, but after comparison at Kew the plant was identified as S. australis, a very widely-distributed species in the tropics, and extending from China to Australia.

The slender, erect inflorescence is nine inches in length, the numerous small snow-white flowers being arranged spirally on the upper two-thirds. The globose, green ovaries surmounted by the expanded segments of the small, white flowers are very prominent, and the novel arrangement makes it an attractive species.

Such small-growing species are not usually easy to cultivate, but in this case, as other plants of it are commencing to grow in the same pot, it may probably be cultivated successfully if properly rested after growth and flowering is completed.

DENDROBIUM CRUMENATUM.

Flowers and growths of this pretty Malay Orchid taken from plants collected in Borneo are sent by Mr. W. H. Bacon, gardener to Sir Marcus Samuel, Bart., Mote Park, Maidstone. The pseudo-bulbs are thick, grooved and brownish in the lower part, continued into a slender stem upwards 2 feet in length, the upper parts bearing at intervals singly, pure-white flowers with a yellow patch on the three raised ridges of the lip. It is a charming species, the only fault being that the flowers are fugacious. Mr. H. N. Ridley, in the *Journal of the Asiatic Society*, 1900, in a paper on the flora of Singapore, gives interesting particulars of this species:—"Very few plants have a definite flowering month. A large number flower more or less regularly throughout the year. Others flower at regular periods three or four times a year, almost every plant of a given kind flowering simultaneously in the district. This is best known in the case of the Pigeon Orchid, Dendrobium crumenatum. In this plant the flowers are produced at periods of a little over a month or two months. The exact day differs in different parts of the peninsula, but in each district they all appear on the same day, and it is remarkable that plants brought to Singapore, even from as far north as Siam, open their flowers on the day for Singapore, and not for that of Siam. It is not rare, however, to find certain plants of Pigeon Orchid which do not flower on the regular day, but have a distinct day, which they appear to keep with equal regularity. A curious fact is that another species of Dendrobium (D. criniferum) invariably flowers in Singapore on the day preceding that of D. crumenatum, whenever that happens to be. It might be thought that the weather in the district in which the plant was growing was the influencing agent, but this appears to have but little effect on the Orchids. On one occasion (December 5, 1893), the Pigeon Orchids developed their flowers so far that they were obviously ready to open them on that day, but an extraordinarily heavy rain retarded them and the flowers opened the next day; but, except in cases like this, the weather previous to the flowering does not seem to make any difference to the date of the flowering. It can easily be understood that it is very important to a plant that all should open on the same day, in order that they may be cross-fertilised by the insects that visit them, and this is especially the case in plants in which the flowers last but a single day, as in the case of the Pigeon Orchid, but it is difficult to see how this is brought about." *J. O'B.*

SAXIFRAGA × AMBIGUA.

Two very distinct Saxifragas, S. media and S. aretioides, which cross naturally and produce an interesting series of hybrids, are found in the Pyrenees. S. media has rosettes of crusted foliage and red stems and flowers, whilst the tiny S. aretioides forms a tuft of small rosettes and bears yellow flowers. Of the numerous offspring from these two plants there are three distinct forms. These are S. × ambigua (a fine form of which is illustrated in fig. 68), which comes nearest to S. media, with similar rosettes and inflorescences, but with more coppery red flowers. Intermediate is S. luteo-purpurea, with smaller rosettes and flowers, having red sepals and yellow petals. Nearest to S. aretioides is the form known as S. Lapeyrousei, and in which the red of the other parent is nearly eliminated. Besides these three there are many other pretty and distinct forms in cultivation resulting from the same cross. They have proved quite amenable to cultivation, and may be increased freely by means of cuttings inserted in the summer. As the plants flower somewhat early in the year they should be grown in a pan or pot in a frame where protection is afforded in bad weather. At the same time, they may be grown on sheltered ledges in the rock garden. *W. I.*

[Photograph by W. Irving.

Fig. 68.—Saxifraga ambigua (S. media × S. aretioides): flowers coppery-red.

ARTHROPODIUM CIRRHATUM.

THIS Liliaceous plant from New Zealand is practically hardy in the south-west, as is proved by the accompanying illustration (fig. 69), which shows a plant which has been growing unprotected in the open for some years at Kingswear, South Devon, and was not killed even by the very severe frost of February, 1912. In colder localities it does best when treated as a greenhouse subject, for the ample foliage is then retained in all its freshness, whereas when out-of-doors it is often much injured by cold winds. It forms a clump a good deal after the manner of some kinds of Iris, but the leaves are broader and very gracefully recurved. So ample is the foliage that in this respect alone a flourishing mass is very ornamental. The flowers are star-like, pure-white, and are borne in large open panicles, which well overtop the foliage. A notable feature is furnished by the orange-coloured anthers, which stand out conspicuously against the spotless purity of the rest of the flower. Like the old-fashioned Agapanthus umbellatus, this Arthropodium will flower in a far more satisfactory manner when undisturbed at the roots, and when once established in good-sized pots or tubs may be kept in health for years together with but little trouble simply by protecting them from frost in the winter and standing or plunging them outside during the summer months. It succeeds best with fairly liberal treatment, so that when plants are kept year after year in the same pot or tub occasional applications of liquid manure are beneficial. In the shape of good-sized masses confined within pots a foot in diameter or thereabouts a number of flower-spikes will be produced, the blossoms being nearly an inch across, and in favourable conditions a specimen will remain in beauty for a considerable time. Seeds were borne in large numbers on the plant here illustrated from which many seedlings have been raised; propagation may also be effected by division of the roots. The species was introduced into this country in 1821. *Wyndham Fitzherbert.*

DESTRUCTIVE INSECTS AND PESTS
SCHEDULED BY THE BOARD OF AGRICULTURE AND FISHERIES.

XIV.*—THE LARGE LARCH SAWFLY.

(See Coloured Plate.)

THE Large Larch Sawfly (Nematus erichsonii) is a member of the Tenthredinidæ, a large group of insects included in the order Hymenoptera (ants, wasps, bees, etc.). It has not proved harmful in Britain until quite recent years. In 1904 it was observed in injurious numbers in Cumberland, and in 1905 it is reported as having wrought great havoc. In 1906 caterpillars submitted to the Board of Agriculture and Fisheries were identified as N. erichsonii, and Dr. R. Stewart MacDougall visited the infested area (near Keswick), and in October of that year contributed an account of the pest to the Board's *Journal*. Since that time, when very serious damage was done, the Sawfly has yearly caused damage to Larch woods, and in view of the latent powers for harm of this pest, it was scheduled as notifiable to the proper authorities. It is now known that at the present time the Large Larch Sawfly is distributed, though in varying degrees of intensity, throughout England, Wales and Scotland. In most localities, however, the damage done is so far not serious in character. In December, 1908, Hewitt reported that in the Dodd plantation, near Keswick, 200 acres were attacked, hundreds of the trees were already killed, and many were dying, 3,000 of these having been felled, while there were twice as many still to be felled. Hewitt states that in the Lake District over 15,000 trees had died by 1909 owing to repeated defoliation. It is stated (*Gardeners' Chronicle*, January 25, 1913) that on Skiddaw alone 30,000 trees have been felled on account of the pest in the past year.

As regards other countries this Sawfly has been recorded in Germany, Sweden, Holland, Denmark, Switzerland, Finland, United States of America, and Canada. In most of these countries it appears to have done no widespread damage, but it has at times been harmful on the Continent, and is a very serious pest in the United States and Canada. Indeed, in a memorandum issued by the Board of Agriculture and Fisheries in 1910 it is stated that "it is recorded that in the United States and Canada it did not stop till 50 to 100 per cent. of the matured Larch over vast areas was destroyed, with the loss of many billions of feet of timber."

The damage is done by the caterpillars, which feed voraciously on the foliage of the Larch; trees of any age from the seedling upwards may be attacked. Repeated defoliation may kill the trees. Since tall trees are attacked remedial measures against the infestation are rendered the more difficult.

The general appearance of the different stages of the insect is shown in the Coloured Supplement. The female Sawfly is ¼ to ½ inch in length, and nearly 1 inch in spread of wings. It is black as regards ground colour, but the middle joints of the abdomen are reddish. The abdomen is pointed. In further description MacDougall may be quoted as follows:—"The mouth parts, the two front pairs of legs, except

[Photograph by Wyndham Fitzherbert.

FIG. 69.—ARTHROPODIUM CIRRHATUM IN A DEVON GARDEN: FLOWERS WHITE.

* The previous articles appeared on September 27, October 12, November 2, and December 7, 1912; and on February 1, March 1, March 15, April 26, May 3, May 24, June 7, August 16, and September 6, 1913.

at the part next to the thorax, and the upper parts of the femora of the hind legs, are reddish or reddish-yellow. The tibiæ are yellowish or pale in the upper parts. The antennæ are nine-jointed, and somewhat thick, and taper towards the apex. With a lens the head and thorax are seen to be sparsely and finely pubescent, and the thorax is markedly punctured." The wings may be described as glassily iridescent with the front wings slightly clouded towards the central portion. The male is rather smaller than the female, and the end of the abdomen is rounded. The male is apparently very scarce, Hewitt finding only two emerge from 300 cocoons, the other 298 being females.

The eggs of the Large Larch Sawfly are described as white, longish-oval, and just over 1 millimetre in length. They give rise to minute caterpillars with dusky-green head and uniformly pale-green body. It is stated by Packard that the larvæ moult three times before attaining full size. Gordon Hewitt, however, found that the larvæ he kept under observation, several hundreds in number, moulted five times. There are three pairs of thoracic legs, and seven pairs of abdominal sucker feet—or twenty in all. Ultimately the full-grown finally moulted caterpillar is ¾ inch to 1 inch in length, has nearly black head and thoracic legs, the back is grey-green to blue-green (variable), the sides lighter or nearly grey, and the under surface yellowish green. "If one uses a lens," says MacDougall, "there will be seen on the abdominal segments transverse rows of minute warts with spines. The spiracles along each side are brown."

The larvæ feed voraciously on the Larch needles, especially the clusters of leaves, eating pieces out of them edgewise, and finally eating them right back, so much so that at the end of August badly attacked trees appeared browned and withered. Fresh leaves may soon give the trees the appearance they should normally have in April. The caterpillars assume characteristic curved positions, and when feeding cast a large quantity of excrement. Of the Cumberland attack of 1906 MacDougall wrote, "So numerous were the caterpillars in some parts of the attacked area that in July their excrement falling on leaves below suggested the patter of rain drops." The castings are described as "longish, cylindrical and somewhat square cut at the ends." The caterpillars wriggle and roll violently when handled.

On being full-fed the caterpillars leave the trees, enter the moss, light soil and rubbish below, and spin strong, brownish cocoons, cylindrical with rounded ends. In these they pass the winter, pupating in spring, and the Sawflies emerge over a considerable period, from May to July, when eggs are laid. Hewitt found that the females begin to deposit eggs almost directly they emerge from the cocoons, not waiting for pairing with the male, as they reproduce parthenogenetically. In his experiments, also, the eggs hatched eight to ten days after they had been deposited, and the caterpillar stage extended over three or four weeks, each larval stage (between moults) lasting three or four days. He gives a typical life-history as follows :—

Eggs deposited	May 31 to June 2.
Larvæ hatched	June 10.
1st moult	June 13 to 14.
2nd moult	June 18.
3rd moult	June 21.
4th moult	June 24.
5th moult	June 28.
Larvæ began to spin cocoons	July 2.

The Large Larch Sawfly is subject to attack by a number of parasites, chiefly the Ichneumon Mesoleius aulicus, which is responsible for the death of large numbers of the insect. Mangan found for a certain plantation in the Lake District that 6 per cent. of the cocoons were parasitised in 1906, 15 per cent. in 1909, and 62 per cent. in 1910. Recently, Mangan has found that this Ichneumon has in some cases accounted for more than 70 per cent. of the larvæ within the cocoons, cessation of the Sawfly attack coinciding with an overwhelming increase in the numbers of the parasite. In the present year 25 per cent. of cocoons collected at Thirlemere were parasitised by a new species of Mesoleius, and 24 per cent. yielded Tachinids of the species Zenillia pexops, B. and B. (*Nature*, July 24, 1913).

The fungus Cordiceps also infests the cocoons, and it was found in 1911 that in one case 5.8 per cent. of cocoons collected were parasitised by flies and 24.3 per cent. were attacked by Cordiceps (*Ann. Rep. Intel. Div., Bd. Agric.* Pt. II., 1910-11). Birds and voles also destroy very large numbers.

For those who desire to know more about this pest, its distribution and the damage it does, the following references are given :—

(1) Jour. Bd. Agric., Vol. XIII, Oct., 1906, p. 385, paper by R. Stewart MacDougall.
(2) Jour. Bd. Agric., Vol. XV., Dec., 1908, p. 648, paper by C. Gordon Hewitt.
(3) Leaflet No. 186, Bd. Agric. and Fisheries.
(4) Ann. Repts. Intel. Div., Bd. Agric. and Fisheries.
(5) Bull. No. 10, 2nd Ser. (Entom. Bull. No. 5) Dept. Agric., Canada, 1912, Bull. of 42 pp. by C. Gordon Hewitt.
(6) Fifth Rept. U.S. Entom. Com., 1886-90, p. 879-890, A. S. Packard.
(7) Jour. Econ. Biol., Vol. V., 1910, p. 3—J. Mangan's rept. on Parasites of the L.L. Sawfly.
(8) Quart. Jour. Forestry, Vol. IV., 1910, pp. 203-221—J. F. Annand.
(9) Gard. Chron., Jan. 25, 1913—"The Larch Sawfly Pest in the Lake District," S. J. Hickson.

The means of combating this Sawfly include crushing the caterpillars when near enough to the ground; poisoning by spraying with lead arsenate or Paris green; and destroying the cocoons in the soil under the trees during winter by various means. Natural agencies tending to keep down the Sawfly may be usefully encouraged. *H. C. Long.*

NOTICES OF BOOKS.

The Daffodil Year Book, 1913.*

The *Daffodil Year Book* promised two years ago, has now appeared, and we are informed in the preface that this is due mainly to the efforts of the Rev. Joseph Jacob.

The volume is nicely got up and well illustrated, with two coloured plates and several photographs. It consists of 90 pages, of which the first 42 are devoted to accounts of shows and awards made thereat, matters usually of little interest except to the exhibitors, while the last 12 pages give the somewhat complicated R.H.S. classification and the schedule for the R.H.S. Daffodil show in April next. It is not suggested that these matters are out of place in a year book, but merely that we are only left with 36 pages of readable matter, the remainder, however necessary, rather coming within Charles Lamb's category of books which are not books.

The real book part begins with four short notices of celebrities of Daffodildom, John Pattinson, William Backhouse, Peter Barr, and G. H. Engleheart being the names selected. Then come two equally short obituary notices of W. Baylor Hartland and A. Kingsmill, and we begin the papers. First there is one by J. D. Pearson on the very curious Daffodil season of 1913, which began very early and gradually became later and later as it went on until the latest varieties came about the usual time, the result being a long extended and by no means a bad season for the Daffodil. Forming a sort of appendix to this paper we get records of the time of opening of a number of different varieties taken over the past few years at Forres in the north of Scotland, Brecon in Wales, and Bridgwater in Somerset. These records are likely to be of value to others besides exhibitors, and perhaps are as useful as anything in the volume.

"Notes on Hybridizing," by P. R. Barr, are followed by a table of considerable interest from C. Lemesle Adams, giving the result of a large number of crosses made by him. If, as we hope may be the case, he should continue these notes it would add greatly to their value if instead of stating the result of a cross as "good" or "bad" or "poor perianth," he would give us some general description of the seedling even when "bad." The pot culture of the Daffodils is treated by W. T. Ware, and C. Bourne gives some useful hints to beginners on keeping Daffodils for shows. Most people who have tried will agree that the trumpets seldom come large when cut early, and that to place the flowers in too low a temperature in order to retard development is fatal, but how much heat will they stand when, as sometimes happens, it becomes essential to "boil out" some of the Poeticus for an early show? The answer might differ with different varieties. Some varieties will open bright and stiff in a fairly warm greenhouse, where others if opened in the same temperature would come with creased and flabby petals, but the exhibitor soon learns what flowers he can trust to respond to a certain treatment.

Finally we get a descriptive catalogue by Mr. Jacob of seventy-five new varieties, which it will be interesting to notice at the shows, but which most of us will find it prudent to defer purchasing for our gardens for some years yet, and then the Voting List, with Mr. Jacob's comments thereon, which are perhaps of even more interest than the lists themselves.

The Voting Lists are five in number, the voters being asked to name the best varieties (i.) for the garden, (ii.) for growing in pots, (iii.) for planting in grass, (iv.) for a rockery, and (v.) for cut flowers.

It would seem that the Narcissus Committee and five other persons were invited to vote, making forty-two in all, but that only some twenty-five responded to the invitation. We are not told who these were, or what proportion were amateurs and what trade growers, but it is clear the voters are a somewhat restricted class. The voting list of garden varieties is, of course, the most interesting, and it may be worth while noticing those varieties which received ten votes and upwards in this class. In the Trumpets we have for yellows, Emperor, King Alfred, Golden Bell, Glory of Leiden and Golden Spur; for whites, Mme. de Graaff and Mrs. H. D. Betteridge; and for bi-colours, Empress, Weardale Perfection, Duke of Bedford, Victoria, J. B. M. Camm and Grandee. Mr. Jacob thinks the place taken by King Alfred a surprise, as it fails to do well in many places. In my own garden it has been a failure in some of the lower and damper parts, where I should have expected it to succeed, and yet has grown very well in the higher positions on lighter soil. Mr. Jacob would place Florence Pearson equal to Mme. de Graaff, but the flower is not so graceful, nor does it, I think, hold itself so well, being at times apt to look rather commonplace when grown in quantity. I am, however, quite in agreement with Mr. Jacob in thinking the position of Weardale Perfection "unexpected." The fact is this beautiful flower is hardly one of the best for decoration of the garden. It is a fine grower, and beautiful when cut, but in groups in the garden its stem seems scarcely strong enough to support the large flower, and the blossoms are apt to be seen lolling about in all directions. Turning to the Incomparables we find for yellow perianths which received ten votes and upwards were Gloria Mundi, Sir Watkin, Homespun, Frank Miles, Blackwell and Autocrat, and for the bi-colours Lady M. Boscawen, Lucifer, Whitewell, and Bernardino. Mr. Jacob queries Homespun, but its colour and habit are both good in the garden, and the list is a good one. In the Barrii section Barrii conspicuus has a unique position in the yellows, while for bi-colours we find Albatross and Seagull alone taking more than ten votes. For Leedsii, in the Giant section there is Lord Kitchener only, and in the General section White Lady, Duchess of

* Published by the Royal Horticultural Society. Price 1s. 6d. net post free.

Westminster and Evangeline. For Triandrus hybrids are selected Bennett-Poë and Queen of Spain. Jonquils hybrids, Buttercup; for Tazettas, Elvira and Aspasia; for Poeticus, Horace, Cassandra and Ornatus, Virgil receiving nine votes; and in the doubles Argent, Plenipo, Primrose Phœnix, Telamonius and Double White. Taken all round, we may agree that these varieties are bad to beat for usefulness in the garden, though perhaps we may doubt whether Buttercup, priced at four guineas a bulb, has yet been grown in sufficient quantity for anyone to pronounce on its garden value.

It would take too long to examine the other lists even cursorily and taking only the most successful in the competition, but enough has been said to show they may have some considerable interest for growers of the Daffodil. Like all lists of this character, the names at the head of the columns will, in most cases, be found to be the older and more popular varieties, but for the majority of gardeners they are none the worse for this.

For the past thirty years the Narcissus Committee have been occupied at their meetings during the Daffodil season in making awards and granting certificates to Daffodils they considered of sufficient merit. The result of their labours may be found scattered through the pages of the *R.H.S. Journal*, and it would be of considerable interest if these awards, together with the date of introduction and name of the raiser, could be brought together and published in some future edition of the *Daffodil Year Book*. *D.*

ROYAL BOTANIC GARDEN, EDINBURGH.

List of Plants in Flower.

The following new or uncommon hardy, or almost hardy, plants are now in flower in the Royal Botanic Garden, Edinburgh:—Adenophora ornata* and A. Bulleyana,* two good Yunnan plants with Campanula-like drooping blue flowers; Ainsliæa acerifolia, a distinct Japanese composite; Allium yunnanensis,* a dwarf plant 6 inches high, with whitish-pink flowers; Arenaria Bertolonii, a south European plant with large white flowers, a good grower, most floriferous, and deserving to be more generally cultivated; Brittonastrum ionocalyx, a peculiarly attractive Labiate from Mexico, with brick-coloured flowers; Campanula crenulata,* an excellent alpine species 6 inches high from Yunnan, with small, shining-green leaves and large, dark-blue bell-shaped flowers; Castilleja miniata—the yellow flowers and large scarlet bracts are very attractive; the plant continues in bloom for several months; Crepis incana, an uncommon pink-flowered species from Greece; Cyananthus incanus var. leiocalyx* and C. macrocalyx,* prostrate, free-growing plants bearing numerous flowers, which are coloured blue in the first-named, yellow in the second—both natives of Yunnan; Dracocephalum bullatum*: this plant may be propagated from the leaves; D. tanguticum, a species less than 1 foot in height; the light-blue axillary flowers are produced for a long period, and the plant is an excellent subject for the rock garden; Epilobium melanocaulon, one of the spreading New Zealand species, useful for planting at the foot of rocks or between the steps of a rockery; Erigeron flagellaris, a North American plant, throwing out long, stolon-like branches, and quickly covering a considerable space, flowers pinky white; Jovellana repens, a creeping Calceolaria from New Zealand with hooded, white flowers somewhat like those of Jovellana violacea; Lactuca repens, a desirable little rockery plant from China, with trifoliate, fleshy, grey-green leaves, not more than 2 inches high, amongst which the yellow flowers appear. The plant grows best in light, sandy soils and sunny situations. Laurentia tenella, a dwarf, campanulaceous annual with white flowers, from the Mediterranean region; Lesquerella gracilis, a pretty dwarf annual with graceful yellow flowers, an old garden plant, native of North America; Lysimachia amœna,* a Yunnan plant, very free-flowering, somewhat resembling L. Henryi, but not quite hardy; Mentha Cunninghamii, a prostrate, white-flowered species from New Zealand; Menyanthes Crista-galli, this North American species is smaller, more prostrate, and has whiter flowers than the British M. trifoliata; Nardostachys grandiflora, from China, a much more robust-growing species than the better-known N. Jatamansi; Onosma confertum,* a Yunnan plant with branching inflorescences and reddish, tubular flowers; Onobus spathulatus, a native of Asia Minor—the plant bears light-green leaves and abundant, pale-yellow flowers; Papaver triniæfolium, a Cappadocian plant with glaucous, finely-divided foliage and terra-cotta coloured flowers—the species deserves to be better known in gardens, as also does the yellow-flowered P. bracteatum from the Orient; Polygala major alba, a showy plant from Southern Europe, which has a long flowering period and is suitable for planting in walls or on overhanging rocks—the flowers are pink; Polygonum Emodii, the prostrate habit, narrow foliage, and deep-red spikes make it a good rock plant; P. sino-capitatum, evidently the Chinese representative of the Indian P. capitatum, but a larger plant with deeper coloured foliage, and the flower-heads are of a darker red; Potentilla fruticosa var. mandshurica, a dwarf, rather creeping form of the white-flowered P. Veitchii, a good plant for a sunny bank; Raoulia australis, a New Zealand plant, forming a dense, silvery carpet; Rubus parvus, a New Zealand species of dwarf, creeping habit, with narrow, bronze-coloured foliage and white flowers.

This is the period of the yellow-flowered Saxifrages. S. diversifolia is well known, but not its new variety S. foliata,* with brown, mottled leaves; S. turfosa* resembles S. diversifolia, but forms long stolons. The Chinese form of S. Brunoniana, named S. majuscula,* is a thriving plant, producing the red stolons of the type. More troublesome species to cultivate are S. filicaulis, S. Balfourii,* S. hispidula, S. macrostigma* and S. sediformis. Of other Saxifrages there are S. gemmipara and S. candelabra.* Scabiosa Hookeri, a sturdy Himalayan and Tibetan plant 1 foot high, with dark-coloured flower-heads; Scutellaria macrantha, a Chinese plant with numerous blue and white flowers, a charming little bushy subject for the rock garden; Selago corymbosa, a Cape plant forming dense foliage with large heads of white terminal flowers, not quite hardy here; Silene Keiskei, a dwarf, compact plant from Japan with red flowers; S. rosæflora,* a pink-flowered species discovered by Mr. Kingdon Ward in Upper Yunnan; S. Delavayi,* a plant with a brown, striped calyx; and S. tenuis.* Verbesina Purpusii, a Mexican plant with rosettes of leaves covering the surface of the soil, from which numerous yellow inflorescences rise about 1 foot or more. *R. L. Harrow, Curator.*

* Introduced by Bees, Ltd., through Forrest.

Documents pour l'Étude de la Géo-Botanique Congolaise.—This is the title of a series of contributions, edited by E. De Wildeman, constituting the third fascicle of the fifty-first, or jubilee, volume of the *Bulletin de la Société Royale de Botanique de Belgique*, a book of 406 pages of letterpress, illustrated by 117 plates. The whole is a valuable summary of all that has been accomplished in the botanical exploration of the Belgian Congo, and the excellent illustrations cover a wide range of subjects, from portions of plants to landscapes and physiographical maps. To give further details would occupy too much space, and we can only recommend the volume as a full source of information, dealing with some 4,000 species of vascular plants.

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Masdevallia.—The collection of Masdevallias at Burford is a fairly representative one, and one or more of the plants are in bloom through the greater part of the year. There are few other Orchids which produce flowers of such brilliant colours, or more curious and interesting. The dwarf-growing M. muscosa is especially attractive by reason of the extraordinary sensitiveness of its labellum. The best Masdevallias for gardens include M. Harryana (coccinea) and its varieties, atro-sanguinea, acanthifolia, miniata, Dennisoniana, lateritia, luteo-oculata Gatton Park Variety and Temples variety; M. Veitchiana and several varieties of M. ignea. These are all of robust growth and very floriferous. Not infrequently a plant may send up a solitary spike during the winter months, but it should be pinched out at an early stage of development. Other strong-growing species are M. elephanticeps, M. Gargantua, M. ephippium, M. velifera, M. macrura, M. peristeria, M. Schilmii, M. coriacea and M. trochilus, but have quaint rather than showy blossoms. M. macrura is the giant of them all, the leaves resembling those of a Cattleya. Dwarfer-growing species embrace M. Arminii, M. Estradæ, M. caudata (Shuttleworthii), M. Wageneriana, M. ionocharis, M melanopis, M. polysticta, M. floribunda, M. hieroglyphica, M. polysticta, M. simula, M. trichæte, M. attenuata, M. nidifica, M. O'Brieniana and M. triangularis. A well-grown plant of any of these is a beautiful object when smothered with the pretty flowers. Owing to their compact habit of growth, these and similar species and hybrids should be grown close to the roof glass, and never allowed to become very dry at the roots. Other distinct species are the yellow-flowered M. Davisii, the pure-white M. tovarensis, M. amabilis, M. Schröderiana, M. rosea, M. racemosa, M. Mooreana, M. Burfordiensis; M. cucullata, M. calloptera, M. Barlæana, M. Rolfeana, and the rare M. deorsa, which has distinct, drooping foliage. Among the numerous hybrids are those following: M. Chelsonii, M. Chamberlainiana, M. Courtouldiana, M. Hincksiana, M. Stella, M. Gairiana, M. splendida, M. Parlatoreana, M. Henrietta, M. Rushtonii, M. Curlei and M. Bocking Hybrid. The whole of the Masdevallias mentioned grow best in a cool but not a cold house. During the summer they may be grown with Odontoglossums, but in the winter months they need a few degrees more warmth than the Odontoglossum house affords, or a place can generally be found for them at the warmer end of the cool house. Take care that the roots are not saturated with moisture in the autumn and winter, for an excess of moisture will cause the roots to decay and black markings appear on the foliage. Large specimens that have become bare in their centres may now be divided, and the best portions repotted separately into the smallest pots that will accommodate them. The smaller pieces may be inserted several together into small pots, and by next February they should be in a suitable condition for transferring to larger receptacles. Healthy specimens that need repotting should not be disturbed at the roots unless the soil is unsatisfactory; merely turning them out of their pots and carefully placing them into larger ones will suffice. Previous to overhauling the plants it is advisable to withhold water for a few days, for the drier the roots the less liable are they to be injured. The stronger-growing Masdevallias require plenty of rooting space, but the smaller or dwarf-growing varieties thrive best in pots proportionately small. Make the pots half full with materials for drainage, and use a compost consisting of Osmunda-fibre, leaf-mould and Sphagnum-moss in equal proportions, with a moderate quantity of small crocks to keep the soil porous. In potting arrange the base of the plant on a level with the rim of the pot, and

carefully work the compost between the roots. Pot moderately firmly, but not so tightly that water will not pass rapidly away. M. tovarensis will soon be showing its flower spikes; and the repotting of this species should be deferred until the spikes are cut.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Border Carnations.—The earliest layers are well rooted, and may be either planted in their quarters or potted. When the circumstances are favourable it is best to plant direct into the flowering quarters, but even when this is done it will be necessary to pot some of the layers to furnish blank spaces in the spring where plants have failed. Let the ground be thoroughly prepared before the work of planting is commenced. Carnations grow best in stiff, retentive soils that have been lightened by plenty of well-rotted leaf-mould, refuse from the garden fire or the addition of compost from the potting-shed. A border facing south or west with good natural drainage is the best situation. Avoid planting when the soil is excessively moist, rather defer the work for a week or two, as it is most important to make the roots firm in the ground. It is an advantage to sprinkle soot over the soil before the plants are set in position. The soil for those grown in pots should consist of a mixture of three parts loam and one of sifted leaf-mould, lightened with a suitable quantity of coarse sand. It will be a great advantage to plunge the pots in ashes. Water the soil and keep the frame close and the glass shaded for a few days until the roots are re-established, when the plants may be accustomed to more ventilation and light, until finally they may be exposed fully and grown in these conditions until cold weather sets in.

Preparations for Next Season's Bedding.—Some thought must now be given to the system of flower bedding to be adopted next season. Certain changes may be contemplated, and they should be decided upon now, so that those responsible may have plenty of time in which to propagate the necessary stocks of different subjects. Salvia Glory of Zurich seems to thrive under any conditions, and should be grown largely, whilst Salvia Bluebeard is an excellent subject for massing in the mixed border. The plants should be in flower before they are planted in the beds or they may make an excessive amount of growth at the expense of blossom. A fine contrast is obtained by planting this Salvia with tall, white Antirrhinums or Hyacinthus (Galtonia) candicans. Perpetual-flowering Carnations have done remarkably well out-of-doors this summer, although certain varieties soon showed the effects of dull, wet weather. Antirrhinums seem little influenced by the weather; these flowers are most effective when massed in suitable colour combinations in a large bed or border; the intermediate and tall varieties only should be used for this purpose. Such sorts as Coral Red, Red Apricot, Fire King and Orange King provide brilliant patches of colour in the mixed border. Certain perennials and annuals are seeding freely this season, and the capsules should be gathered, dried, and the seeds stored for use next spring.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Apples.—Both dessert and culinary Apples are ripening rapidly, especially on light soils. Most of the early culinary varieties, including Lord Grosvenor and Lord Suffield, are fit to gather, and no time should be lost in gathering them, as the fruits begin to deteriorate as soon as maturity is reached. In the case of other varieties the important point is to be quite sure the fruits are ripe before they are gathered; a good test is to examine the pips of a specimen, and if they are not quite brown to wait a few days longer. If large, perfect fruits are required for baking, the best plan is to gather these first and store them carefully by themselves, remembering that the least mark or bruise on the skin would render them useless later on for this purpose. Dessert varieties, especially Beauty of Bath, Joaneting, Margaret, Gladstone, Irish Peach, Devonshire Quarrenden, and Lady Sudeley, should not be gathered until just before they are required, as they keep very badly and soon lose their flavour. Apples should be stored on wooden shelves or trays in a house ventilated at the bottom. A thin layer of clean Wheat straw may be used to soften the shelves, but on no account should paper be employed, as it holds moisture, and tends to taint the under part of the fruits.

Pears.—As in the case of Apples, early varieties of Pears are not improved by being kept after they are gathered; but the supply of fruit can be prolonged by judicious planting and gathering. It is a mistake to gather the whole of the crop at once, even if all the trees of a particular variety are in a similar position. As soon as the fruits will part freely from the stem when gently bent upwards, a few should be gathered and laid in shallow boxes, or on warm (not hot) pipes, out of the way of damp or insects; or a warm dwelling room will answer the same purpose. They will soon become fit for dessert, and if the process is repeated every four or five days the season will be prolonged. Varieties of early Pears which should be gathered just before eating are Fondante d'Automne, Souvenir du Congrès, and Beurré Hardy. Beurré d'Amanlis is improved by keeping in a cool shed for ten days or a fortnight after being gathered.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cabbage.—The first plantation of Cabbage intended for an early spring crop should be made as soon as the plants are large enough for shifting. They may follow Onions, merely breaking the surface of the soil with the points of the digging fork. Set the plants in rows at 15 inches apart each way. As soon as fresh growth appears, hoe the surface of the bed, as loosening the surface will favour the development of the plants and destroy any weeds that may be present. Early Offenham and Milecross Marrow are two good varieties for present planting.

Mushrooms.—There will be no difficulty now that the days are becoming cooler in obtaining good supplies of Mushrooms. The materials for the hotbed should be collected and turned frequently in a dry, airy shed. The proper fermentation of the material is an important matter, for if this is neglected the crop will most probably be a failure. When thoroughly sweetened the manure should be removed to the Mushroom house and beaten together tightly to a depth of about 14 inches. As soon as the temperature of the bed has declined to 80°, and there is no prospect of it rising again, the spawn may be inserted. Place the spawn about 2 inches under the surface of the bed, and afterwards make the latter tight again by ramming. When the temperature of the manure has fallen to 75°, the surface of the bed may be covered with fine, new loam to the depth of 1 inch. Endeavour to keep the materials moist, but guard against a too frequent use of the watering-can. Promote atmospheric moisture by syringing the walls and floor of the house with rain water.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Pineapples.—Plants of Charlotte Rothschild and Smooth Cayenne varieties will now be swelling their fruit for autumn and winter supplies. They should be given as much encouragement as possible while the days remain bright and warm. The pits should be closed early in the afternoon, with a temperature of 90° to 95° (with sun heat), falling to 70° to 75° at 10 p.m. At the time of shutting the house syringe the plants lightly, but do not wet the crowns, as moisture tends to make them grow too fast. Maintain a moist atmosphere, and, if the roots seem dry, water them (but not too freely) with weak guano-water. Plants of Smooth Cayenne usually produce very few suckers, but Charlotte Rothschild is prolific, and suckers on plants of this latter variety should be detached before they grow very large. The offsets should be planted in 6-inch pots, and plunged in a shallow pit provided with bottom heat. Keep the atmosphere moist, and the plants shaded from bright sunshine. Suckers from these varieties which were potted early in the season and are now well rooted in 6-inch or 7-inch pots should be transferred to 11-inch fruiting pots. The potting soil should be fibrous, turfy loam of medium texture. Mix with it some bone-meal and a little vine manure. Pot firmly and plunge the pots in the bed of the Pinery. Very little water should be afforded until the roots have established themselves in the new soil. The top growth should be syringed lightly on bright days for the next week or two, and the house kept close and moist. Late plants of Queen Pines with the fruits colouring require an airy, warm atmosphere, and should be kept rather dry at the roots. If many fruits promise to ripen together, remove some of the plants to a cool, dry house, where they will be retarded for some time, and supply a succession. The remaining suckers on the Queen plants of which the fruits are ripe should now be secured for fruiting eighteen months hence. They should be placed in 6-inch pots and treated as advised above. Afford no water until some roots have formed, at which stage abundant ventilation should be admitted. Queen plants intended for fruiting early next year should, if strong and well rooted, be afforded plenty of fresh air on fine days. Manure-water should be withheld, and only sufficient clear water afforded to prevent drought. The atmospheric temperature should be kept rather low at night. Plants which are not so forward may be encouraged to grow freely for another month, making the most of the sunshine, keeping up a night temperature of 70° in warm weather, and giving manure-water at the roots.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Richardia africana (Calla æthiopica).—Plants which were placed in trenches as advised previously should be lifted and placed in pots. These should be large enough to allow of placing plenty of soil between the ball of the plant and the side of the receptacle; the soil should be composed of three parts rich loam to one of leaf-mould, some coarse sand and decayed cow-manure, with a 7in. potful of fine bones added to each barrowful of soil. After potting soak the soil with water and place the plants in a frame or cool house. Regulate the temperature according to the time when the flowers are required; but as cold, damp weather approaches the temperature should be at least 55°. Fumigate the house to destroy green fly and other insect pests, and syringe the plants on all bright days to prevent thrips.

Stocks.—Seedlings which were pricked off into 60-size pots early in August are ready for their final shift into 4 or 4½ in. pots. They should be firmly potted, in soil consisting of rich loam with a little leaf-mould, decayed cow-manure and wood ash. When potted they should be placed in a cold frame and soaked thoroughly with water. They should be kept in a light, airy structure until well established, when the lights can be removed. As soon as the first frost makes its appearance they should be placed in a cool house or on a shelf in a Peach house or vinery.

Double German Wallflowers.—The seedlings which were pricked out in an open border from the seed bed should now be ready for potting into 5-inch or 6-inch pots. The compost should consist of good loam, leaf-mould, and sand in equal parts, with some decayed cow-manure and wood ash added. Pot firmly, and stand the plants afterwards in a sheltered position under a north wall. The plants should be well watered, and when they are re-established stand them in a sunny position, but when the first frosts seem likely to occur remove them to a cold, airy house. As the winter advances they may be grown in a temperature of 45° to 50°, until they flower, when they may be transferred to the greenhouse or conservatory. A little artificial or liquid manure will be beneficial.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, SEPTEMBER 18—
British Gardeners' Assoc. (Watford Branch) meet. (Lecture by Mr. John Weathers.)

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 57.3°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, September* 3 (6 p.m.): Max. 64°; Min. 47°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, September* 4 (10 a.m.); Bar. 30.1°. Temp. 63°. *Weather*—Fine.
PROVINCES.—*Wednesday, September* 3, Max. 60° Shields; Min., 57° Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY NEXT—
Dutch Bulbs, by Protheroe and Morris, at 67 and 68, Cheapside, E.C., at 10.30.

WEDNESDAY NEXT—
Special Sale for the Trade of Bulbs, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

FRIDAY NEXT—
Established Orchids, by Protheroe and Morris, at 67 and 68, Cheapside, E.C., at 12.45.

MONDAY, WEDNESDAY, AND THURSDAY NEXT—
Dutch and French Bulbs, Palms, Bay Trees, etc., at Stevens' Auction Rooms, King Street, Covent Garden, at 12.30.

Seed-Testing Stations.

There arises from time to time and in different quarters a demand for the establishment of a Government seed-testing station. This demand has reference generally to agricultural seeds, though doubtless those who make it would desire that the station should undertake the testing of seeds of all kinds. They support their proposal by various arguments, some of which are of considerable weight. They point to the indisputable fact that seed-testing stations are fashionable abroad, and enumerate the countries in which such stations exist. They appeal to statistics to show the enormous extent to which agricultural and other seeds are used in this country, and demonstrate that on not a few of the principal seeds—Wheat, Barley, Oats and Clovers—the annual outlay amounts in each several case to upwards of one million pounds sterling. Moreover, the advocates of a national seed-testing station present a somewhat distressful picture of the extent to which adulteration—intentional or accidental—occurs in certain kinds of seeds. Finally, they make appeal on behalf of the artless and unsuspecting agriculturist who is supposed to be constantly on the look-out for cheap—and therefore bad—seed, in order to produce a crop that fails.

Up to the present, however, and despite the arguments of its advocates, the seed-testing station has not come into existence in this country, though each sister country either possesses or is about to possess one. Inasmuch as it is sheer nonsense to suggest that our present lack is due to ignorance or stupidity on the part of Englishmen, it behoves us to inquire to what this lack is due. This inquiry involves another, namely—what should be the exact function of the testing station?—and the answer to the latter inquiry will in turn enable us to make up our minds whether in the present condition of the seed trade of this country a testing station is necessary at all.

When we seek for the reasons why, in spite of the recommendations of a Departmental Committee of the Board of Agriculture (1910), no seed-testing station has as yet been instituted, we find a clear indication of their nature in the arguments advanced by two members of the Committee, Sir William Thiselton-Dyer and Mr. Leonard G. Sutton, who dissented from the proposal of their colleagues. These gentlemen urged, first, that there was no strong case for the establishment of such a station, and second, that a testing of samples can give no guarantee of the bulk. There, indeed, is the rub! If a station were established solely to provide certificates of purity and of germinative capacity, with no powers of inspection or control, the hinges of the door to fraud would find themselves well oiled and a Government premium would be put upon dishonesty. Armed with his certificate of purity, an unscrupulous seedsman would embark on the nefarious mission of sowing—or rather, selling—"Tares" instead of Wheat. It is this contingency that those who are dispassionately interested in the subject have in mind when they refuse to assent precipitately to the establishment of a seed-testing station, and this contingency is clearly in the mind of the Parliamentary Committee of the R.H.S., which insists (see *Gard. Chron.*, p. 104) that "a seed-testing station, if created, must provide a full and sufficient guarantee both to buyer and seller as to the identity of the bulk sold with the sample submitted for test."

It seems impossible, therefore, not to concede that if a national seed-testing station be established that station must be provided not only with the paraphernalia for carrying out the simple germination tests, but must have attached to it a corps of inspectors, armed with the right of entry into seed stores, and fortified with parliamentary powers of prosecution. If it could be shown that this system of Government control—expensive though it must be—is the only system whereby the sale of inferior seed may be checked we should conclude in favour of the station. We incline to think, however, that a simpler and less expensive method would prove at least as effective. We stand on the threshold of great developments in agricultural instruction. The whole country is divided up into areas provided or about to be provided with agricultural institutes, farm schools, agricultural advisers, and the like. It should be part of the work of these latter missionaries of agriculture to preach the economic doctrine of pure seed, and it should be a part of the work of the farm institutes to demonstrate the cheapness of good seed. That good seed is available is not open to doubt. Everyone who has visited the establishments of the larger seedsmen knows what pains and money are expended on the cleaning and testing of the seed which is sold; everyone who has grown the seed sold by responsible seedsmen knows that it is good, and those who are most familiar with the vagaries of seed from harvests such as those of recent years wonders that the quality is so high. The conclusion, therefore, to which we incline is that whereas in countries of large area and in varied state of development or in those with a backward agriculture and without a highly organised system of agricultural instruction, a Government seed-testing station is a valuable means of improving the quality of commercial seed in England such an institution is not necessary. For it to be effective it must be fortified with considerable powers; it must be accompanied by the enrolment of a large number of inspectors; and it must entail therefore a very considerable expenditure. The final and desirable end which it might be expected to achieve may, we think, be attained by educative means.

SALE OF MESSRS. J. VEITCH & SONS' SEED BUSINESS.—We are informed that Messrs. SUTTON AND SONS, Reading, have purchased from Messrs. J. VEITCH AND SONS, LTD., the seed business carried on at Chelsea for the past sixty years, and this department, with the stocks of seeds and horticultural sundries, will be transferred to Messrs. SUTTON AND SONS as from October 1, 1913. Messrs. SUTTON have also purchased from Messrs. VEITCH AND SONS, LTD., the principal portion of the seed grounds at Langley, near Slough, adjoining the G.W. Railway, but Messrs. VEITCH'S nursery trade will still be carried on for some time to come at Chelsea, Langley, and Feltham, until Sir HARRY VEITCH retires altogether from business. The negotiations for the sale of Messrs. VEITCH'S seed business and the freehold land at Langley were carried through by Messrs. PROTHEROE AND MORRIS. It will be observed from our advertisement columns that the first portion of the stock at Messrs. VEITCH'S Coombe Wood Nursery at Kingston will be sold by auction by Messrs. PROTHEROE AND MORRIS on October 13 and following days.

A GRAFT HYBRID BETWEEN PEACH AND ALMOND.—A note in the *Jardin* describes the origin of a graft hybrid produced by budding a yellow Peach on the Almond. It is stated that the fruits obtained from the graft are more or less intermediate between those of the Peach and Almond, and that some shoots are intermediate in character, and others are either pure Peach or pure Nectarine. MM. DANIEL and DELPONT have germinated two seeds borne by the graft-hybrid, and have raised two trees, the leaves of which "show some resemblance with those of the Peach and Almond." The seedlings have not yet flowered. The graft hybrid is said by MM. DANIEL and DELPONT to resemble Amygdalus communis persicoides, which, though generally considered to have resulted from a cross, is in reality of unknown origin. They suggest, therefore, that this horticultural variety is a graft hybrid. It is noteworthy that the shoots of intermediate character referred to above have arisen at some distance from the junction of scion and stock.

A careful and comparative examination of the anatomy of the so-called graft hybrid and of the two constituent species is necessary before the views of MM. DANIEL and DELPONT can be regarded as established.

FERTILISERS AND FISH.—Inasmuch as the adage "all flesh is grass" is profoundly true, it is not surprising that the addition of suitable artificial manures to ponds should react beneficially on the fish contained therein. A note by N. LALLIÉ in *La Tribune Horticole* states that experiments made by M. KUHNERT demonstrate the usefulness of artificials in pisciculture. The addition of basic slag and kainit led to an increase in weight of the fish from 420 to 640 lbs., whilst by the addition of nitrate of soda also the weight of the fish rose to 800 lbs. Similar good results have, it is stated, been obtained with trout. Thus an increase in the aquatic flora leads to an increase in the minute fauna, and this in turn results in an increase in the fish.

THE TOMATO INDUSTRY IN AMERICA.—The rapid increase in Tomato growing in America is indicated by the following facts recorded in Bulletin No. 239 (College of Agriculture, Berkeley, California), which gives an account of the culture of this fruit in California. So late as 1829 the Tomato was in no demand in the States owing to the popular belief that it is poisonous. At the present time about 500,000 acres are under this crop. Although largely used for canning purposes, there is an increasing demand for fresh fruit, and the State of California alone sends out some 300 carloads to all parts of the States.

AN EXPERIMENTAL ROSE GARDEN. — The Society of American Florists, which has recently held a very successful meeting at Minneapolis, has appointed a committee to establish an experimental Rose garden on the Arlington Farms. We learn from the report in *Horticulture* (August 23) that the committee is impressing on the United States Government the desirability of such a garden, and that it has good hopes that the experimental Rose garden will become established in the near future. The society suggests that the garden shall be placed in the charge of the horticultural experts of the Government, and undertakes to supply stock true to name.

BANKRUPTCY STATISTICS: FAILURES OF GARDENERS, FLORISTS AND NURSERYMEN.—The report of the Inspector-General in Bankruptcy for the year ending March 31, 1913, shows a decrease of 341 in the number of receiving orders and deeds of arrangement in England and Wales, with a falling-off in the estimated loss to creditors of £2,418,300. The statistics for Scotland and Ireland are of an even more favourable character. The total number of cases in England and Wales was 6,351, the liabilities and assets as estimated by debtors being £8,053,900 and £3,481,700 respectively. The estimated loss to creditors was £6,452,200. These figures are not small, and should not be minimised, but we have to go back years to find as moderate a showing; whilst if we have regard to the enormously increased volume of commerce that has accumulated in the interval, it may be safely asserted that never has insolvency been at so low an ebb. The estimated losses to creditors in cases of bankruptcy proper—£4,304,900—are actually the smallest for any year since the 1883 Act came into operation, the nearest approach to them being those for 1903, which were £4,475,800. It appears from an appendix attached to the report that the total failures under bankruptcy and deeds of arrangement, in regard to persons carrying on business as gardeners, florists and nurserymen, were as follows:—In 1908 there were 48 failures, with total liabilities amounting to £43,811. In 1909 there were 48 failures, with liabilities amounting to £32,764. In 1910 the total number of failures was 55, and the total amount of liabilities in the aggregate was £68,144. In 1911 the number of failures was returned at 36, with a total indebtedness of £36,374. In 1912 there were 38 failures, with liabilities amounting to £38,008.

WEEDS IN PASTURES.—In the course of a survey of the botanical characters of grass land (*Journ. of Board of Agric.*, August, 1913), Mr. R. G. Stapledon observes that weeds in pastures are far more responsible for the poverty of grass than is commonly supposed. He finds that whereas in good fields the weeds may make up not more than 6 per cent., they rise in inferior fields to about 16 per cent. In another case a good field possessed a flora of mat-like herbs amounting to half a million to the acre, whereas the number in an acre of a poor field reached nearly one and a half millions. A dressing of sulphate of ammonia is to be recommended in those pastures in which the weeds are rife, the effects of the manure being in part at least to favour the growth of the grasses, and thereby to crowd out the weeds.

THE DISTRIBUTION OF THE GIPSY MOTH.—The mode whereby the Gipsy Moth (Liparis dispar) extends its range has been investigated by A. F. Burgess, a summary of whose work, published in Bulletin 119 (U.S. Department of Agriculture, 1913), appeared recently in *Nature*. The female, though provided with wings, is so heavy that she is unable to fly, and the larvæ are mainly responsible for the spread of the insect from place to place. Farm carts and motors passing along roads bordering on woods help in the distribution of the insects; but the young larvæ also secure dispersal by means of their long hairs, which enable them to be carried by wind for considerable distances.

MR. THOMAS CHALLIS, V.M.H. — Readers will join with us in offering sympathy to Mr. CHALLIS in the bereavement he has sustained in the death of his wife. Mrs. CHALLIS passed away on the 3rd inst. after a long illness, and the funeral took place at Fugglestone on Saturday, the 6th inst.

L'UNION HORTICOLE PROFESSIONELLE INTERNATIONALE.—We have received the first number of the Bulletin of this society, a publication which is to appear in future every three months. The Union was formed at Ghent in September, 1910 (see p. 268 in our issue of October 8, 1910), for the purpose of unifying the actions of horticulturists in the chief European horticultural nations. The Bulletin (which can be obtained from the secretary at 15, Molenstraat, La Haye, Holland), contains a list of affiliated societies (in which England is represented by the Horticultural Trades Association), a description of the constitution of the society and rules for its conduct, and an account of the Congress held on April 28 this year, in which the chief regulations were drawn up and the committee for the year appointed. M. RIVOIRE is president, M. Jos. PETER vice-president, and M. VAN LENNEP secretary. The chief function which the union will serve at present is the founding of an international registration list for new plants. Those who desire to have their novelties included in this list are asked to send a description containing not more than three lines in English, French and German, giving all necessary particulars (genus, if a hybrid, exact parentage, etc.), with a fee of two francs. A scheme of activity in the direction of phytopathology was formulated at the April, 1913, Congress, which aims at the solidification and association of the work now done in various countries. Such concerted action should be very useful in preventing the importation and spread of plant diseases. It is also to be the care of the union to equalise the prices of produce in the affiliated countries and generally to protect the grower.

POTATOS IN FRANCE AND BELGIUM.—The Board of Agriculture and Fisheries have received a report dated August 29 from His Majesty's Consul at Rouen stating that in the Department of Manche the 1913 Potato crop will be a very good one, yielding from 7 to 7½ tons per acre, compared with 5 tons per acre (about average) in 1912. In the Paimpol and Lézardrieux districts of the Department of Côtes-du-Nord the crop was good as regards both quantity and quality. In some districts, however, the tubers are not expected to keep well, and the yield will most likely be somewhat inferior both in quantity and quality to that of former years. Magnum Bonum and Institut de Beauvais now sell wholesale at about 4s. 5d. per cwt. There are already some Chardrennes on the market, the price being 3s. 10d. per cwt. In the Department of Morbihan the crop is expected to be less abundant than in 1912. The quality also is expected to be inferior. Prices will no doubt be higher this year than last. The variety known as Saucisse rouge is at present sold at 4s. per cwt. In the Department of Loire Inférieure the yield will be about the same as last year (average), but the quality will be very much better. The tubers are expected to keep well. Prices at present range from 4s. 10d. to 5s. 8d. per cwt. according to quality. In the Department of Maine-et-Loire the area is smaller this year than last. The yield also will be less, but the Potatos are sound and of a good average size. Present wholesale prices for the white varieties vary from 2s. 3d. to 2s. 8d. per cwt., for pink from 3s. 1d. to 3s. 6d. per cwt., and for yellow from 5s. 3d. to 6s. 1d. per cwt., Owing to the small quantity at present on the market prices are expected to rise before long. In the Department of Mayenne this year's yield is expected to be only half of last year's. His Majesty's Consul-General at Antwerp (August 27) states that, on the whole, the yield of Potatos in Belgium will be above the average and considerably larger than in 1912. Prices will be normal. In the Bruges district a much larger crop than last year's is expected, and there are scarcely any signs of disease. The probable price is estimated at from 2s. to 2s. 5d. per cwt., but will depend on the German crop. In the Ghent district the yield will be at least equal to that of last year. The tubers are sound. Wholesale prices are expected to range from 1s. 10d. to 2s. per cwt. In the Liége district also the yield will certainly equal last year's (6¾ tons per acre). Present wholesale prices range from 2s. 5d. to 2s. 10d. per cwt. In the Ostend district, given favourable weather, the yield is expected to be considerably in excess of that of 1912.

HOP PROSPECTS ABROAD.—His Majesty's Consul-General at Antwerp (August 27) states that the Hop crop in Belgium is considered to be of good average quality and quantity. Provided the weather remains favourable the yield is estimated at 50,000 cwts., of which perhaps 20,000 cwts. will be grown in East Flanders and 30,000 cwts. in Brabant. Prices at present quoted for Hops to be delivered in October and November are about £2 17s. per cwt. His Majesty's Consul at Portland, Oregon, states that the yield of Hops in Oregon is expected to be about 225,000 to 230,000 cwts., compared with 211,000 cwts. in 1912 and 129,000 cwts. in 1911. The yield in the State of Washington is estimated at about 70,000 cwts., compared with 59,000 cwts. last year, and that of California at nearly 200,000 cwts., compared with 209,000 cwts. in 1912. The crop in Oregon and Washington is in very good condition, but in California it has suffered somewhat from the weather.

CITY OF LONDON GARDENS. — The *City Press* is publishing a series of pictures illustrating the old City gardens, with a description of each. The garden illustrated in the issue of September 6 is the erstwhile graveyard of St. Botolph, now a pleasant, shady retreat. These gardens in the heart of the City are a real comfort to the workers of the City. Every day, when the weather is fine, the seats in the gardens are crowded with people—some resting from

their work, others having no work to do. The luncheon hour especially sees every seat full, and the pity of it is that these oases in a grey wilderness are so rare. Were twenty times as much space at disposal as at present the gardens would still be crowded.

PRIMULA RUSBYI.

ONLY twelve species of Primula are found wild in the North American continent, and four of these are endemic, namely, P. angustifolia, P. Parryi, P. Rusbyi, and P. suffrutescens. These are all confined to the Rocky Mountains, and, as some of them vary very much according to habitat, several forms have been accorded specific rank by some authorities. The finest of all the North American Primulas is P. Parryi, which is found along the banks of rocky alpine streamlets at an elevation of from 8,000 feet to 13,000 feet. It is somewhat difficult to cultivate in this country, although in the spring of this year I saw a fine example growing in the garden of Dr. MacWatt, Duns. When fully developed the leaves are a foot long, while the stout stems, which are much longer, bear large umbels of rose-purple flowers. It belongs to the nivalis section of the genus and this section embraces many fine species from the Himalayas, China and Northern Asia.

P. Rusbyi (see fig. 70) belongs to the cuneifolia section of the genus, which also includes the beautiful and better-known P. suffrutescens. It is a native of New Mexico and Arizona, growing on damp ledges on the north side of cliffs at an elevation of 8,000 feet on Mount Mongollon, among other places. It was first discovered by the traveller whose name it bears, and was introduced into cultivation in 1885. The specimen illustrated in fig. 70 is growing in a pot, and was sheltered in a frame during the winter. The flowers appeared early in June, while others which were planted out in a rocky crevice in the rock garden are still producing flowers. The plants produce tufts of narrow, spathulate leaves, 3 inches to 5 inches long, the umbel of beautiful flowers arising well above these. The petals are bright rose-red in colour, with a darker ring at the base, and the flowers have a yellow eye. *W. I.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

R.H.S. FRUIT SHOW.—I am interested to know for what reason the R.H.S. Autumn Fruit Show is being held three weeks earlier than usual this year. When I noticed, early in the year, that a show of British-grown fruit was announced for September 25 and 26 I concluded that it was to be an exhibition of early autumn fruits, but on receiving a schedule a few days ago I found there were classes for all the best late Apples and Pears, as usual. Surely these fruits, grown entirely in the open, as required by the schedule, will not be fit to gather by the date named. Here, in the south of Ireland, the best varieties of both dessert and cooking Apples will not be properly matured for quite a fortnight after the date of the show, and I have never known them to be ready before the time I mention. It is to be hoped that growers in other parts of the United Kingdom are more favourably situated, or the earliness of the show may make it less representative than usual. *T. E. Tomalin, Co. Kilkenny.*

FERN P. PARKERI (see p. 180).—Might not P. Parkeri be Pteris Parkeri, which was given an Award of Merit by the Floral Committee of the Royal Horticultural Society on March 5, 1912, and has been shown several times since then? It is apparently an extreme form of Pteris cretica, in which the pumæ are as much as 1½ inch in width, thus giving to a vigorous specimen quite a Palm-like appearance. *W. Truelove.*

STANDARD OF LIVING.—In the notes written by *Observer*, and published on page 160, facts are mentioned that are certainly of interest to others, especially to those engaged in any branch of horticulture, for employers of gardeners do not seem to realise how pressing is the need for extra remuneration for those in their employ so that they may have sufficient means to buy food. When an employee finds that wages do not suffice he aims at husbanding, rather than expending, his energy, and this many, with only a superficial knowledge of the cause, attribute to want of application. *Observer* mentions that what were luxuries are now considered necessities, and quotes oats, rice, bacon, cheese, lard, eggs, and meat. Such foods formed the staple articles of diet twenty years ago for gardeners. It would be more correct to say that the majority of them are luxuries for gardeners at the present time. Because the more wealthy are eating less meat, he truly mentions that the less wealthy are eating three times the amount consumed twenty years ago. This is a statement too elastic to define anything. The less wealthy may be

[Photograph by W. Irving.

FIG. 70.—PRIMULA RUSBYI: COLOUR OF FLOWERS ROSE-RED WITH PURPLE RING AROUND THE YELLOW CENTRE.

99 per 100 or 19 per 100 of population. I know that the least wealthy cannot buy a third of the meat which should form a well-balanced diet. My own position may be taken as a typical case of the state in which gardeners in large towns are placed. During the whole of my life I have never felt more acutely the necessity for an increase in wages to meet the extra cost of living and the responsibility that a family of normal size demands during youth. After the fixed weekly charges, such as rent, firing, light, insurance, and travelling, are met, the balance left to feed and clothe my family (five in all) amounts to fifteen shillings and one penny. For food alone, taking the number of meals at three per day, the allowance per head for each meal is approximately one penny and three farthings—consequently we are always living on starvation lines, and housekeeping is an unsolved puzzle at the end of every week, and enough to break the heart of the strongest wife, however capable a manager she may be. All gardeners with whom I come in contact seem to be living under stress of circumstances somewhat similar to my own, and the inevitable result is want of concentration, followed by inefficiency. I am not a member of any union or association, but I am not surprised that so many are advocating its principles to bring about a better condition of life. All men, for the work they do, should have a wage commensurate with their ability; the normal wage should certainly allow a margin above what is the bare minimum for sustenance. In cases where everything has to be paid for out of the wages, I have yet to learn that this can be accomplished on wages less than thirty-three shillings in large towns and twenty-seven in the country; this is the lowest estimate. I have had a thorough experience of living under varying conditions both in town and country, and can speak from direct knowledge. These remarks apply to a normal family of five in all, which may be taken as an average. This question of family touches upon another point that cannot be disproved by anyone who reads the advertisements in the Press. Employers usually prefer a gardener without any, or with only small family, consequently the man with an average family finds that the hope that stimulates all earnest men to action is gradually crushed out by the veto which employers place on the number of the family, and debars him from improving his position. This, combined with the high cost of living, makes the position of the married men doubly perplexing, and those who have it in their power to bring this to the notice of those employers who prefer gardeners without families will, in so doing, perhaps be the means of getting such employers to take different views when engaging men in the future. Other things—recommendations, etc.—being equal, surely it is more fitting to take the man with a family. Employers have the remedy in their own hands if they find their gardeners inefficient. When efficient men are engaged nothing is more worthy of master or man than liberal wages in return for honesty and capability. *Onward.*

LARGE PEACHES (see p. 177).—Arising out of the correspondence on large Peaches published in *Gardeners' Chronicle*, November 16, September 23, and October 7, 1911, pp. 209, 227, 262, I casually remarked to some gardening friends that I had not seen a Peach weighing one pound. Quite recently Mr. Anderson, gardener at Birdsall House, Walton, sent one for my inspection. He informs me that it was grown under the name of Late Admirable, and there were other fruits weighing 14 ozs. I replied that it was not as I thought correctly named, being of a somewhat different shape and colour to that variety as grown by myself and as I have seen it at exhibitions. I added that I felt almost certain it was a fine fruit of Exquisite, which I had seen exhibited at Harrogate several times some years ago. Exquisite is a very handsome fruit when well grown, though not so good in flavour as some of the older varieties of late Peaches. The fruit sent me by Mr. Anderson weighed within a ¼ oz. of a pound when put on my letter scales. *Yorkshire Gardener.*

CELERY DISEASE.—Celery "scorch" has been very prevalent in this neighbourhood again this season. Does not this fact favour the theory that weather conditions have far more to do with the spread of the disease than the reasons advanced in the autumn of 1911 by several correspondents in the *Gardeners' Chronicle*, viz., the use of pig manure and affected seeds? The season of 1911 was very dry and warm, and the same conditions obtained this year. Artificial watering does not have the same effect as a good cooling shower. *M. A., Co. Kerry.*

FURCRÆA BEDINGHAUSII.—(see p. 167).—A strong, young specimen of this species was planted in the "Duchess' Garden" here last autumn, but the plant failed to survive the mild winter. As many tender plants of other kinds are well established in this garden it seems probable that this Furcræa will only survive in a very few gardens in Britain in the extreme south. The late Mr. Hanbury, of La Mortola, spoke highly of its beauty when in flower. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

PUBLICATIONS RECEIVED.—***Transactions of the Scottish Horticultural Association.*** Second series, Vol. ii., Part I. Secretary, A. D. Richardson, 19, Waverley Market, Edinburgh. Price to non-members 2s. 6d.

REMARKS ON CONDITION OF THE FRUIT CROPS.

(*Continued from page* 175.)

(*See Tables and Summaries, ante, pp.* 80-85.)

5.—SOUTHERN COUNTIES—*cont.*

SURREY.—What promised to be a successful fruit season has proved rather disappointing. Late spring frosts following a mild winter, which caused the fruit buds to develop much too early, proved most disastrous to the Apple, Pear, Apricot and Plum crops. Cherries set freely, but this crop was spoiled by drought. Insect pests proved very troublesome. Only the early varieties of Strawberries reached a fair stage of perfection, the later berries being practically dried up. The crops on standard and pyramid Pears are a failure, but several wall trees are fairly well furnished with fruits. Currants were a heavy crop. The soil is of a very light, sandy nature. *J. Lock, Oatlands Lodge Gardens, Weybridge.*

—— The prospects for all kinds of fruits were excellent, but the cold weather in May caused most of the Apples, Pears, and Plums to fall, with the result that all crops are very light. *S. T. Wright, R.H.S. Gardens, Wisley, Ripley.*

—— The fruit crops are satisfactory, with the exception of Pears and Peaches. Apples are a good crop, and promise to be better than usual. Pears, Peaches, Plums, and Cherries all flowered abundantly, but on April 13 we registered 11° of frost, and this, no doubt, is the cause of the scarcity of these fruits. Apricots suffered in the same way, notwithstanding that the trees were protected with what is considered to be frost-proof canvas. Small fruits were good, Strawberries and Gooseberries exceptionally so. Our best sorts of Strawberries were Royal Sovereign (good for preserving, but too acid for dessert), British Queen (the best flavoured), then Waterloo, Givon's Late Prolific, Laxton's Latest, and Louis Gauthier in the order named. The soil is a light porous loam on a gravelly subsoil, and dries out very quickly. *Geo. Kent, Norbury Park Gardens, Dorking.*

SUSSEX.—Fruit trees blossomed abundantly, but the crops are disappointing, for after the flowers had apparently set well, Pears, Plums, Peaches, and Cherries dropped wholesale. Strawberries have been very good, and the variety Reward extra fine. Other small fruits are only moderate crops. Our soil is a heavy loam on clay. *Thos. Tyson, Wykehurst Park Gardens, Haywards Heath.*

—— All fruit trees bloomed profusely, but the blossoms on Apricot, Peach, Plum, and Pear trees were not of normal size, which I attribute to unripened wood, due to the dull, wet autumn of last year. A third of the blossom did not set, and the majority of the fruit that formed failed to swell. Insect pests were not in evidence until the end of June, and then only green and black fly. Apples are a fair crop. Small fruits, such as Currants, Raspberries, and Gooseberries, were above the average, whilst the Strawberry crop was a record one. *J. W. Buckingham, Milland Place Gardens, Liphook.*

—— All fruit trees flowered remarkably well, but frosts and cold winds during April caused much damage to the crops of Pears, Plums, Peaches and Nectarines. The soil is a heavy, cold clay, and this season it was a difficult matter to obtain a tilth fine enough for the sowing of small seeds in spring. *J. Muddell, Sedgwick Park Gardens, Horsham.*

—— Generalisation as to the quality of Apples, Pears, and Plums would be misleading, and nothing can be said at present as to the quality of the minute quantity of Nuts. Large proportions of Apples and Plums will be small and bad as the result of the aphis blight, while the fruits not affected by the pest may prove large and good now that the drought has been broken substantially. There are no Pears of any account. As to bush fruits, Gooseberries were of good quality, but hardly of full size, and this may be said of Red and Black Currants and Raspberries. *William E. Bear, Magham Down, Hailsham.*

—— Plum and Cherry trees flowered abundantly, but the blossom was crippled by severe frosts on April 13, when we registered 13° (the worst frost in April for many years). The Pear crop was also harmed by the same cause. Apples are a bountiful crop, and the fruits required thinning. The variety Cox's Orange Pippin set plenty of fruits, notwithstanding that the trees are isolated. Bush fruits of all kinds were good and plentiful. Raspberries and Gooseberries, especially, were excellent. Our soil is a retentive clay. *W. A. Cook, Leonardslee Gardens, Horsham.*

—— All stone fruits were under the average. Some attribute the cause to the wet, cold autumn of last year, as the wood did not ripen. In some gardens hailstorms damaged the Plum crop and early Pears. The soil is very heavy, but when well cultivated produces good crops of Strawberries, Gooseberries, and certain varieties of Apples. Cherries are not a profitable crop. *Wm. J. Langridge, Ote Hall Gardens, Burgess Hill.*

WILTSHIRE.—The fruit crops, generally, are the worst that we have had for many years past. Plums and Pears are especially bad. This is due to three or more causes: (1) Imperfect flowers, caused by the imperfectly ripened flower buds; (2) the extraordinary amount of blossom; (3) cold and otherwise unfavourable state of the weather during the flowering period, and the consequent low temperature of the ground. The temperature of the soil at 1 foot deep at the time of flowering was from 3° to 5° below the average. This season has conclusively proved the advantages of permanent or partial protection for fruit trees, for where protection was afforded the crops are wholly or partially satisfactory. *T. Challis, Wilton House Gardens, Salisbury.*

—— Nearly all fruit trees blossomed freely, but the flowers were small and thin. The blossom seemed to "set" satisfactorily, but cold winds and continued rains at the end of April and beginning of May caused the fruits to shrivel and drop. It has proved the most difficult season to keep the fruit trees clean that I have experienced. *A. J. Morris, Compton Bassett Gardens, Calne.*

—— Early in the season the Apple crop was over the average, but it is now slightly under, and fruits continue to fall. Pears are a failure, and Plums and Cherries were greatly below the average yield. Peaches, Nectarines, and Apricots are failures. Strawberries were plentiful, but the crop was soon over. This county has a remarkable variety of soils. *Thomas Sharp, Westbury.*

—— Plum, Pear, Cherry, Peach, and Nectarine trees all blossomed freely, and gave every promise of good crops, especially Plums and Cherries, but these latter fruits dropped at the stoning period. Green and black fly has been very prevalent. The soil is rather heavy and shallow, on a very cold, yellow clay. *Henry Gandy, Longleat Gardens, Warminster.*

7. ENGLAND, N.W.

CUMBERLAND.—When Apples and Plums were setting there was promise of good crops of these fruits, but unfortunately cold winds, and probably other unfavourable conditions, caused the embryo fruits to drop. In the Damson district of Lyth, Westmoreland, these fruits are very scarce indeed. Apples in Cumberland are a good average yield, some varieties being better than others. *W. B. Little, Carlisle.*

LANCASHIRE.—The Apple crop varies considerably. In the Fylde and Ormskirk districts it is of very fair promise. The Pear crop is a very poor one. Bush and soft fruits were good, especially Gooseberries and Black Currants. *A. J. Sowman, Hort. Dept., County Offices, Preston.*

WESTMORELAND.—All fruit trees are clean and vigorous, owing to plenty of moisture in the spring. The free-bearing kinds of Apples have satisfactory crops, especially Annie Elizabeth, Lane's Prince Albert, New Northern Greening, and Lord Grosvenor. Pears are thin, after last year's heavy crop, also Plums. Small fruits were very good. Royal Sovereign Strawberries were splendid. The soil is thin and gravelly, and fruit trees require frequent removal to produce satisfactory crops. Lime and sulphur spraying is successful in destroying insect pests. V2 fluid, and other proprietary washes, are also very effective in checking pests and diseases. *W. A. Miller, Underley, Kirkby Lonsdale.*

(*To be concluded.*)

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 9.—The usual fortnightly meeting was held on Tuesday last, in the Vincent Square Hall, Westminster. There were good exhibits in the various sections, but the attendance was again very small.

Orchids were fewer than usual, but twenty novelties were submitted to the Orchid Committee, and two received Awards of Merit.

The Floral Committee recommended three Awards to new plants, and awarded fifteen Medals to groups. In the Fruit and Vegetable section two Gold Medals were awarded for collections of fruits. At the 3 o'clock meeting of the Fellows a lecture on "Stem Vegetables, their Dietetic Values and Various Ways of Cooking Them," was delivered by Mr. C. Herman Senn.

Floral Committee.

Present: H. B. May, Esq. (in the chair), and Messrs. G. Reuthe, W. J. James, T. Stevenson, J. W. Moorman, J. Dickson, J. F McLeod, W. Howe, C. Dixon, C. E. Pearson, R. W. Wallace, E. A. Bowles, C. T. Druery, and H. J. Jones.

Messrs. W. CUTBUSH AND SON, Highgate, exhibited miscellaneous greenhouse plants, including Fuchsia Thalia, Hydrangea Mme. Monillère, and Coleus Cordelia. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, occupied a central ground position with a fine collection of Clematis in pots. Lady Northcliffe (violet-blue), Madame E. André (crimson), and Mrs. George Jackman (white) were among the best varieties. A few plants of Nicotiana colossea variegata were also staged by this nurseryman as a separate exhibit. (Silver Flora Medal.)

Messrs. STUART LOW AND CO., Bush Hill Park, Enfield, staged Carnations, including Baroness de Brienen (pink), Princess Juliana (orange), and a new crimson variety named Pocahontas.

Carnation Enchantress Supreme, a new American sport from Enchantress, was shown finely by Messrs. ALLWOOD BROS. It is a very pleasing shade of pink, with a touch of salmon. It is slightly fragrant, and has large flowers with a rather bunched centre and flat guard petals around them.

Mr. C. ENGELMANN, Saffron Walden, showed Carnations, for which a Silver Banksian Medal was awarded.

Messrs. H. B. MAY AND SONS, Upper Edmonton, exhibited a choice collection of greenhouse Ferns, with a few Veronicas and Bouvardias. (Silver Banksian Medal.)

Messrs. DOBBIE AND CO., Edinburgh, again exhibited Collerette Dahlias, tastefully arranged. Queen Anne (bright orange-scarlet tipped with yellow) and Princess Louise (dark crimson with white collar) were noticeable. (Silver-gilt Banksian Medal.)

Messrs. CARTER PAGE AND CO., London, filled a large table with Dahlias of all types. (Silver-gilt Flora Medal.)

MESSRS J. CHEAL AND SONS, Crawley, staged a small collection of Cactus and Pæony-flowered Dahlias. The centre of the exhibit was occupied by a few vases of Dahlia Crawley Star.

Mr. J. BOX, Haywards Heath, arranged a very effective group on the floor, consisting principally of Phloxes, and edged with dwarf herbaceous plants. Tritoma Ophir and Lilium sulphureum were well shown, and a bold mass of Liatris pycnostachya, with its purple rocket-like spikes, made an effective corner-piece. (Silver-gilt Flora Medal.)

The GUILDFORD HARDY PLANT NURSERY showed hardy border flowers. Salvia angustifolia was particularly good. (Bronze Banksian Medal.)

Mr. A. LL. GWILLIM, Sidcup, exhibited hardy plants, including Asters, Heleniums and Solidagos, also finely flowered plants of tuberous-rooted Begonias. (Silver Banksian Medal.)

Messrs. WHITELEGG AND PAGE, Chislehurst, Kent, exhibited a selection of hardy plants, including Delphiniums, Phloxes, Lilium speciosum and L. tigrinum. (Bronze Flora Medal.)

Messrs. W. WELLS AND CO., Merstham, Surrey, arranged a fine exhibit of Phloxes, including the varieties Le Mahdi (violet), Elizabeth Campbell (pink), and Dr. Königshofer (orange-scarlet). (Silver Flora Medal.)

The WARGRAVE HARDY PLANT FARM, Liverpool Street, London, staged a collection of hardy herbaceous plants, principally Phloxes and Asters. Helenium Riverton Gem was well shown. (Bronze Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, arranged a collection of hardy plants and some shrubs. Sprays of Lapageria rubra superba were very attractive. (Bronze Banksian Medal.)

Messrs. RICH AND Co., Bath, exhibited a collection of Phloxes, including the variety Comtesse de Jarnac, with variegated foliage.

Mr. G. W. MILLER, Clarkson Nurseries, Wisbech, exhibited hardy herbaceous plants, including Kniphofia Nelsonii major, Lilium sulphureum, Iceland Poppies and Verbascums New Departure, and Harkness Hybrid. (Silver Banksian Medal.)

Mr. W. PETERS, Givons Gardens, Leatherhead, showed about a dozen vases of a new Aster, Dorothy Sturgis. It is pale rosy-mauve in colour and very stiff in habit.

Messrs. T. S. WARE, Ltd., Feltham, were awarded a Silver Banksian Medal for an exhibit of hardy flowers.

Mr. J. MACDONALD, Harpenden, staged a striking exhibit of ornamental grasses of great interest botanically. (Silver Banksian Medal.)

AWARDS OF MERIT.

Aster Feltham Blue, a vigorous variety of the Novi-Belgii section, with dark, wiry, erect stems and very freely-branched, broad panicles of flowers. The individual flowers are about 1¼ inch in diameter, with lavender-coloured ray florets. (No. 204, shade 1, of the *Répertoire de Couleurs*.) Shown by Messrs. T. S. WARE, LTD.

Dahlia Inchmarnock.—A Collerette variety, with eight oval, salmon-scarlet ray florets, each with a small bunch of creamy yellow quills at its base. The quills are about half the length of the rays and are mostly lightly touched with red. The whole flower is about 4 inches in diameter, so that the variety is more notable for freedom and neatness than size. Shown by Messrs. DOBBIE AND Co.

Salvia uliginosa.—This species is a native of the marshes and river banks in Brazil, but Mr. Turner describes it as a hardy herbaceous perennial, and as it is a near ally of S. azurea and S. Pitcheri, also American species, it may prove, like these, hardier than a knowledge of their homes would suggest. It is a vigorous grower, reaching 4 to 6 feet in height, with close Betonica-like heads of flowers in long, dense spikes terminating the growths. The lip of the flower is about ½ inch in diameter, and is of a delightful shade of pure blue. The foliage is Mint-like, thin-textured, glabrous, about 3 inches long by ½ inch wide, and sharply serrate at the margin, each pair of leaves being separated by long internodes. Shown by Mr. C. TURNER, Slough.

CULTURAL COMMENDATION.

This award was made for a fine specimen of *Brunsvigia Josephinae* (see *Gard. Chron.*, March 25, 1905, fig. 74), shown by Mr. G. W. TYSER, Oakfield, Mortimer, Berks (gr. Mr. S. W. Sherlock). The stout, erect stem, 2 feet high, carried a hemispherical umbel, 2 feet in diameter, of some forty flowers, each held out rigidly by stout glaucous purplish pedicels. The species was given a First-Class Certificate in 1895, and is of special interest as a reputed parent of the very fine seedling Amaryllis Belladonna which was given an Award of Merit under the name "Kew variety" in 1911, but is now in commerce as A. Parkeri.

Awards to Antirrhinums.

The following Awards to Antirrhinums grown under trial at Wisley, and recommended by a deputation from the Floral Committee on the 29th ult., were confirmed by the Council on the 9th inst.

AWARDS OF MERIT.

No. 3, Amber Queen (BARR AND SONS, Covent Garden); No. 4, Amber Queen (WATKINS AND SIMPSON, Covent Garden); No. 12, Beacon (J. VEITCH AND SONS, LTD., Chelsea); No. 13, Beauty (BARR AND SONS); No. 17, Bonfire (SIMPSON, Birmingham); No. 18, Bonfire (ROBERT SYDENHAM, LTD., Birmingham); No. 37, Carmine Queen (WATKINS AND SIMPSON); No. 41, Coccinea, No. 56, Crimson King, No. 67, Daphne (these three, HURST AND SONS, Hounsditch); No. 69, Defiance, No. 80, Fire King (these two, R. H. BATH, LTD., Wisbech); No. 89, Golden Morn (WATKINS AND SIMPSON); No. 90, Golden Queen (R. H. BATH, LTD.); No. 104, Maize Queen, No. 111, Moonlight (these two, DOBBIE AND Co., Edinburgh); No. 122, Pink, No. 135, Queen Victoria (these two, J. VEITCH AND SONS, LTD.); No. 149, Rosy Morn (WATKINS AND SIMPSON); No. 151, Salmon Pink (R. VEITCH AND SON, Exeter); No. 164, Sunset (DICKSON AND ROBINSON, Manchester); No. 178, White Beauty, No. 182, White Queen (these two, DOBBIE AND Co.); No. 185, Yellow (J. VEITCH AND SONS, LTD.); No. 186, Yellow King (BARR AND SONS); No. 193, Yellow Queen (HURST AND SONS).

HIGHLY COMMENDED.

No. 1, Albino (F. C. HEINEMANN, Erfurt); No. 21, Brilliant (BARR AND SONS); No. 24, Brilliant Rose (R. H. BATH, LTD.); No. 30, Buff Queen (WATKINS AND SIMPSON); No. 45, Coral Red (J. VEITCH AND SONS, LTD.); No. 58, Dainty (DICKSON AND ROBINSON); No. 63, Dainty Queen (ROBERT SYDENHAM, LTD.); No. 82, Firelight (R. H. BATH, LTD.); No. 83, Galatea (BARR AND SONS); No. 112, Nobile (HURST AND SONS); No. 126, Pink Beauty, No. 128, Pink Queen (these two, WATKINS AND SIMPSON); No. 145, Roseum (J. CARTER AND Co., Raynes Park); No. 155, Scarlet-Carmine (DICKSON AND ROBINSON); No. 183, White Queen, No. 189, Yellow Prince (these two, HURST AND SONS).

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair; Messrs. Jas. O'Brien (hon. secretary), J. Wilson Potter, R. G. Thwaites, A. McBean, T. Armstrong, W. Cobb, C. H. Curtis, J. Charlesworth, W. H. Hatcher, H. G. Alexander, W. P. Bound, W. H. White, S. W. Flory, W. Bolton, Gurney Wilson, R. A. Rolfe, Stuart Low, F. Sanders, and Sir Jeremiah Colman, Bart.

There was a bright and interesting display of Orchids, and twenty new plants were submitted for awards, but only two Awards of Merit were granted.

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, staged a fine group of splendidly-grown plants, for which a Silver-gilt Flora Medal was awarded. The leading feature was a number of specimens of their dark and finely-shaped Lælio-Cattleya Geo. Woodhams, which secured an Award of Merit. With them were the very handsome Lælio-Cattleya Baroness Schröder Orchidhurst Variety, probably the best L. Jongheana hybrid, the large blooms having broad sepals and petals tinged and veined with rose-pink, the petals also having purple striation and veining. The lip is rich buttercup-yellow, with a clearly-defined, ruby-crimson front; L.-C. Armstrongiæ Orchidhurst Variety (L.-C. Geo. Woodhams × C. Iris), a beautiful rosy-mauve flower; L.-C. Rainbow (C. Iris × L.-C. Phryne), yellow-tinged lilac, and of good shape; Cattleya Prince John (Hardyana × Dowiana Rosita), a fine selection of Cattleya Iris, and several other showy hybrids, including the pretty Miltonioda Harwoodii, and the singular little Kefersteinia laminata.

Messrs. CHARLESWORTH AND Co., Haywards Heath, were awarded a Silver Flora Medal for an excellent group, at the back of which were the graceful sprays of white and purple Oncidium incurvum, with a selection of Dendrobium Phalænopsis Schröderianum of various tints of rose. Several brightly-coloured Odontiodas, the rare Epidendrum costa-ricense, with white, fringed-lipped flowers; the remarkable Ornithidium coccineum, with two totally dissimilar forms of growth, the elongated leafy growths bearing a profusion of pretty red flowers; the rare Calanthe violacea, whose flowers are violet colour, the bracts also being red; Cycnoches Egertonianum, of the dark purple type; and Spathoglottis plicata Micholitzii.

Messrs. HASSALL AND Co., Southgate, were awarded a Silver Banksian Medal for a compact group of finely-grown hybrids, in which were a clear white Brasso-Cattleya Queen Alexandra, some good C. Iris, C. Lord Rothschild albescens, several of the pretty and fragrant C. iridescens, C. Nestor (Harrisoniana × Iris), and C. Euphrasia, of very fine colour.

Messrs. J. AND A. McBEAN staged an effective group of bright-red Odontiodas, the best of which was O. Vuylstekeæ Brightness, a large flower with a clear white ground, showing up the deep scarlet markings; Brasso-Cattleya Digbyano-Mendelii Distinction, a large, white flower, with a purple line on the front of the lip; B.-C. Madame Chas. Maron, the richly-coloured Lælio-Cattleya Geo. Woodhams, and other Lælio-Cattleyas; a good selection of finely-grown Odontoglossums, the white Dendrobium Dearei, and their remarkable new bigeneric hybrid, Adaglossum Juno (Ada aurantiaca × Odontoglossum Edwardii), which was referred to the Scientific Committee.

R. G. THWAITES, Esq., Christchurch Road, Streatham (gr. Mr. J. M. Black) sent Odontoglossum Wilsonii (Vuylstekei × Rolfeæ), a perfectly-shaped flower of large size, the sepals and petals being clear yellow, with the inner two-thirds blotched and banded with chocolate-red. Lip broad, white, with violet markings in front of the crest.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood) showed two well-flowered specimens of the handsome Cattleya Warscewiczii Countess of Derby, with pure-white sepals and petals, and rich-purple lip; Brasso-Cattleya Pittiana, B.-C. heatonensis, Cattleya Thayeriana albens, and C. Sonree d'Or.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins) showed Lælio-Cattleya Mrs. Donald Macmaster (L.-C. luminosa × C. Dowiana aurea), an attractive flower, with Indian-yellow sepals and petals with thin light purple lines; lip ruby-red, with thin gold lines at the base.

PANTIA RALLI, Esq., Ashtead Park, Surrey, sent Lælio-Cattleya Anthela (L.-C. Phryne × C. Warscewiczii), a pretty hybrid with some resemblance to Cattleya Rex. Sepals and petals greenish canary-yellow, lip light rose with paler margin, and yellow lines from the base.

Mr. E. H. DAVIDSON, Orchid-grower, Orchid Dene, Twyford, showed a selection of rare hybrids, which included Sophro-Cattleya Saxa Orchid Dene Variety, a large flower of a clear salmon colour, with darker veining; S.-C. Thwaitesii, darker in colour; a beautiful example of Odontoglossum Ceres (Rossii rubescens × Rolfeæ), and a brightly-coloured Sophro-Lælio-Cattleya.

Lieut.-Col. Sir GEO. L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander) sent a fine form of his Lælio-Cattleya Lustre, for which awards had been given to three forms. The present flowers were large and of fine substance, white tinged and veined with rose, a purple line on the petals, and with a fine claret-crimson lip.

Messrs. SWAN AND PRICE, St. Albans, sent two interesting hybrid Cypripediums.

Sir JEREMIAH COLMAN, Bart., Gatton Park (gr. Mr. Collier), showed a fine mass of Spathoglottis Zebrina (Fortunei × plicata), with numerous sprays of pale yellow flowers, some of them tinged with lilac.

HYBRID-ORCHID REGISTER.

The honorary secretary, Mr. JAS. O'BRIEN, called attention to the inconvenience caused by the want of a proper record of new hybrids flowering for the first time, and which were passed unnoticed unless sufficiently developed to secure some award. Later the same cross may be shown again, probably by another raiser, under a different name, and in some cases awards have been secured which had to be altered when the prior name had been discovered.

He, therefore, proposed the following resolution to go before the Council, which was seconded by Mr. J. WILSON POTTER, and carried unanimously:—

"In view of the necessity of securing the earliest possible records of new hybrids, and to supplement the list of plants which have received Awards, the Orchid Committee recommend that a new Record, to be called the Hybrid Orchid Register, be established, and that Orchid-raisers and growers be asked to bring their new plants when in flower for the first time, even although they may not be sufficiently developed to enter for Awards, and to enter the name, parentage, and name of the exhibitor of the plant on a Registration form, to go before the Committee. After testing to prove that the name is in order, it shall be entered on the Society's Hybrid Orchid Register, and, once recorded, the name must be recognised for all crosses of similar parentage when subsequently shown, unless valid reason can be given to prevent it."

Awards of Merit.

Laelio-Cattleya Geo. Woodhams (*C. Hardyana* × *L. purpurata*) from Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells. One of the showiest of Lælio-Cattleyas, a fine grower and free bloomer, one of the compact specimens having three spikes, with twelve flowers—four each. The sepals and petals, which vary in tint in different specimens, are of a bright mauve colour, the large and finely displayed lip almost entirely deep claret-crimson, with some yellow markings at the base.

Odontioda Seymourae Orchidhurst Variety (*Charlesworthii* × *Bradshawiae*), from Messrs. Armstrong and Brown. A brilliant flower of the fine substance of O. Charlesworthii, and of an intense vermilion-scarlet, the colour on the reverse side being rather the darker, the crest yellow. The flower is broad and well displayed.

Cultural Commendation.

To Mr. W. H. White, Orchid-grower to Sir Trevor Lawrence, Bart., for a fine plant of the rare Zygopetalum maxillare Sanderianum, which had received an Award of Merit, Sept. 24, 1912.

To Mr. W. H. White for Zygopetalum maxillare, with seven spikes.

To Mr. G. B. Lees (gr. to E. de Quincey, Esq., Oakwood, Chislehurst) for a fine specimen of Bulbophyllum Medusæ, with many spikes of cream-white flowers.

Fruit and Vegetable Committee.

Present: W. Poupart, Esq. (in the chair), Messrs. W. Bates, A. Grubb, J. Willard, W. Pope, A. R. Allan, H. Markham, A. Bullock, W. Crump, G. Reynolds, Geo. Wythes, John Harrison, H. Somers Rivers, J. Davis and S. T. Wright (hon. sec.).

The exhibit of fruit shown by Lady Nunburnholme, Warter Priory, York (gr. Mr. F. Jordan), was the outstanding feature of the show, and was awarded a Gold Medal. It consisted of a representative collection of choice dessert fruits, the produce of pot-grown trees, and was admired as much for excellence of arrangement as the high quality of the various dishes. Yorkshire is not generally regarded as a suitable county for fruit growing, yet rarely has such a magnificent exhibit of fruit been seen at these shows. At the back were well-grown bunches of Muscat of Alexandria, Black Alicante, Madresfield Court, Black Hamburgh and Barbarossa Grapes—in all sixteen bunches. But the premier dishes were of Apples and Pears. Peasgood's Nonesuch Apples were beautiful specimens, and many of them turned the scale at 1lb. Fruits of Cox's Orange Pippin were coloured to a high degree, whilst Gascoyne's Seedlings were also very meritorious. The fruits of Triomphe de Vienne and Marguerite Marillat Pears were magnificent, and there were good dishes of Conference, Doyenné du Comice and Louise Bonne of Jersey. There were also excellent Figs, Plums, Peaches, Nectarines, and seventeen splendid Melons.

A Gold Medal was also awarded to Cecil F. Raphael, Esq., Porter's Park, Shenley (gr. Mr. A. Grubb), for a collection of fruits—Grapes, Nectarine, Peaches, Melons, Cherries, Plums, Pears and Apples. This very large exhibit included numerous varieties of the various kinds of fruits enumerated. There were Muscat of Alexandria, Madresfield Court and Lady Downes Grapes; Souvenir du Congrès, Beurré Diel, Williams' Bon Chrêtien and Doyenné du Comice Pears, Pineapple Nectarines, Royal George Peaches, Kirke's, Lawson's Golden Gage and Late Transparent Gage Plums, and numerous sorts of culinary and dessert Apples.

Messrs. Laxton Bros., Bedford, showed several seedling Apples. The most promising was a pretty red-streaked variety named the Cropper, raised from Potts's Seedling × Lady Sudeley.

Messrs. Stuart Low and Co., Enfield, staged numerous Figs and Vines in pots, for which a Silver-Gilt Knightian Medal was awarded.

Messrs. Herbert Chapman, Ltd., Rotherside Gardens, Rye, exhibited fruits of Tomato Autumn Dainty.

Cultural Commendation.

A Cultural Commendation was awarded for a dish of Figs exhibited by Sir Albert Rollitt, Chertsey.

NATIONAL DAHLIA.

September 9-10.—The exhibition of the above Society, which was held at the Crystal Palace on these dates, proved to be very successful. The quality of the blooms was superior to that of last year, and the exhibits were sufficiently numerous to comfortably fill the transept. Although large numbers of seedling blooms were presented, the Society exercised a wise discretion in strictly limiting the certificates. Mr. G. L. Caselton arranged many plants from the Palace Gardens, and materially assisted in making an attractive show. The Society and Mr. J. B. Riding, the new hon. secretary, are to be congratulated on having so fine a show in this unfavourable season.

NURSERYMEN'S CLASSES.

Show and Fancy Dahlias.

Forty-eight Blooms of Show Dahlias.—The only exhibitor in this class was Mr. S. Mortimer, Rowledge, Surrey, who arranged a noteworthy collection. The very finest blooms were those of yellow, purple, and of deep red colours. The first-named included Wm. Powell, Esmond, and Buttercup; the purples were Wm. Rawlings and F. W. Girdlestone; whilst the pick of the deeper shades were Standard, George Rawlings, and James Vick.

Twenty-four Blooms of Show Dahlias.—Of the four exhibits in this class the best was from Messrs. Keynes, Williams, and Co., Salisbury, who staged a very even collection of fresh blooms of such varieties as Colonist (shaded crimson lake), Gracchus (buff yellow), Emin Pasha (crimson), and Agnes (yellow); 2nd, Mr. C. Turner, Slough, who had exceedingly good blooms of Colonist, R. T. Rawlings, Marjorie, and Seraph.

Twelve Blooms, Fancy Dahlias.—Mr. C. Turner, Slough, who showed a very good dozen, was a fairly easy first; his best blooms were of Wm. Pemberton, F. W. Girdlestone, Roy Seale, W. G. Head, and Dandy; 2nd, Mr. M. V. Seale, in whose stand Thos. Saunders and Duchess of Albany were conspicuous.

Cactus Dahlias.

Eighteen Varieties in Bunches of Six Blooms of Each.—For 12 consecutive years the first prize in this important class was won by Messrs. J. Stredwick and Son, but this year the honour deservedly fell to Messrs. J. Burrell and Co., Cambridge, who showed an excellent collection of large, fresh blooms of the best varieties. The white varieties (Albatros and Prima Donna) and Red Admiral were especially fine. Although his collection was second, Mr. Stredwick exhibited several vases of great value; 3rd, Messrs. J. Cheal and Sons, Crawley.

Twelve Varieties in Bunches of Six Blooms of Each. — The quality of the blooms in Mr. M. V. Seale's exhibit, which received the first prize, was not quite equal to that of the foregoing, but many of them were very fresh and bright; there was no competition.

Forty-eight Blooms, distinct varieties. — Messrs. J. Burrell and Co. won the 1st prize with an exceptionally fine collection. The blooms were so large that the regulation space of 6 inches from cup to cup on the show boards was scarcely adequate to display them. The individual flowers were in such magnificent condition as to render a selection difficult, but if a choice had to be made it would probably include Olympic Monarch, New York, H. H. Thomas, Prima Donna, Julia, Glory of Wilts, and Herod; 2nd, Messrs. Keynes, Williams, and Co., whose blooms were not quite so large or so bright, but still of much more than average quality; 3rd, Messrs. J. Stredwick and Son.

Twenty-four Blooms, distinct.—The quality of the first prize exhibit in this class was also excellent. Messrs. C. Carrington and Sons, Vicarage Avenue, Derby, won the premier award, and showed such splendid varieties as Kingfisher, Mrs. Stredwick, Nantwich, New York, and J. B. Bryant; 2nd, Mr. H. Woolman, Shieley, Birmingham, who could not have been very many points behind the winner; 3rd, Mr. M. V. Seale.

Twelve Varieties Garden Cactus Dahlias.—The two exhibits which were arranged in vases on separate tables were very attractive features of the show. The first prize was awarded to Messrs. J. Cheal and Sons, who exercised taste in arrangement. The most valuable of the varieties shown were Golden Eagle, Rose Queen, Hon. Mrs. Greville, Snowdon, Mrs. Freeman Thomas, Mrs. F. Paton, and Helene; 2nd, Mr. M. V. Seale, who showed Coral, Lightship, Mary Pourrier and Golden Plover in very good condition.

Twenty-four Bunches of Pompon Dahlias.—Mr. C. Turner won the first prize with a wellnigh perfect collection of these charming little flowers. The brightest blooms were of Little Beeswing, Bacchus, Phyllis, and Cyril, whilst Nerissa (rosy mauve), Ideal (yellow) and Glow were also very attractive; 2nd, Messrs. J. Cheal and Sons, whose collection was strong in whites and the yellow shades; 3rd, Mr. M. V. Seale.

Twelve Bunches of Pompon Dahlias.—The collection which won the 1st prize for the only exhibitor (Messrs. J. Burrell and Co.) was composed of exceedingly dainty blooms. The varieties Little Beeswing, Eros, and Bacchus were very bright.

Twelve Varieties Collerette Dahlias.—Mr. Charles Turner, Slough, was a very easy winner in this class, which requires 10 flowering stems of 12 varieties arranged in separate vases; 2nd, Mr. J. Emberson, Walthamstow; 3rd, Messrs. J. Cheal and Sons.

Twenty-four Bunches of Single Dahlias.—Messrs. J. Cheal and Sons, who showed a very bright collection of well-formed blooms, won the 1st prize in this class; 2nd, Mr. M. V. Seale.

Vase of Pæony-Flowered Dahlias.—Mr. C. Turner continued his successes with the decorative varieties by winning the 1st prize with a boldly-arranged vase of fine blooms; 2nd, Messrs. Keynes, Williams and Co.

Amateurs' Classes.

Twenty-four Show or Fancy Dahlias.—There were three exhibitors, and the 1st prize and Silver Challenge Cup were deservedly awarded to Mr. S. H. Cooper, The Hamlet, Chippenham, whose exhibit compared favourably with those in the open classes. Prince of Denmark, Mrs. Saunders, Tom Jones, Mrs. Gladstone, and Chieftain are the names of the outstanding varieties; 2nd, Mr. G. Densley, Nag's Head Hill, Bristol, who showed a fresh and bright collection of slightly smaller blooms.

Twelve Blooms of Show or Fancy Dahlias.—Mr. S. H. Cooper also won the 1st prize and Silver Challenge Cup in this class, showing another exceedingly good collection of similar varieties; 2nd, Mr. G. Densley.

Six Varieties Garden Cactus Dahlias.—The collection from the Rev. A. Bridge, Worth Rectory, Crawley, included especially-good blooms, but the effect was marred by too much greenery; 2nd, Mr. W. Howard, Wood View, Chesham, Buckinghamshire.

The Silver Challenge Cup offered by the Crystal Palace Co. for the best 9 varieties of Cactus Dahlias in bunches of 3 each, was again won by Mr. F. W. Fellowes, King's Walden, Hitchin, who showed an especially fine collection; 2nd, Rev. A. Bridge.

The best 24 Cactus blooms were shown by Mr. H. Pearman, Glenross, Nantwich; this splendid collection included such varieties as John Riding, Harold Pearman, Etruria, Glory of Wilts and Advance, in very fine condition; 2nd, Mr. A. H. Farmer, Walthamstow.

There were 9 exhibitors in the class for 12 blooms of Cactus Dahlias, and each stand was worthy of a prize. Mr. H. Pearman won the premier award; 2nd, Mr. R. C. Unwin, Histon, Cambridge.

Although the Pompon Dahlias in this section were not quite equal to those in the open classes, the 12 bunches which won the 1st prize for Mr. H. Brown, Luton, Beds, were a very praiseworthy collection; 2nd, Mr. A. P. Ironsides, The Hamlet, Chippenham.

The Rev. A. Bridge won the 1st prize for 12 bunches of single Dahlias with a very attractive set of blooms; 2nd, Mr. A. Brown, Seagrave, Bedfordshire. Of the 4 exhibits of 12 Cactus Dahlias in 3 blooms of 4 varieties, the best was shown by Mr. A. H. Farmer; 2nd, Rev. A. Bridge.

In the classes confined to competition amongst amateur growers who do not employ a whole-time gardener, the 1st prizes were won by Mr. A. F. Tofield, Chandlersford, for 2 vases of garden Cactus Dahlias, for 12 blooms, and for 6 blooms

of Cactus Dahlias; Mr. C. LUCKIN, Pullborough, for 6 varieties of Cactus, and for 6 of single Dahlias; Mr. J. A. JARRETT, Anerley, London, for 6 vases of Collerette, and for 6 of any distinct varieties of Dahlias arranged with appropriate foliage; Mr. A. JEFFRIES, Chippenham, for 12 blooms of show or fancy Dahlias; Mr. R. BURGIN, Bedford, for 6 blooms of show or fancy Dahlias; and Mr. G. DAVIDSON, Thornton Heath, for 6 bunches of Pompon Dahlias.

OPEN CLASSES.

Messrs. J. CHEAL AND SONS, showing Freedom, Martha, Queen of Pinks, The Bride, Firefly, and similar varieties, were awarded the 1st prize for 12 bunches of Pompon Cactus Dahlias; 2nd, Mr. M. V. SEALE, who included Mrs. Brandt, Brilliance, and Modesty.

The best 6 blooms of any one Cactus variety were of F. Wenham, shown by Mr. H. PEARMAN; 2nd, Celestial, shown by Messrs. KEYNES, WILLIAMS AND CO.

Mr. S. MORTIMER won the 1st prize in Class 46 for 6 blooms of Show or Fancy Dahlias.

The 1st prize shower bouquet was arranged by Mr. M. V. SEALE, who used the miniature Cactus variety Mrs. Brandt with very good effect; 2nd, Mr. C. J. BLAKE, West Hill, Putney.

Mr. A. BROWN arranged a charming basket of Dahlias; 2nd, Mr. J. EMBERSON.

Messrs. J. CHEAL AND SONS showed the best 12 bunches of Fancy Single Dahlias.

Messrs. J. STREDWICK AND SON'S 1st prize exhibit of Fancy Cactus Dahlias included Tango, Pierrot, Magic, and Jupiter; 2nd, Mr. M. V. SEALE.

There was a good competition in the class for 6 vases of Decorative Dahlias. The 1st prize was awarded to Mr. CHAS. TURNER; 2nd, Messrs. J. CHEAL AND SONS.

First-Class Certificates

were awarded to the following varieties :—

Dorothy Hawes: A Cactus variety with narrow, pointed, incurving and interlacing florets of uncommon rosy-purple colouring. The Gold Medal offered for the best seedling was also bestowed on this splendid show bloom.

Pierrot: A well-formed Cactus variety with white-tipped yellow florets, which are flattish and slightly incurved.

E. F. Hawes: A flesh-pink-coloured Cactus variety, which has exceptionally long stout stalks. The nearly straight florets will not commend this variety to the exhibitor, but it possesses considerable decorative value.

John Green: A Pæony-flowered variety that may be described as the most attractive in the show, and was said to have excelled all the other varieties at the Cardiff trials. It is somewhat suggestive of Bayard and of Geisha, the colours being bright yellow at the base and vivid scarlet on the outer halves of the florets. The blooms are set at right angles to the long stalks, which bear them well above the foliage. The above varieties were raised and shown by Messrs. J. STREDWICK AND SON.

Rosa: A well-formed Pompon variety of rather large size, and of a bright mauve shade of colour. The growth indicated that it is a good garden variety. Shown by Messrs. KEYNES, WILLIAMS AND CO.

Wee Gracie: A dainty little Pompon variety, also of the ideal shape; the mature florets are white, and the blooms have pale heliotrope centres. This also appears to be suitable for garden decoration. Shown by Mr. J. T. WEST.

NON-COMPETITIVE EXHIBITS.

Messrs. HOBBIES, LTD., Dereham, set up a collection of cut blooms in which the Collerette varieties predominated. (Gold Medal.)

Mr. J. T. WEST, Brentwood, filled his accustomed place with a very bright display of the various types of Dahlias, the Pompons and Miniature Cactus varieties being especially attractive. (Small Gold Medal.)

Mr. J. B. RIDING, Chingford, Essex, specialised the decorative varieties, and the arrangement of these fully illustrated their great ornamental value. Amongst the Collerette varieties we noted Giant of Lyons, a velvety, chestnut-red, with flushed, straw-coloured quills. (Small Gold Medal.)

Messrs. T. S. WARE, LTD., Feltham, Middlesex, filled the front of a large exhibit with an array of exceedingly good Cactus blooms, arranged in batches of distinct varieties. The tall stands in the background were attractively arranged with decorative varieties and sprays of Michaelmas Daisies. (Small Gold Medal.)

Messrs. A. H. COLE, LTD., Camberwell New Road, London, and Mr. H. WOOLMAN, Shirley, Birmingham, showed good collections of Cactus and Collerette Dahlias. (Silver Medals.)

NORTHUMBERLAND, DURHAM, AND NEWCASTLE-ON-TYNE BOTANICAL AND HORTICULTURAL.

SEPTEMBER 2, 3, and 4.—The annual show of this Society was held on these dates in the Recreation Grounds, Newcastle-on-Tyne. The Society has been entirely reorganised, the date of the show being altered from July to September. This latter alteration seems to have acted in a favourable manner, for the exhibits in general were much more satisfactory than usual, and in most of the classes there was keen competition. For a group of miscellaneous plants, arranged in a space of 12 feet by 10 feet, Mr. H. H. HILLIER, Green Park, Darlington, obtained the 1st prize with a very tasteful collection, chiefly of various Orchids. Messrs. CARNEGIE AND CO., Newcastle, were awarded 2nd prize, their group containing some very fine foliage plants. In the class for a decorated dining table Earl GREY, of Howick House, Lesbury (gr. Mr. W. H. Lambert), was placed 1st, and Sir R. J. GRAHAM, Carlisle (gr. Mr. G. F. Hallett), 2nd, out of thirteen competitors. For twelve bunches of hardy flowers, Messrs. HARKNESS AND SONS, of Bedale, Yorks, obtained the 1st prize. Their exhibit consisted of fine specimens of Helianthus, Gladioli, Gaillardias, Poppies, etc. Messrs. GIBSON AND CO., of Leeming Bar, were placed 2nd. For the class open to amateurs for three bunches of herbaceous flowers the 1st prize was won by Mrs. MAYNARD PROUD, of East Layton Hall, Darlington (gr. Mr. G. Finlay); 2nd, Mr. J. W. SMITH, Wensleydale, Aysgarth, Yorks. For a collection of Tree Carnations in vases, occupying a space of 6 feet by 3 feet, F. STRAKER, Esq., Angerton Hall, Morpeth (gr. Mr. C. L. Cawkill), obtained the 1st prize for a very fine collection; 2nd, W. E. HEDLEY, Esq., Dilston, Corbridge (gr. Mr. J. Shaw). In the class for six vases of border Carnations the Rev. W. MCLEAN BROWN, Gosforth, gained the 1st prize, and J. R. SCOTT, Esq. (gr. Mr. R. Elliott), Binton, was placed 2nd. For 12 bunches of distinct varieties of Sweet Peas O. W. E. HEDLEY, Esq., was again successful. His specimens of Barbara, Dobbie's Cream, May Campbell, John Ingman, Flora Norton, Nation, Hercules, Sutton's Sunproof Crimson, and R. F. Felton were all of the finest quality; 2nd, Mrs. MAYNARD PROUD. There were good exhibits in the Rose classes, the general quality being excellent. Messrs. HUGH DICKSON, Belfast, won the 1st prize for 24 blooms in not fewer than 12 varieties; 2nd, Messrs. HARKNESS AND SONS. Messrs. DICKSON also won the 1st prize in the class for 12 blooms of not fewer than eight varieties; 2nd, the Rev. R. HEDLEY, Kirkwelpington. For 12 hybrid Tea Roses in not fewer than six varieties Mr. T. PARK, of Bedale, was awarded the 1st prize.

The classes for cut flowers were well contested, especially those restricted to local growers, which excited keen competition.

The fruit classes were not quite so full, but the quality of the exhibits was well up to the standard for these shows, and the interest well maintained. For six dishes of fruit, distinct, the Rt. Hon. the Earl of LONDESBOROUGH, Market Weighton (gr. Mr. J. C. McPearson), won the 1st prize. His exhibit consisted of Muscat of Alexandria and Madresfield Court Grapes, Clapps' Favourite Pears, Pineapple Nectarines, Violette Hative Peaches, and Melons. In the class for four bunches of Grapes the Earl of LONDESBOROUGH was again successful with fine bunches of Madresfield Court and Muscat of Alexandria; 2nd, Lady COWELL, Clifton Castle, Bedale (gr. Mr. J. R. Gardiner), the bunches of Gros Colman in this exhibit being especially fine. The Earl of LONDESBOROUGH again carried off the 1st prize for two bunches of white Grapes; whilst for two bunches of black Grapes Lady COWELL was 1st.

In the open vegetable classes Leeks were a new feature. There were a large number of exhibits in these classes, well grown and neatly staged, contributed chiefly by pitmen. Mr. J. WEAR, Felton Mills, Felton, showed specimens of this vegetable 14 inches long and 3 inches in diameter, for which he was awarded the 1st prize; 2nd, Mr. THOMAS SMITH, Frarstones. For three Parsnips the Earl of DEVON gained the 1st prize, and this nobleman also excelled for Beans and Onions. For two Cauliflowers Miss MUSCHAMP, Corbridge (gr. Mr. W. Mark), was placed 1st, and for Celery Mr. W. BEAN, Colchester, took the first place. For a collection of vegetables of six kinds Mr. J. WEAR was successful, Mr. R. SHIELD, of Swalwell, taking the 2nd prize. The local classes, chiefly consisting of single dishes and nurserymen's produce, were well contested, and some of the exhibits were highly satisfactory as to quality and arrangement.

NON-COMPETITIVE EXHIBITS.

Messrs. LAING AND MATHER, of Kelso, exhibited hardy flowers, annuals, Alpines, Carnations, and Ferns. Messrs. C. IRVINE AND SONS, Jedburgh, showed Phloxes and Pentstemons, for which they were awarded a Gold Medal. Messrs. JOHN FORBES, LTD., of Hawick, staged a group of border flowers, Phloxes, Violas, Pentstemons, and border Carnations (Gold Medal). Messrs. KENT AND BRYDON showed a well-arranged rockery garden, the border at the back being filled with herbaceous flowers, and a Gold Medal was awarded to the exhibit. Messrs. ED. WEBB AND SONS, Stourbridge, exhibited an attractive collection of Sweet Peas, Gladioli, Liliums, and hardy flowers, grouped round a fine exhibit of fruit and vegetables. A Gold Medal was awarded to this group, and also to that of Mr. LAWRENSON, of Yarm-on-Tees, who showed a collection of hardy herbaceous flowers and a rockery arranged with a variety of Alpine plants. Mr. LAWRENSON also exhibited perpetual-flowering Carnations. A Gold Medal was awarded to Messrs. DICKSON'S, Chester, for hardy border flowers. Messrs. YOUNG AND CO., of Cheltenham, showed well-grown Carnations, and Messrs. FINNEY'S, of Newcastle-on-Tyne, staged floral designs. To both these exhibits the Gold Medal was awarded. Messrs. MICHIE AND CO., of Alnwick, showed hardy shrubs and flowering plants, and were awarded a Silver Medal.

LANCASTER AGRICULTURAL SOCIETY.

SEPTEMBER 3. — The Lancaster Agricultural Show, held on the above date, was distinguished by a large number of very creditable exhibits. The number of entries was higher than last year, and a marked improvement in quality was to be seen in several of the classes.

In the class for twelve Roses, Mr. GERALD GARNETT, Wyreside, showed a collection far in advance of any other. It included first-class specimens of Dean Hole, Leslie Holland, Jonk. J. L. Mock, and White Maman Cochet. Messrs. BARWISE, of Burnley, were placed second for good, though rather small, blooms. In the competition for six Roses Mr. GARNETT was again first, and was followed by Mrs. RUSHTON, of Garstang, who showed some very fine specimens. In the class for vases of Roses, Mr. GARNETT headed the list, followed by Messrs. BARWISE. Cactus Dahlias were well shown, Mr. T. HUNTINGTON, Bay Horse, taking first place, and Mr. A. CORLESS, Scotforth, second. For show Dahlias this order was reversed, and for Pompon Dahlias, Messrs. ROBINSON took the first prize. Carnations and Picotees were good, but not strikingly so. Mr. GARNETT won the first prize, and Mr. G. HOLME, of Bolton-le-Sands, the second. In the class for twelve Sweet Peas, Mr. S. F. CURTIS was placed first for a fine collection, Barbara and Thomas Stevenson being especially meritorious. Mrs. PORTNELL, Preston Patrick, took the first prize for six vases, but not many of the other exhibits showed exceptional merits. For hardy herbaceous flowers, Mr. GARNETT was successful in obtaining the first prize with a representative collection. Mr. G. BARROW gained the first

prize for Asters, and Mr. Carradice for single Asters. The class for six vases of Hardy Annuals brought some considerable competition. Mr. W. Goodwin was placed first, and Mr. J. Sturzaker second. Miss Foster gained a first prize for an épergne of Sweet Peas, very tastefully arranged, and for a vase of the same flowers the Rev. A. R. Tomlinson was awarded a medal. There were many creditable exhibits in the fruit section, as fruit is grown to a large extent in the district. Mr. A. Corless won the first prize for both dessert and culinary Apples.

Vegetables were on the whole very fine, the root-vegetables being the weakest. In the Potato classes the chief winners were Messrs. W. Hockin, Scotforth; J. Bleasdale, Nether Kellet; and T. Brighouse, Winmarleigh. In other vegetables, the successful competitors were Messrs. W. Goodwin, Robinson, Barrow, Parkinson, and Shakeshaft.

Several competitors took part in the contest for Table Decorations, and there were some very well-arranged and artistic exhibits. Mrs. S. F. Curtis was awarded the first prize, and Miss Foster, whose table was very nearly as good, took second place.

SCOTTISH HORTICULTURAL

September 2.—The monthly meeting of this Association was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on the 2nd inst. Mr. J. Phillips, the senior vice-president, was in the chair, and there was an attendance of ninety members.

Mr. George Stuart, Lecturer in Horticulture at the Edinburgh and East of Scotland College of Agriculture, gave a lecture and demonstration on "Fruit and Vegetable Bottling." The preserving of fresh fruit and vegetables by means of sterilisation was, Mr. Stuart said, comparatively little known in Scotland, and our supply of these came chiefly from the Continent and America. If the small grower would realise how simple the process was, he could add considerably to his income by adopting it, and at a very small cost, the necessary appliances consisting of bottles, steriliser (which might be a pot or other suitable vessel large enough to hold sufficient water to cover the bottles up to the necks) and an ordinary floating dairy thermometer. The most serviceable bottle was the quart size, which held about 2lb. of fruit. The essential thing in bottling was that when the bottles were filled they were perfectly air-tight. By raising the temperature of the water in the steriliser gradually and keeping it at 150° (Fahr.) for a sufficient time all the organisms capable of producing fermentation were destroyed, the air was drawn out, and when the bottles cooled, the lids, which rested on rubber rings, were quite air-tight, and the contents would keep in perfect condition for any length of time.

The exhibits were :—New Collerette Dahlias, exhibited by Messrs. Dobbie and Co., Edinburgh (the varieties Eddystone, Tuscan and Dungeness were awarded First-class Certificates). New seedling Pelargonium, Little Nan, exhibited by Mr. Wm. Cunningham, Bella Vista, Duddingston. Spikes of Gilia coronopifolia, exhibited by Mr. Alex. Porter, Davidsons Mains (awarded a Cultural Certificate). Decorative Rose, Léonie Lamesch, exhibited by Mr. J. Alexander, Niddrie, Midlothian. Spikes of Brugmansia Wrightii and Eucomis punctata, exhibited by Mr. Alex. Johnstone, Hay Lodge, Edinburgh; and autumn-sown Trebons Onions, exhibited by Mr. C. Comfort, Broomfield, Davidsons Mains (awarded a Cultural Certificate).

At the meeting to be held on October 7, Mr. D. Armstrong, Kirknewton House Gardens, Midlothian, will read a paper on Salvia splendens.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

September 3 and 4.—The annual show of this Society was held on these dates in the Zoological Buildings, Glasgow. The attendance of the public was very gratifying, and the exhibition was a great success financially. The entries numbered 1,200, those in the cut-flower section showing a marked increase, but fruits and vegetables were fewer than usual. The Royal Horticultural Society exhibited a collection of Grapes from the Wisley Gardens, notable varieties being Duchess of Buccleuch, Chasselas Napoleon, Syrian, and White Nice.

Pot Plants.

The principal class in this section was that for a collection of stove or greenhouse plants, arranged on the ground in a circle 9 feet in diameter. The 1st prize was won by Sir Wilfrid Lawson, Bart., Brayton Hall, Carlisle (gr. Mr. A. Knight), for a pleasing arrangement in which Clarkias, Liliums, Spiræas, and Codiæums were prominent subjects; 2nd, W. Beattie, Esq., Milngavie (gr. Mr. A. Kelly), in whose exhibit a free use was made of Celosias, Amaranthus, Gloxinias and Coleus; 3rd, Sir A. H. Pettigrew, Lanark (gr. Mr. A. Davidson). There were numerous classes in this section for all descriptions of pot plants, the Liliums, Begonias, and Chrysanthemums being particularly well grown.

Cut Flowers.

The displays of cut flowers were remarkably good, and in most of the classes there was keen competition, especially in those for Sweet Peas.

Messrs. A. Campbell and Son, Gourock, excelled in the class for 24 spikes of Gladioli, staging grand examples of Bernina, white; Charles Berbier, pale rosy-pink with white throat; and Etoile de Soir, salmon pink; 2nd, Messrs. Geo. Moir and Sons, Prestwick.

There was a fine display of Roses, Messrs. Hugh Dickson, Ltd., Belfast, proving winners in the principal open classes, followed by Mr. Wm. Ferguson, Dunfermline. In the classes restricted to amateurs Mr. Frank Watt, Kilbirnie, was the chief prize-winner.

Dahlias always provide a good display at this show, and in the open classes Mr. John Smellie, Busby, proved most successful for Cactus-flowered varieties. The same grower also excelled in the class for 24 show or fancy Dahlias, and he had also the premier Pompon Dahlias.

Mr. Alex. McAlpine was placed 1st for 24 blooms of Fancy Pansies; 2nd, Messrs. A. Lister and Sons, Rothesay. Mr. McAlpine also showed best in the class for 48 Viola blooms.

The principal prizes for Sweet Peas were presented in a class known as "The Citizen Collection," and this attracted a good competition. The *Evening Citizen* of Glasgow took a plebiscite of its garden-column readers as to the most popular varieties, and the proprietors awarded handsome prizes for the best exhibit of the leading 12 sorts. Mr. J. H. Crosby, Comrie, was placed 1st, and Mr. Geo. Bowness, Busby, 2nd.

The decorated dinner-tables were very beautiful, and the 1st prize was won by S. G. Bishop, Esq., Helensburgh (gr. J. Hood), for a charming arrangement of Mrs. A. R. Waddell and Irish Elegance Roses, lightly interspersed with Codiæum and Selaginella foliage. In the classes for bouquets Sir W. Lawson was the principal prize-winner.

Fruit.

A. A. Hagart Speirs, Esq., of Houston (gr. Mr. Jas. Brown), was easily first for a collection of 12 dishes of fruit in 12 varieties. For the collection of six dishes E. Bewley, Esq., Dublin (gr. Mr. D. M'Intosh), was placed 1st, and T. M'Lellan, Esq., Helensburgh, 2nd.

For a collection of eight bunches of Grapes R. M. Donaldson, Esq., Row (gr. Mr. R. Geen), excelled, showing excellent examples of Madresfield Court, Black Hamburgh, and Appley Towers. 2nd, W. M. Craig, Esq., Rothesay (gr. Mr. D. Halliday).

E. Bewley, Esq., Dublin, was the most successful exhibitor in the larger class for Apples, and he won the 2nd prize in the leading Pear class, in which Miss Hamilton, Rozelle, Ayr (gr. Mr. A. Harvey), was placed 1st.

Vegetables.

The vegetable classes were notable for the general excellence of the exhibits; the principal honours fell to S. Mitchell, Esq., Kippen (gr Mr. C. Shaw). Potatos were a strong class, and a remarkable fine collection of 12 round varieties was staged by Sir Wm. Dunbar, Kirkcowan (gr. Mr. Jas. Kidd). The same exhibitor excelled in the class for 12 kidney varieties.

Trade Exhibits.

Gold Medals were awarded to Messrs. Austin and McAslan, Glasgow; Blackmore and Langdon, Bath; Malcolm Campbell, Ltd., Glasgow; Dobbie and Co., Edinburgh; Geo. Fairbairn and Sons, Carlisle; D. G. Purdie, Glasgow; Ransomes, Sims, and Jeffries, Ipswich; Sander and Sons, St. Albans; and Sutton and Sons, Reading.

Silver Medals were awarded to M. Campbell and Sons, Blantyre; Hughes, Bolckow and Co., Ltd., Blyth; Alex. Shanks and Son, Ltd., Arbroath; and Thyne and Son, Dundee.

In addition many First-Class Certificates and Awards of Merit were given to the other smaller trade displays.

The following Awards were given by the Society to new flowers :—

Mr. Amos Perry, Enfield, Award of Merit to Helenium autumnale rubrum and Achillea Perry's White.

Messrs. Dobbie and Co., Edinburgh, First-Class Certificates for Collerette Dahlias Tuskan, St. Abb's and Skerryvore.

Messrs. Mason and Co., Jamestown, First-Class Certificate for Chrysanthemum Mrs. Mason.

Messrs. Gemmel Bros., Kilwinning, First-Class Certificates for Pentstemons Scarlet Glow and Alexander Cullen. Awards of Merit to Pentstemons Jas. Henderson and Gladys.

BRITISH GARDENERS' ASSOCIATION.

A meeting of the British Gardeners' Association will be held at the Wentworth Café, Pinstone Street, Sheffield, on Saturday, the 13th inst., for the purpose of forming a branch for Sheffield and District. The chair will be taken at 8 p.m. by Mr. S. Livsey, Cassick Grange Gardens.

The general secretary will deliver an address to the members of the Leeds branch at the Paxton Society's Room, Leeds, on the 15th inst. at 8 p.m.

NEWTOWNARDS HORTICULTURAL (CO. DOWN).

September 4.—The fifty-eighth annual exhibition of this society was a distinct success, the produce, especially in the sections for fruit and cut flowers, being exceptionally good. The exhibition was held in the grounds of Messrs. A. Dickson and Sons, and many visitors were attracted to the show partly on account of the opportunity thus afforded to see Messrs. Dickson's nursery, and to revel in the sight of the celebrated Irish Roses "at home." Messrs. Dickson not only provided accommodation for the show, but also took an active part in exhibiting. Their beautiful group of stove and greenhouse plants occupied the whole of one end of one of the large tents, and was deservedly awarded the society's large Gold Medal.

The cut-flower section contained some very fine exhibits, and competition was keen. In the nurserymen's class, Messrs. Alex. Dickson was placed first for a collection of Roses which can only be described as magnificent. It contained, among others, Red Letter Day, a brilliant red variety of vigorous and profuse habit; Chrissie McKellar, a clear salmon pink; Irish Fireflame, an improvement on Irish Elegance; Queen Mary, a clear, pink-shaded yellow; and George Dickson, the large, perfect flowers of which seemed to take precedence over all the rest. Messrs. Dickson also won the 1st prize for a splendid collection of thirty-six Dahlias (distinct), for forty-eight Gladioli, perfect in form and colour; for a very attractive collection of mixed hardy flowers, and in several other classes, Messrs. Frank E. Smith and Co. were placed second in each case. The fruit classes were well filled, and the quality was almost uniformly good. The chief prize in this section was awarded to a de-

corated dessert table, containing 14 dishes of fruit, and adorned with flowers; there were two separate prizes for fruit and decoration, but they were both awarded to the Earl of HARRINGTON, Elvaston Castle (gr. J. H. Goodacre). The chief dishes consisted of fine, well-coloured Grapes—Black Hamburgh, Muscat of Alexandria, and Madresfield Court. There were also good specimens of Peaches, Nectarines, and Cox's Orange Pippin Apples. The decorations were charming, and could hardly have been improved upon, either for quality or for arrangement. The flowers used were Burnett and White Wonder Carnations, relieved with long trails of bronze and pink Selaginella. The 2nd prize was awarded to Lord O'NEILL, Shane's Castle (gr. W. G. Fadge), who won the first prizes in the classes for six bunches of Grapes, two bunches of black Grapes and various other fruits. The foregoing classes were for amateurs keeping a gardener, but there were also a number of classes for those who do not employ a gardener, and these were well contested, the quality being of a satisfactory nature. Most of the fruits in this section were hardy, but there was one class for two bunches of Grapes, which was won by Mrs. JAMES MILLING, of Comber. The prize for six dessert Apples was awarded to R. THOMPSON, of Newtownards, whose exhibit was decidedly above the average. The vegetable section comprised a large number of classes, one of which was for a collection of nitrate-grown produce. The prize was awarded to HERBERT BROWN, Esq., of Helen's Bay, the same exhibitor being successful in winning 1st and 2nd prizes in a number of other classes.

TRADE NOTE.

H. CANNELL AND SONS.

WE are informed that the business of H. Cannell and Sons has been transferred from Swanley to the premises at Eynsford, from where it will in future be conducted.

Obituary.

WILLIAM BULL.—We regret to record the death, at the early age of forty-six years, of Mr. William Bull, elder son of the founder of the celebrated nursery and seed business of William Bull and Sons, King's Road, Chelsea. After the death of Mr. William Bull, sen., in 1902, the business was carried on under the title of William Bull and Sons, but continued ill-health prevented the elder son from taking an active part in the management, especially of late years, and in 1909 he retired, and went to live at Brighton, where he died on Monday, the 8th inst. Mr. Bull was formerly a member of the Executive Committee of the Royal Gardeners' Orphan Fund.

Answers to Correspondents.

Owing to pressure on space we are compelled to hold over our report of the Royal Caledonian Society's Exhibition, which the Countess of Wemyss opened on Wednesday last at the Waverley Market, Edinburgh.

BEGONIA SEEDLING: *A. W. M.* The seedling possesses considerable merit, but we are unable to say if it resembles any variety already in cultivation. Send specimens to some grower who specialises in these flowers.

CHRYSANTHEMUMS UNHEALTHY: *H. W. H.* The collapse of the Chrysanthemum is probably due to the ball of soil getting too dry before watering. After potting Chrysanthemums in their flowering pot they are liable to become dry at the roots, unless the watering is done very carefully. The roots should be quite moist at the time of potting, and both the old and new soil must be thoroughly soaked a day or two after potting, for if this is not done the old ball of soil, which is full of roots, gets so dry that when water is afforded the moisture will not wet the ball through, and simply soaks through the new soil without doing much good. The roots are then reduced to such a state that when the soil does eventually get soaked the plant cannot assimilate the moisture, and collapses, causing rotting of the stem at the surface of the soil, which has happened in the case of the specimen sent us.

CHRYSANTHEMUM SHOOT: *H. J. S.* The shoots of Chrysanthemums are damaged by earwigs. Examine the plants each evening with a lamp, with a view to killing the pests; also place pieces of hollow bamboo cane against the stem of each plant, and if these are blown through each morning you will probably destroy many of the pests before they cause much harm.

CORRECTION.—In Messrs. Sutton and Sons' class for a collection of nine dishes of vegetables at the Shrewsbury Show, Lord North (gr. Mr. E. R. James), was awarded the 2nd prize. Colonel Cornwallis-West, whom our

THE LATE WILLIAM BULL.

reporter credited with the 2nd prize, was placed 5th.

IRISH IVY: *F. J.* The larva on the specimen of Ivy sent for examination is the Swallow-Tail Moth (Urapteryx sambucaria). Spray the foliage with arsenate of lead.

IVY-LEAVED PELARGONIUM: *Old Reader.* The gold variegation in the foliage appears to be the result of an enfeebled root action or impoverished soil, and we should be surprised if cuttings did not grow out of the condition. However, this may be easily determined. If the plant has sported, the sport should certainly be perpetuated, with a view to ascertaining its value.

LOGANBERRIES: *C. B.* The Loganberries are attacked by the Raspberry Beetle (Byturus tomentosus). There is no remedy, as the eggs are laid deep in the unopen and open blossoms, and the larvæ live in the fruit. All you can do is to jar or shake the beetles off early in the year. The pest is so destructive to Loganberries that many are ceasing to grow them, and probably cultivated Blackberries will take their place, as they flower later and so escape attack.

NAMES OF FRUITS:—*Hevering.* 1, Beurré d'Anjou; 2, Red Doyenné (Doyenné Gris); 3, Bellissime d'Hiver; 4, Van Mons Léon Leclerc; 5, Black Worcester; 6, Duchess of Oldenburgh.—*T. F. A.* Pear, Williams's Bon Chrétien; 1, Lane's Prince Albert; 2, Domino; 3, Prince Bismark; 4, Williams's Favourite; 5, not recognised; 6, Worcester Pearmain.—*W. B.* 1, Pile's Russet; 2, Hoary Morning; 3, Lady Derby; 4, Royal Russet.

NAMES OF PLANTS: *F. W. N.* 1, Aralia chinensis; 2, Nandina domestica; 3, Spiræa japonica alba; 4, Trachelium cœruleum; 5, Verbena venosa; 6, Lobelia laxiflora; 7, Cotoneaster frigida; 8, Tanacetum vulgare; 9, Campanula persicifolia var. alba; 10, Picea pungens; 11, Trichosanthes anguina; 12, Cupressus Lawsoniana aurea.—*W. K.* 1, Hyssopus officinalis (Hyssop); 2, Origanum vulgare (Marjoram); 3, Satureia montana (Savory).—*R. E.* 1, Rehmannia angulata; 2, Aster Thomsonii var.; 3, Origanum hybridum; 4, Chelone Lyonii; 5, Olearia Haastii. — *Eden Phillpotts.* Lagerstræmia indica, a Chinese shrub. *J. H. B.* Bignonia Cherere — the yellow-tubed flower — and Tecoma (Bignonia) grandiflora. *A Long Subscriber.* 1, Pernettya mucronata; 2, Rhododendron blandfordiæflorum; 3, Rhododendron ferrugineum; 4, Photinia serrulata; 5, Cercis Siliquastrum (Judas tree); 6, Ptelea trifoliata; 7, Clerodendron Bungei; 8, Pittosporum undulatum.—*D. P. G.* 1, Scolopendrium vulgare multifidum; 2, Nerine Fothergillii; 3, Thalictrum minus; 4, Nephrolepis todæoides; 5, Nephrolepis exaltata; 6, Cyperus alternifolius.—*R. A.* 1, Odontoglossum Lindleyanum; 2, Oncidium barbatum; 3, Ada aurantiaca; 4, Brassia verrucosa; 5, Pleurothallis Scapha.—*W. Payne.* Bocconia cordata, obtainable at any hardy plant nursery.—*O. R.* 1, Catasetum macrocarpum; 2, Stelis ophioglossoides; 3, Oncidium abortivum.

NEW ROSES: *Mrs. K.* Rose Miss Flora Mitten can be obtained of Mr. Elliot, Hassocks Nursery, Sussex. The variety Paul's Lemon Pillar is not yet in commerce. It was raised and exhibited by Messrs. Paul and Son, the Old Nurseries, Cheshunt.

ONION BED: *F. J. L.* The damage is caused by Springtails (collembola). Water with lime-water now, and dig Vaporite into the soil when the crop is lifted.

SPECIES OF ROSA FOR THE GARDEN: *X. Y. Z.* You would find the following species of Rosa suitable for your purpose: — Climbers, Rosa brunonis, R. macrophylla Korol Kowi, R. rubrifolia (for its foliage), R. setigera, R. sinica, on a warm wall. Bushes, well isolated, R. alberica, R. Andersonii, R. Ecæ, R. hugonis, R. lucida, and its double-flowered form, R. microphylla × rugosa, R. Moysei, R. nitida, R. ochroleuca, R. sericea Pteracantha and macrantha.

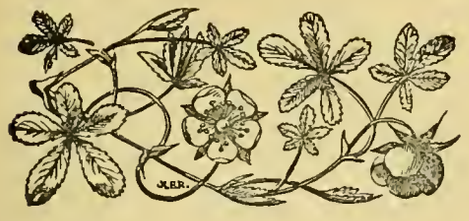
TOMATOS: *G. T. E.* The hard, yellow patches in the fruits are not due to disease, but to lack of sufficient potash in the soil. Next season mix wood ashes with the compost in which they are grown, and sprinkle a little kainit as a top-dressing occasionally.

VINES DECAYING: *H. H. S.* The worms in your vine rods are not the cause of the decay, but the sequence. The probable cause is a faulty rooting-medium. The border may have been suitable when first made, but it has been spoiled by subsequent treatment. The failure of the vines may be due to starvation, over-feeding, or the application of something harmful. Trouble would also arise from continuous heavy mulching or anything which would hinder aëration of the soil. There is the possibility that an unsuitable or too strong a dressing of the rods may have caused the mischief. A mixture containing tar is used by some careful growers, with no bad results, but we have known cases where vines have been killed outright by such an application. The same may be said of paraffin, which may be used to a limited extent, but only when the greatest care is exercised. Whatever the cause, any attempt at renovation would now be useless. We advise you to make fresh borders and plant young vines. You need have no fear of healthy plants being attacked by worms, as these creatures only feed on decaying materials.

Communications Received.—C. F H.—A. M., Ludlow—W W., Stevenage—H. M. B.—G. S.—Inquirer—W. E. W.—J. T.—F. W. H—O. T.—M G. A.—Dr. R—W F. G—A. L. G.—E. R. J—W. B. & Sons—A. H. C.—W. B.—J. B. D.—T. E. W.—B. G.—R. A. M. R F—J. V. K., Holland—W. C.—H. C. & Sons.

LARGE LARCH SAW-FLY (NEMATUS ERICHSONII)

Larch shoot with partially-grown larvæ; sawfly and pupa natural size and ×3; larva ×3.



THE

Gardeners' Chronicle

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CONTENTS.

ILLUSTRATIONS.

SEPTEMBER IN THE ROSE GARDEN.

THERE is plenty of work to keep the Rosarian occupied in September. In the early part of this month it is not too late to put in a few buds, particularly in the dwarf stocks and where the earlier buds have failed to take. In many gardens the budding this year was rendered more difficult than usual at the ordinary time by the appearance of a very minute aphis, accompanied by a sooty mould, that had a disastrous effect upon some of the stocks, almost defoliating them and making them unworkable for a time. The pest has yielded readily enough to syringing with Cyllin, soft soap, Abol, or other insecticides, but syringing Rose stocks is an undertaking Rosarians do not usually consider it necessary to concern themselves with, and probably in many cases the damage has been done before the cause was discovered. When, however, the evil was discovered and removed, though too late for the summer budding, the stocks have grown again and may be worked for a short time, the rains of the early part of the month helping to keep the sap running.

The unusual dryness of July and the unfortunate conditions above mentioned have made the completion of budding in many cases far from easy. If the sap is not running and the bark refuses to lift easily the operator must wait until it does so, even if he has to wait till next year. To attempt budding when the bark has to be forced open can only cause disappointment.

Then there is much to be done in the established beds, beside the ordinary routine of hoeing and syringing. The removal of dead Roses is a daily task which cannot be neglected if the garden is to look bright and cheerful. Probably there are few who have not themselves attempted it who know what a long time this takes up even in a moderate-sized Rose garden, how large a receptacle is required for the dead blooms, and how soon neglect of picking becomes apparent. In carrying out this operation the flower head should not be merely broken off as is frequently done, but the stalk should be cut off with a sharp pair of secateurs just above the highest promising bud. Then there is the removal of the briar suckers wherever they appear, and here again trouble will be saved if the work is done thoroughly and the sucker traced to the briar root and cleanly removed. There is usually a plentiful crop of these wild briar suckers during early autumn, not only on newly budded Roses, but also on plants in the established beds. If the tops were merely hoed off in the way often noticed when they appeared earlier in the year, many of them will have sprouted again and, if allowed to grow, will appropriate the sap to the detriment of the Rose plant. It would be difficult to remove these suckers too frequently or too early, for if once allowed to attain any size they seem inclined to induce the plant to persevere in its evil ways, and send up a fresh crop at inconvenient times and places.

This month is convenient also for autumn pruning, wherever this is practised. So far as concerns the growing branches of the H.P.'s and H.T.'s and save the operation of cutting off the flower heads as above mentioned, summer pruning is perhaps generally more honoured in the breach than in the observance, but in early autumn it is permissible to shorten slightly the long H.P. shoots which have flowered and may get unduly disturbed by the winds. In the case of some of the tea-scented Roses, where the growth has become unusually crowded it is also beneficial to take out a branch here and there in order to prevent overcrowding, and secure a better ripening of those that are left. Moreover, there are some varieties among the Tea group of which I like to grow a few plants without any spring pruning. The Maman Cochets, pink and white, Marie van Houtte and Souvenir de Pierre Notting, after a mild winter, often do surprisingly well when treated in this manner, and where this is practised August or early September is a convenient time in which to take out some of the oldest and most barren wood.

The pruning of the climbing and pillar Roses should now be seriously taken in hand. For purposes of pruning, climbers may conveniently be divided into three groups: (1) Teas and Hybrid Teas of climbing habit, which are pruned in spring; (2) Wichuraianas, such as Coquina and Dorothy Perkins, which give a certain number of autumn flowers, the pruning of which will usually be left till late autumn or Christmas, and (3) the multiflora group, such as Crimson and Blush Ramblers, some Wichuraianas, Lady Gay, and Roses of similar habit, e.g., Gruss an Zabern, which have no second flowering. It is this last group that may be pruned at any time from August onwards till the end of January, or even, at some sacrifice of buds, somewhat later. I am sometimes asked whether it is not wrong in principle to prune these Roses of the third group at this time of the year when the sap is still running. In my own case I have for some years pruned Roses of this class in late summer or early autumn as a matter of convenience, and with satisfactory results. I have not known Roses pruned at this time to become less vigorous than those pruned later, and the question of convenience is in its favour, for it enables us to tie up the young stems which start from the base of the plant and spread over the neighbouring dwarf plants, and one does not lightly discard a method that has proved both convenient and satisfactory. Perhaps, also, it is possible this early pruning may be defended on principle. Lindley (*Theory and Practice of Horticulture*, second edition, p. 365) points out that pruning in early autumn is often advisable "in the case of the Gooseberry and of the Vine, when weak, and the effect is found to be that the shoots of such plants in the succeeding season are stronger than they would have been had the pruning been performed at a much later season. This is necessarily so," he adds, "as a little reflection will show. During the season of rest (winter) a plant continues to absorb food solely from the earth by its roots, and if its branches are unpruned the sap thus and then introduced into the system will be distributed equally all through it. If late pruning is had recourse to and branches are removed, of course a large proportion of the sap that has been accumulating during the winter will be thrown away." The physiological botanist would nowadays express this somewhat differently, but from the gardener's point of view it would come to much the same thing.

The pruning of group 2 is left till late autumn, not because earlier pruning would be injurious to the plants, but because we wish to enjoy the few flowers they will produce and the beauty of their autumn foliage, which, in the case of Dorothy Perkins and some others, is well worth notice. The foliage of the multiflora group not only falls early, but is of less interest. One of my commonest difficulties is to find myself asked to prescribe for a plant, say of Crimson Rambler, that has been allowed to remain for years without having its old wood removed, and has ceased to make any appreciable quantity of new growth. The difficulty lies in the knowledge that the proper treatment will seldom be carried out. To deal with such a case we may begin in August and remove all the old barren wood, leaving, as there are few

young growths, a very few of those of the previous year. Next, in a year like the present, give the plant a thorough soaking of water, not a waterpotful, but 30 gallons or so. Later on in October mark a space 6ft. by 4ft. on one side of the tree, take out the soil three feet deep and fill in with a compost made of turf and old manure, with a liberal dusting of half-inch bones and bone dust as each layer of fresh soil is filled in. In the next autumn this process should be repeated on the other side of the tree. It must, however, be remembered that fresh soil brought in in this fashion will, if a drought supervenes in the following spring or summer before it has settled, become dry rather suddenly, and then one or two heavy waterings may be required.

This treatment is generally effective, always provided that the tree is not affected with fungus, and even then if all the fungus is carefully removed I have found it give good results. The question, however, always remains whether it would not be better to make the bed afresh and start again with a young plant. To answer this in any particular case one must see the tree and its surroundings, but perhaps in five cases out of six a new bed and new plant would prove most satisfactory. *White Rose.*

NEW OR NOTEWORTHY PLANTS.

PRIMULA VINCÆFLORA, FRANCH.

In the *Gardeners' Chronicle* of April 30, 1887, M. Franchet described and figured this remarkable new Chinese Primula, P. vincæflora (see fig. 72), of which dried specimens had been recently received from the Abbé Delavay. M. Franchet held out the expectation that seeds would arrive shortly thereafter, so that the plant might be brought into cultivation. Only now, after thirty years, and through Bees, Ltd., and their indefatigable collector, George Forrest, is the expectation realised, and it is fitting that record of the fact and a figure of the living plant as it is in flower now in the Royal Botanic Garden, Edinburgh, should find a place in the journal in which the plant was described thirty years ago. The illustration (natural size) is of the first plant, which flow red about a fortnight ago. The flower is not of the size (2 inches long) seen in dried specimens from the native habitat, but as the plants strengthen the flowers will, as is usual in Primula, be larger and fuller, and they may be expected to develop the indentation at tip of petal shown in collected specimens. The feature of the plant is the solitary large flower directed obliquely downwards on a stout scape, which continues to elongate during flowering to a length of a foot or so. The whole plant has quite the facies of a Pinguicula. The corolla is violet-coloured, with a deeply tinted eye. The lobes in native specimens are much broader than in the plant illustrated. The stamens have an interesting and unique disposition for a Primula. They have long filaments, and those on the posterior side only are erect; the whole of the anterior ones are bent across the corolla tube, so that all the anthers are brought together in a cone at the back of the flower. A form of apparent zygomorphy is thus developed. Native plants have the flowers preceding the leaves in evolution; so far in our cultivated plants leaves and flowers are coetaneous. There are two other Chinese species of the section Omphalogramme to which P. vincæflora belongs, P. Delavayi, Franch., and P. Franchettii, Pax., which have more beautiful flowers, and one Indian species, P. Elwesiana, King. Of this last some healthy plants at Edinburgh should flower ere long. P. vincæflora forms a large resting bud with fleshy scale leaves covered with yellow oily secretion. During the growing period, when forming its rosette of broad leaves, it thrives with copious root waterings, but resents overhead watering. The plant produces lateral buds freely, and forms a tuft which lends itself readily to division. *I. B. Balfour.*

ORCHID NOTES AND GLEANINGS.

THE POLLINATION OF DISA UNIFLORA.

The mode of reproduction of this Cape Orchid has been a subject of controversy. Dr. Bolus, the monographer of the Orchids of the Cape Peninsula, held that it reproduces itself vegetatively by tubers, a conclusion to which he was led by the fact that he had never been able to discover a ripe pod. An article in the *Cape Times*, summarised in a recent issue of the *Orchid Review*, supplies good evidence that Disa uniflora propagates itself not only by tubers but also by seeds. So long ago as 1895 Dr. Marloth recorded the facts that fully developed fruits had been found by various observers, and that he himself had captured near a group of Disas a butterfly, Meneris Tulbaglia, (the Mountain Pride), to the leg of which a pollinium was attached. A similar observation was made two years ago by Mr. Phillips. Perhaps the most interesting part of the story lies in the facts that the plucking of the flowers of Disa uniflora on Table Mountain is now prohibited, that in consequence of this prohibition it has blossomed profusely and according to Mr. E. D. Phillips considerably over 50 per cent. of the plants which were examined were found to be bearing fruits.

THE BULB GARDEN.

A GATHERING OF AMARYLLIDS.

With the exception of Hippeastrums and Eucharis grandiflora, how seldom do we see any of the lovely Amaryllids at our shows? And yet for elegance of form, purity of colour, and richness of fragrance what flowers can surpass those which I have just cut in my houses? In the hope that others may cultivate them more than at present, I will enumerate them.

Crinum Powellii album (*Gard. Chron.*, Aug. 3, 1912, fig. 39), from a pot standing outside, with eight tall clusters of snow-white flowers. A plant which in warmer districts is hardy, though here I find it flowers better in a large pot kept dry in winter.

Crinum Moorei fol. var. (*Gard. Chron.*, July 23, 1910, fig. 24), is well worth a place in every greenhouse for its foliage alone, though its flowers are as beautiful as those of the type.

Crinum H. J. Elwes (*Gard. Chron.*, July 20, 1907, fig. 19), a hybrid of my own raising, so named when first shown at Holland House, four or five years ago, with flowers the colour of Amaryllis Belladonna on a tall crimson stem. A plant sent me as Crinum belladonna from Van Tubergen's nursery is very like it, though not so good as mine, which grows in a warm greenhouse.

Hymenocallis macrostephana.—For size and beauty of flower and rich, aromatic scent, which is almost too strong except for a large hall or room, this lovely plant surpasses any other in its family, and is very easy to grow and increases fast by offsets.

Fig. 72.—Primula vincæflora in the Royal Botanic Garden, Edinburgh. Colour of flower violet.

Hymenocallis ovata or speciosa.—I do not exactly know how to distinguish them, but this has very broad, oblong leaves, and a huge umbel of large flowers as richly fragrant as those of the last. It is the best form I have seen.

Hymenocallis species.—The smallest of the genus, but as fragrant and beautiful and elegant in shape as any. It has very small and delicate leaves in comparison with the others, and these are perfectly deciduous. Its pure white flowers grow 3 or 4 in an umbel, on perianth tubes 2½ inches long, and have narrow, recurved twisted segments, and a large toothed cup. It grows well with me in an intermediate house, and requires a long season of rest. I do not know its origin or name, as I find nothing agreeing with it in Baker's *Handbook of Amaryllideae*, and there is nothing in the Kew Herbarium like it.

Hæmanthus Katherinæ (*Gard. Chron.*, Feb. 1, 1908, Supplementary Illustration).—I never quite mastered the cultivation of this beautiful plant till I planted out some surplus and rather sickly bulbs under the stage in the corridor of a range of Orchid houses, where it never gets a ray of sun, and little water beyond the drip from the

pots above. Under these seemingly very unfavourable conditions it grows stronger and flowers better than in pots. It is perhaps the best of all the Hæmanthus of its section.

Griffinia dryades.—Probably the best of its genus and easy to grow in a shady stove, but except for the blue colour of its flowers—a very rare colour in the Order—not so desirable a plant as those above named.

Gastronema sanguinea.—A lovely Cape bulb, with small leaves and a very large flower, in colour like Vallota purpurea, with which lovely plant it hybridizes freely. But I think it is superior to the hybrid, and is easier to grow and flower well than Vallota, which is a plant whose culture I have never been able to understand rightly. I keep Gastronema on a shelf at the top of a vinery, where it gets lots of sun and air and very little water.

Nerine Fothergillii.—The first Nerine to flower this year and still one of the finest.

CLEMATIS INDIVISA LOBATA.

Clematis indivisa is a native of New Zealand, where it forms a stout, woody climber with glabrous, trifoliate, usually entire leaves. It bears its fragrant, white flowers in large, axillary panicles, the individual blossoms being from 2 inches to 4 inches in diameter. The species is a native of the North and South Islands, Three Kings' Islands, and Stewart Island, in which latter district it is somewhat rare. The native name is Puawananga. Three varieties occur wild, including lobata (see fig. 73), in which the leaflets are toothed or lobulate. The other varieties are decomposita, with leaflets two-ternate, and linearis a form with narrow, linear leaflets, entire, or with two lateral lobes at the base. C. indivisa lobata has rather smaller flowers than the type, but they are very freely produced. In most districts it makes a first-rate greenhouse plant, and in favoured localities, such as Devonshire or Cornwall, it grows and flowers well out-of-doors, as may be seen from the specimen illustrated in fig. 73. In the greenhouse the plant makes an excellent subject for covering pillars or training along the roof rafters. Being an evergreen, the plant is additionally valuable for indoor decoration, as it affords pleasant greenery in the winter. The blossoms are produced so freely as to be suitable for cutting for decorations, and we know one instance in which thousands of flowers have been sent to Covent Garden every spring from a private garden in Staffordshire. Sometimes this Clematis is grown in pots, the growths being cut back to the hard wood, which is twined around a suitable support to form a bushy head. Grown in this manner it makes a beautiful subject for the table or stage of a conservatory, as the flowers show in bold relief against the glossy green foliage. Occasionally the plant is employed for growing in baskets in lofty conservatories. When utilised for this purpose, the main stems need to be restricted, but as many as possible of the flowering branches should be encouraged to droop over the baskets.

[*Photograph by Wyndham Fitzherbert.*

Fig. 73.—Clematis indivisa lobata in a Devon garden.

Zephyranthes macrosiphon, Baker.—A beautiful pink flower as large as that of Z. carinata, which is perhaps the best of the genus and easy to grow in a cold greenhouse.

Urceocharis Clibranii (*Gard. Chron.*, Sept. 23, 1899, fig. 86).—A reputed hybrid between Eucharis and Urceolina aurea, and, though not so beautiful as either of its parents, a very free flowerer, and easy to grow in a cool stove.

Hippeastrum hybrid between H. reticulatum and H. Ackermannii pulcherrima, which was raised by the late Sir Charles Strickland, and has proved with me easier to grow than any others of the autumn-flowering hybrids which have reticulatum as a parent. All these require quite different treatment to the spring-flowering Hippeastrums, and, though not so large and showy, are to my taste on account of their autumnal flowering and lovely shades of colour at least as beautiful. *H. J. Elwes, Colesborne.*

FORESTRY.

PRICES OF TIMBER IN SCOTLAND.

From returns to hand the home timber trade in Scotland would not appear to be in a very flourishing condition. As usual, the timber of Scots Pine is plentiful, vast quantities having been uprooted by recent gales, and thus, in some districts at least, causing a glut on the market. In Perthshire the demand has been good and prices quite equal to those of recent years; but here again large quantities of Larch and Scots Pine have been levelled to the ground, and thus suddenly thrown on the market. Larch has fetched 10d. to 1s., Spruce and Scots Pine 5d. to 6d., while Douglasii brought 8d. per cubic foot. Ash is in demand at 1s. 3d. to 1s. 5d. per foot, but Oak sells at a lower figure, usually about 1s. per foot. In Aberdeenshire the industries of box-making and barrel-making use up a quantity of wood, and large numbers of Larch are sent to the Fife and Lanarkshire pit districts. Whole plantations in Argyllshire were blown down by the gales in November, 1912. On the Donside one of the largest lots of timber that have been sold in Scotland for several years, consisting of about 20,000 Larch and 30,000 Spruce, was disposed of during the past season at Kildrunney. In Inverness-shire the home timber trade has of late been in an unusually busy condition, the demand for staves, headings, and packing-case boards being very good, while prices were about the average. Larch is sent in quantity to the colliery districts, and fetches 1s. 3d. to 1s. 6d. per cubic foot; while heavy Oak, at about 1s. 6d. per cubic foot, was in demand for boat-building purposes round the Moray Firth. A quantity of very good Larch and Scots Pine, 16 miles from a railway station, was sold in Sutherlandshire last year at 7d. to 8d. per cubic foot for the Larch and 4d. per foot for the Fir. In Elginshire there is little or no variation in the home-grown timber

trade, and for large trees the demand and prices were fair.

For providing railway sleepers and boarding large Scots Pine timber is much in use, while that of a lighter class finds a ready market for staves and pit sleepers. This timber averages 5d. per cubic foot, and Larch from 8d. to 10d., according to size. Aberdeen is the principal market for heavy Scots Pine timber for boarding, while the Fife collieries absorb what is suitable for pit props. *A. D. W.*

MOSSY SAXIFRAGES.

THE Rockfoils constitute the most valuable family of plants for the rock garden, the plants exhibiting most diverse forms and sizes, from the tiny S. cæsia, only an inch or two high, to the giant Californian S. peltata, which has large, round leaves on stalks 3 feet or more in length. Between these two extreme forms there is a vast range of species suitable for all positions in the rockery, from a hot, sunny ledge to a cool, shady bank. Some grow best when their roots are among stones in water, whilst others, such as S. hirculus, make delightful bog plants. Saxifrages generally are easily cultivated, but their requirements in the matters of situation and soil must be studied. A good general guide is to plant those with hard encrusted and leathery foliage in full exposure to sunshine, although there are some exceptions, notably S. florulenta, which grows best in shade, and shade or half shade is desirable for those of the mossy or soft-leaved section. Many of this latter type form lovely carpets or mounds of emerald-green foliage, which are very beautiful in winter, and in spring and early summer are hidden with masses of pure white or rosy-pink flowers.

The group of mossy Saxifrages illustrated in fig. 74 shows how these plants may be used to advantage on stony banks or ledges in half-shady positions. Planted in masses, they produce a delightful effect, the flowers on some being so numerous and close together as to quite obscure the foliage. During the past few years numerous hybrid Saxifrages of the mossy section especially have been raised. The following six species embrace the best of this section, and they are among the easiest to cultivate.

S. CÆSPITOSA.—A species found over the whole of the Northern and Arctic regions and showing considerable variations in a wild state. Many names have been applied to the different forms, among them S. decipiens and S. sponhemica, but although the extreme forms may be quite distinct they are linked up by a chain of intermediates that makes it difficult or even impossible to draw a line between the so-called species and varieties. Little success has attended the efforts made to classify the numerous kinds, the distinctions being more or less of a geographical character that are not constant when the plants are growing side by side. The simplest plan is to lump all these forms under the one species S. cæspitosa. One of the most marked varieties is S. c. var. hirta, with very hairy foliage. Many beautiful varieties have been raised in gardens in recent years, several with charming red flowers. The red colour in the newer forms of S. cæspitosa (a white-flowered species) is due to the influence of S. muscoides var. atropurpurea, a charming little plant with bright-red flowers. One of the first was Guildford Seedling, a dwarf carpeting plant with bright crimson flowers. S. Clibranii is of rather stronger habit with red flowers; as also is S. bathonensis, which grows nearly 1 foot high, producing much-branched stems and large, brilliant-red flowers. S. sanguinea superba is of neat habit, with ruby-scarlet flowers, and is amongst the best of its class.

[Photograph by W. Irving.

FIG. 74.—MOSSY SAXIFRAGES ON ROCKERY.

S. EXARATA is a distinct and beautiful species from the Alps and Pyrenees. It forms a compact carpet of bright-green foliage completely covered when in bloom with a mantle of white flowers. The thin, wiry stems are rigid, only two or three inches high and freely branched.

S. HYPNOIDES.—"The Dovedale Moss" with its emerald-green carpet is a well-known plant in gardens. During the winter months it is a valuable plant in the rock garden, the beautiful tufts of foliage being attractive. In the spring and early summer the plant is studded with white flowers. S. hypnoides is a very rapid grower and makes a fitting background for spring flowering bulbs. There is a prettily variegated variety.

S. MUSCOIDES.—This is a dwarf, dense, carpeting Saxifrage with yellowish flowers and forming a mossy turf only an inch or so in height. S. m. var. atropurpurea, with bright-red flowers, is one of the sources of all the fine red hybrids that we possess. There are numerous other varieties, and all are useful for planting in half-shady situations.

S. TRIFURCATA.—A taller-growing plant than S. muscoides, native of Northern Spain. It makes a carpet of rosettes with three parted leaves of a stiffer character than most in this section. The attractive and pure-white flowers are borne in graceful sprays on stems 3 inches or more high. S. t. var. ceratophylla, known as the Stag's Horn Rockfoil, has more deeply-parted leaves, and even more rigid in character than those of the type.

S. WALLACEI.—For planting with spring bedding in borders or rock gardens this is one of the best in this section. The foliage is distinct and of a light green colour, whilst the large, white flowers are sweetly scented. The plant is of garden origin, but was considered at one time to be synonymous with S. Camposii, a Spanish plant with less hairy stems and leaves.

All the members of the mossy section of the genus Saxifraga grow well in light, rich and well-drained soils. They prefer half-shady situations where the sun does not burn the foliage. Division is the safest means of increase where it is desired to keep the particular form or variety true, as the plants cross so readily and the seedlings may not be true to character. *W. I.*

REMARKS ON CONDITION OF THE FRUIT CROPS.

(*Concluded from page* 191.)

(*See Tables and Summaries, ante, pp.* 80-85.)

8. ENGLAND, S.W.

CORNWALL.—Apples are very scarce, although the following varieties are carrying fair crops in these gardens: Ecklinville Seedling, Lord Derby, Small's Admirable, Sandringham, Grenadier, Gold Medal, Tom Putt, Lady Sudeley, Worcester Pearmain, Jas. Grieve, and Allington Pippin. All bush fruits were plentiful and good. Strawberries were very good. Plums set well, but after a time the fruits turned yellow and most of them dropped, owing, I think, to winds. Pears are very scarce. Cherries are not much grown in this district. Peach and Nectarine trees were badly "blistered" in the spring. Our soil is light, and crops suffer quickly from drought. *W. Brown, Prideaux Place Gardens, Padstow.*

—— The fruit crops are the worst for ten years past. Owing to the wet and sunless autumn of 1912 the buds were not properly ripened, consequently the blossom was weak. Then followed a stormy, sunless spring, and any hopes of average fruit crops were destroyed. *Wm. Andrews, Tregothnan, Truro.*

DEVONSHIRE.—The fruit crops are much below the average. Apples set in thick bunches, but many have fallen. Cherries, Pears, Peaches, and Nectarines did not set. There was an abundance of blossom, but very little pollen. The cause of the failure is unripened wood. The rainfall in 1912 amounted to 52 inches. *Geo. Baker, Membland Hall Gardens, near Plymouth.*

—— The noted orchards of the West are scarcely carrying half a crop. Cold, westerly winds whilst the trees were in bloom caused much damage. Pears are practically a failure; but there was a record crop last year, which doubtless accounts partly for this season's failure. Plums also are very scarce. Strawberries suffered from continued drought, the late varieties being small in berry. Gooseberries, Currants and Raspberries were plentiful. I never remember Filberts and Cob Nuts being so scarce; many bushes have not a single nut. *James Mayne, Budleigh Salterton.*

GLOUCESTERSHIRE.—Fruit trees blossomed in perfection, and there were no spring frosts, but owing to a continuation of cold winds, many of the fruit trees have not a fruit on them. Absence of sunshine last autumn is the main cause of failure, as the wood did not ripen. The gardens are situated in a valley, and the subsoil is cold and heavy. *Wm. Keen, Bowden Hall Gardens, near Gloucester.*

—— Apples, which promised to be a good crop, became infested with aphis in the trusses of bloom, and many of the fruits dropped. Plums also were much affected with aphis. Pears are scanty after last year's heavy crop. Cherries were almost a failure. I have never known Morello Cherries to fail here before. Gooseberries and other small fruits were very good. Strawberries were a very heavy crop and of excellent quality. Nuts are a failure. *John Banting, Tortworth Gardens, Falfield.*

—— Pears are scarce, as was expected after the heavy crops of last year. Plums promised splendidly, but adverse climatic conditions and a bad attack of aphis at a critical period spoiled the good prospects. Cherries suffered severely through attacks of black aphis. Peaches and Nectarines were much injured by leaf blister. We had good crops of Currants, Raspberries, and Gooseberries; but many Gooseberries were unsaleable owing to infestation of American Gooseberry Mildew. Strawberries were the best fruit crop of the year. *G. H. Hollingworth, County Education Office.*

—— Apricots, Pears, Peaches, and Plums are failures, notwithstanding that the trees flowered profusely. Cherries were a fair crop, and Apples are satisfactory. All kinds of small fruits were above the average and of good quality. We have practised spraying continuously to destroy blight. *F. C. Walton, Stanley Park Gardens, Stroud.*

—— Peaches, Nectarines, Apricots, and Pears are complete failures owing to unripened wood. Though the trees flowered profusely, the blossoms were weak, and soon succumbed to the cold winds and spring frosts. Apples are an average crop. Bush fruits were above the average. Strawberries were an abundant crop, the fruits large and clean. Royal Sovereign and Givon's Late Prolific are the two best varieties for our soil. Cherries were an average crop, but many of the fruits dropped during the stoning period. Nuts are very scarce. *A. Chapman, Westonbirt, Tetbury.*

—— Strawberries, Raspberries, Gooseberries, and Black and Red Currants were average crops of clean fruits. Plum trees set a fair crop, but the fruits dropped after setting. Some Apple trees are carrying average crops, especially the variety Lane's Prince Albert. Pears are very scarce. Our soil is light, on a sandy subsoil. *W. H. Berry, Highnam Court Gardens.*

Herefordshire.—Apples are patchy. Blenheim Pippin, Lane's Prince Albert and Worcester Pearmain are good crops, and the trees are fairly clean; most of the other varieties are scarce. We have no fruit on the outside Peach walls, and the trees have been badly infested with blister, in some cases completely spoiled. The Pear crop is a complete failure, although the trees had plenty of bloom. Strawberries have been good, especially Givon's Late Prolific. The soil is heavy loam, on limestone. *George Mullins, Eastnor Castle Gardens, Ledbury.*

Monmouthshire.—Apples are considerably under the average, though some varieties of bush trees required thinning. Lane's Prince Albert has especially heavy crops. Pears, Peaches, Apricots and Cherries are very deficient. Some varieties of Plums, notably Victoria, bore fair crops. Small fruits generally were satisfactory: Raspberries were particularly good. Strawberries were a fair crop. Aphis has been troublesome upon Apples, Plums and Currants, and has entailed much labour and expense in spraying. The trees escaped damage by frost whilst in blossom, but rain fell heavily almost daily during that period. *Thos. Coomber, The Hendre Gardens, Monmouth.*

Somersetshire.—Early fruit trees commenced to bloom abundantly at the end of February. The weather of March, April and May was very wet and cold, but there were no severe frosts. The rainfall for those three months was more than double the average, and to that cause I attribute the very poor crops of fruit. *George Shawley, Halswell Park Gardens, Bridgwater.*

Worcestershire.—Pears, Damsons, Apricots, Peaches, and Nectarines are practically failures, which I attribute primarily to the wet, cold and sunless period while the trees were in blossom. Choice dessert Plums, both in the open and on walls, are a failure, whilst culinary varieties in the open, such as Victoria, Pershore, Early Prolific, and Mitchelson's, are bearing good average crops. Pears have failed badly, although the trees are healthy. Morello Cherries were an average crop. For Peaches and Nectarines the season of blossoming was most disastrous. I never saw trees more severely injured; the young growing buds were killed, and the trees had to start into growth afresh. Apples set most profusely, for good weather prevailed whilst these trees were in bloom. The soil in this district is the new red sandstone. *A. Young, Witley Court Gardens, Worcester.*

—— Hardy fruit trees, when in bloom, gave every promise for good crops, but the results were probably never worse, Apples excepted. The cause of failure was persistent showery weather during the whole blossoming period. The flowers were never dry, consequently fertilisation was impossible. Moreover, we have never had more persistent and repeated attacks of every type of aphis on all kinds of trees. Even Apple trees which had been several times sprayed with lime-sulphur, nicotine and other insecticides, were just as badly infested. Probably the rainy weather being so continuous neutralised the effect of the insecticides. *W. Crump, Madresfield Court Gardens, Malvern.*

—— Soft Apples, such as Keddleston Pippin and Lord Suffield, are a thin crop. Damsons are almost a failure. Pears set well, and looked remarkably well at one time, but later they dropped. Egg or Pershore Plums are a good crop in some places. Of other varieties of Plums some few are bearing. It is somewhat difficult to estimate the Plum crop, for where the variety Pershore only is grown they are in one case an average crop and a failure in another. Cherries were good and clean. Gooseberries were satisfactory, but Black Currants were a thin crop. Strawberries were excellent in every way, and, strange to say, three-year-old plants bore the finest fruits. *Thos. Watkins, The Grange Gardens, Claines.*

—— There was an abundance of blossom on the Pear trees in these gardens, but the fruits set badly, and are very scarce; this I attribute to the wet, sunless season of 1912, as the wood was unripened. The Strawberry crop was a very heavy one, and the fruits were of good quality. Currants, Raspberries and Gooseberries were all very plentiful. Our soil is a good medium loam resting on sandstone. *Ernest Avery, Finstall Park Gardens, Bromsgrove.*

—— In some districts and on some trees Apples are plentiful, but the crop generally is under the average. Of Pears there are scarcely any. Choice varieties of Plums are scarce, but the popular Worcestershire Plum, Pershore, is plentiful, the flowers being less easily injured by frost than many varieties. Gooseberries, Strawberries and Raspberries were plentiful, but below the average in size. Black Currants were abundant, but rather small. Red Currants and Loganberries were also equal to the average in quantity. There are no Damsons. *James Udale, Droitwich.*

WALES.

Cardiganshire.—The fruit crops generally are below the average. The weather conditions were unfavourable when the trees were in flower. The cold weather and a continuance of rain prevented the pollen from drying and becoming distributed. The soil is very cold and heavy, overlaying slaty rock. The growth on Apple and Plum trees is very much injured by aphis. *W. Phillips, Derry Ormond, Cardiganshire.*

Carnarvonshire. — The fruit crops are amongst the worst on record. Apple trees flowered profusely, but only certain varieties have any fruit. Worcester Pearmain, Mère de Menage, and Keswick Codlin are the best varieties. Pears are almost a failure. Peaches are very badly infested with blister. Morello Cherries were a beautiful sight when in blossom, but all the fruits dropped. Small fruits were a wonderful crop, especially Gooseberries. The soil is very gravelly, and the crops are soon affected by drought. *J. S. Higgins, Glynllivon Gardens, Carnarvon.*

Denbighshire.—After a wealth of blossom, which was badly injured by cold winds, the fruit crops are under average with the exception of bush fruit and Strawberries. Apples and Pears are scarce but good. Plums, Peaches and Nectarines, notwithstanding that the trees are protected when in flower, are scarce but good. Apricots were almost a failure. Scarcely a bee was to be seen during the time fruit trees were in flower, and although means were taken to assist fertilisation, very little fruit set. Strawberries have been a heavy crop. Royal Sovereign was a good first, with large, evenly-ripened fruit, followed by Sir Joseph Paxton and Givon's Late Prolific; bush fruits were average crops and very good. Nuts are scarce. Our soil is a good heavy loam resting on clay. *Hy. Young, Horsley Hall Gardens, Gresford.*

Flintshire.—Apples are very irregular, Irish Peach, Worcester Pearmain, Warner's King, Cox's Pomona and Letty Geeson are good crops. Lord Suffield, Ecklinville Seedling, Blenheim Pippin, Dumelow's Seedling and Keswick Codlin are very scarce. Pears are practically a failure. Peach trees were nearly killed by the cold, wet spring. Small fruits were fairly good. *J. Barnard, Mostyn Hall Gardens.*

Glamorganshire.—The fruit crops are most disappointing, especially Apples, Pears, Plums, Peaches and Nectarines. The two last-named are the lightest crops I remember during the past 24 years. The cause of failure was the wet, cold, sunless summer of last year, as the bloom this spring was very weak, and to make matters worse they were scarcely ever dry, owing to continuous rains. Pears are the most disappointing crop, as the trees were literally clothed in strong, healthy bloom, but all the fruits dropped. Apples are also very thin, and I account for the failure in this case to blight affecting the young growth last summer, which was so bad that many trees were killed outright. All small fruits were plentiful and good. Strawberries have been excellent, both in regard to crop, size and quality. *R. Milner, Margam Gardens, Port Talbot.*

Pembrokeshire.—The fruit crops are a failure. There was a very fair promise when the trees were in bloom, especially for Apples, but during the month of May the country was swept with wind storms, with disastrous effects. The fruit trees not only lost their fruit, but their foliage as well. The storms had the same effect on the forest trees, and a vast number of them, at the present, are looking as they usually do in November. It may be interesting to note what varieties of fruit withstood the storm best:— Apples: Lord Grosvenor, King of the Pippins, Lane's Prince Albert; Pears: Emile d'Heyst; Plums: Victoria; and Cherries: Biggareau Napoleon. The Morello Cherry failed here this season for the first time on record. *Geo. Griffin, Slebech Park Gardens, Haverfordwest.*

—— The fruit crops generally are not up to the average. Apples are the worst crop I have seen for many years, and the same may be said of Pears. Peaches are plentiful and good. Plums are a heavy crop, and most varieties have had to be thinned. Sweet and Morello Cherries were very bad. Wall trees are free from insects and are making good clean growth. Royal Sovereign Strawberry has been remarkably good, but later varieties were not so satisfactory. Gooseberries and Currants were both very plentiful, but Raspberries fall short of the average. The soil is a light loam resting on slate stone. *Wm. A. Baldwin, Clynfiew Gardens, Boncath.*

Radnorshire.—Apples are an average crop, although quite half the early sorts were fruitless. Pears are very few, and Plums have but a thin crop, trees of the variety Victoria being quite barren; Peaches and Nectarines are again a failure, being the third year in succession. Small fruits seem to have made up for other deficiencies, although Black Currants were none too plentiful. Strawberries were a very heavy crop of good berries. The soil is a deep loam of medium texture. *J. MacCormack, Maesllwch Castle Gardens.*

9. IRELAND, N.

Meath.—The fruit crops are amongst the worst in the memory of the oldest fruit grower. There was very great promise for a good fruit year up to the end of May, but cold, sunless weather lasted for a long time, and when growth commenced at the end of May the fruit turned yellow and dropped. This part was formerly one of the most extensive fruit-growing districts in Ireland, but owing to poor prices many of the orchards were laid down in grass for grazing young cattle. This year fruit-preserving works have been started at Julianstown, so that growers may give fruit-growing better attention

in the future. *Michael M'Keown, Julianstown, Drogheda, Meath.*

Tyrone.—Apples are very thin, and of Pears there are scarcely any. A few Victorias are all the Plums we have. Cold and stormy weather at blossoming time is the cause of the failure, rain and hail with high wind occurring daily at that time. Apple scab is rather prevalent, also American Blight. *Fred W. Walker, Sion House Gardens.*

Westmeath.—Plum and Pear trees set heavy crops, but only a small proportion of the fruits swelled, and the others turned yellow and dropped; I attribute this to badly-ripened wood, as Peaches under glass behaved in a similar way, and they could not have been affected by the weather. Apples also blossomed profusely, but the fruits set badly. *Geo. Bogie, Pakenham Hall Gardens, Castlepollard.*

10. IRELAND, S.

Cork.—The weather in spring was cold and wet, and scarcely any Apple blossom developed. Pear trees blossomed well, but were badly blighted in May, although insect pests were not so bad as usual. Crops in grass orchards are complete failures. Bramley's Seedling, Newton Wonder and a few other Apples are bearing fairly well on the Paradise stock. *M. Colbert, Aghern Gardens, Conna.*

Waterford.—The fruit crops are disappointing. Apples, Pears and Cherries are scarce. Lane's Prince Albert is the best cropped variety of Apple. Fruits on standard trees of the variety Bramley's Seedling are very scarce. Pears also are a thin crop, the earlier varieties being best. Cherries were poor, and many of these fruits dropped during the stoning stage. All small fruits were fairly good, Raspberries being an exception. *D. Crombie, Curraghmore Gardens, Portlaw.*

CHANNEL ISLANDS.

Guernsey.—The fruit crops promised well in early spring but heavy gales and very cold nights in April destroyed the blossom, including that of early Strawberries. *C. Smith and Son, Caledonia Nursery.*

Jersey.—The fruit crops are very bad indeed. The trees flowered well and looked most promising, but the blossom was all cut off by cold winds. *T. Sharman, The Imperial Nursery, St. Helier.*

FLORISTS' FLOWERS.

SWEET PEAS.

The last week of September or the first in October is the time to make a sowing of Sweet Peas for flowering under glass in April and May or out-of-doors in June. There is an increasing demand for flowers of Sweet Peas in the spring. Then their freshness, fragrance and beauty make them specially charming, and their culture presents no great difficulties. The best place to sow now is in a perfectly cold greenhouse or frame in boxes or pots. What is wanted is a short-jointed, stocky growth, which will winter without running up. It must have been observed that plants raised in the open ground branch out quite close to the ground. This condition is also the proper one to obtain under glass, and it can only be done by cool treatment. When the main shoot gets three or four inches long the top should be pinched off to encourage the side-growths if they have not already appeared, as they are invariably stronger than the centre one. With the exception of the finer orange and scarlet coloured varieties, young Sweet Pea plants will stand any amount of cold weather, but for the sake of these more tender varieties it is advisable not to allow a mixed collection to get frozen. Remember that it is hardly possible to keep them too cool until after Christmas. The pots or boxes should stand on a well-drained base, and water should only be given when it is absolutely required. In the selection of varieties for flowering under glass avoid purples and crimsons. All other colours do well, especially salmons, lavenders and cream-pinks. It is much better to have half-a-dozen sorts in quantity than many sorts represented by only a potful or two of each.—*Cultivator.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Odontoglossum.—The present is the best season of the year to overhaul the inmates of the cool Odontoglossum house with a view to undertaking any necessary potting operations. Many fresh growths are developing, and from the bases of these shoots roots will appear that will establish themselves in the new compost before the winter. In a general collection of Odontoglossums, both species and hybrids, at Burford we find that at no period of the year are the plants all ready for re-potting at the same time, but the work is spread over almost the entire twelve months; even during the hotter part of the summer well-established plants that need larger pots are given them, but the roots are scarcely disturbed in the process. If the work is done carefully loss of foliage or shrivelling of the pseudo-bulbs seldom ensues. Any specimens that have deteriorated through exhaustion from excessive flowering or other causes, also special varieties, the stock of which it is desired to increase, may be divided. Plants that are sending up flower-spikes and those which have not yet started to grow should not be disturbed at this season. Their re-potting should be deferred until new growths appear and the roots become active. In overhauling the plants with a view to selecting those that need immediate attention select any that are well on the dry side, as the roots are less susceptible of injury when in this condition. Unhealthy plants may be turned out of their pots, and, after removing dead roots and sour compost, re-potted into as small receptacles as will accommodate them. Healthy, well-established plants with several leading growths that need increased root room should be merely turned out of the old receptacles and placed into larger pots without otherwise disturbing the roots. There will probably be several back pseudo-bulbs on such plants, and if the rhizome of these be severed partially with a sharp knife sound buds at the base will soon develop into growths, thereby increasing the size of the specimen. Moderate-sized plants growing in 4½ or 6-inch pots with a single lead or a double break may have the old back pseudo-bulbs removed, and these will root on damp Sphagnum-moss, or they may be placed in pots filled with small crocks, to be potted when the new growths appear. Do not unnecessarily disturb the roots of the leading portion of the plant that has been divided. Weak specimens that are to be divided and potted into small pots should be placed together at one end of the house, which may be kept, not necessarily warmer, but a trifle closer than the other part. Also keep the atmosphere fairly moist, but do not afford much water at the roots. In all cases the pots should be clean and about half-filled with crocks. Pot each plant with moderate firmness, keeping the base of the young growth about on a level with the rim of the pot. A suitable compost for small plants and seedlings, also for those that have deteriorated and are in small pots, consists of small portions of Osmunda-fibre and Sphagnum-moss in equal parts, with small crocks to keep the soil porous. For moderate-sized plants and large specimens Osmunda-fibre only should be used, for when Sphagnum-moss is employed, unless it is cut up very small, the compost does not dry quickly, but becomes sour and stagnant. Five or six weeks after re-potting is a critical time for Odontoglossums. Afford water sparingly, merely keeping the surface of the compost fairly moist; then, as time goes on and the plants are making suitable progress, the amount of water may be increased gradually, always allowing the compost to become moderately dry before it is again wetted. A moist atmosphere should be maintained and plenty of fresh air admitted, especially when the outside temperature is about 50° and there is not sufficient wind to cause draughts. Admit plenty of air at night whenever the weather is mild, and for the present shade the plants from strong sunshine.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Violets.—The plants should be lifted from the open ground and planted in cold frames. Should the ordinary soil of the garden be unsuitable a fresh compost should be prepared of finely-chopped loam and decayed leaf-mould: if the loam is poor in quality it may be enriched with the addition of cow manure. Place sufficient soil in the frames so that when the plants are set they will be only a few inches from the top of the frame. Should any trace of red spider be detected on the foliage dip the plants in an insecticide before planting them. Preserve a good ball of soil about the roots and replant with the least possible delay. Set the roots firmly in the soil and soak the latter with clear water when the work is finished. The lights may remain closed on the frames for a few days, and during bright weather a light shade afforded, but afterwards admit fresh air.

Climbing Roses.—Cut out all useless, weakly spray-growth at once, for it is only by doing this that the plants may be kept in a flowering condition. Give moisture at the roots when required, as growth is still active, taking especial care to see that plants growing against walls are well watered. If the young shoots are affected with mildew syringe them with a specific.

Planting Bulbs.—Bulbs intended for naturalising in grass should be planted, and the sooner the better. Daffodils thrive best in fairly-moist, partially-shaded situations in the woodland. Where large supplies of cut flowers are required batches of Tulips and Narcissi may be planted in the reserve quarters in ground that has been thoroughly well dug, and enriched with manure and soot.

Specimen Plants in Tubs.—With a continuation of fine weather summer flowers may continue to make a brilliant show for some time to come. It is always a matter for regret when beds of flowers, which are perhaps at the height of their beauty, have to be uprooted at the end of the season. Should frosts appear likely protection should be afforded the more tender subjects, and sheets of tiffany placed lightly over the beds will be a sufficient protection at this time of the year. Tender plants in tubs may remain out-of-doors for several weeks to come if provision is made for covering them during times of frost. To preserve a tidy appearance in the flower garden for the next few weeks the beds should be examined almost daily, with a view to removing dead flowers and foliage.

Spring-Flowering Plants.—Stir the ground between the plants frequently with the hoe. The plants will not need much watering after this date, as an excess of moisture may cause them to become unduly coarse and sappy, conditions that make them unfit to withstand a severe winter.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

The Orchard House.—Fruit trees growing in pots or planted out under glass must not be neglected after the crops are gathered. The foliage of Cherry and early Plum trees should be syringed frequently with clear water, and, if attacked by insect pests, sprayed with an insecticide. The borders of late varieties which were kept dry whilst the shoots were ripening should now be soaked, and applications of manure-water will be beneficial. Fruit trees in pots should be watered with extra care during times of dry weather. Late varieties of the best kind of Plums will continue to yield supplies of ripe fruit for a short period. The roots should be kept moist with clear water only and a free circulation of air admitted. Damp the paths and bare surfaces of the house on bright days.

Peach Houses.—There has been little difficulty in ripening fairly strong growths on mid-season and later trees this year, but where the wood is not so ripe and firm as may be desired a little warmth may be allowed to circulate in the hot-water pipes and air should be admitted freely. Owing to the dry summer red spider has been unusually troublesome, and if any of the pest is still present on the foliage syringe the trees vigorously on fine afternoons. The

fruits in late houses where no fire heat is used are ripening, and the trees require careful attention. Expose the fruits as much as possible to the sunshine, placing a leaf aside here and there, and bringing the fruiting-twigs well up to the trellis. Whilst making the most of the sun's heat for the purpose of ripening the fruits, do not neglect to keep the air in constant circulation. After the fruits are gathered syringe the foliage on bright afternoons to keep the leaves clean and healthy. A little soft soap and sulphur in solution will be valuable for destroying red spider. As no artificial warmth is employed, make the best use of the sun's heat, in order that the wood may be ripened thoroughly. Examine the inside border, and, if found to be dry, soak the soil with water. If it is found that the trees in the Peach houses are not doing well, because of unsuitable borders, let there be no hesitancy in renewing the latter, either during the present month or whenever the foliage parts easily from the shoots. Start the work at a good distance from the trees—at about where the roots have reached their limit, removing the soil carefully with a fork, taking care to preserve the roots from injury. Work towards the stem of the tree, and when all the roots are bare wrap them in wet garden mats.

New Borders.—The first thing to consider in the new border is efficient drainage; should the subsoil be a cold clay, cover it with cement, sloping it in the direction of the drain, so that the water may pass away. Next place a layer, 9 inches deep, of broken bricks or stones, and cover these with fresh sods, placed grass-side downwards. The Peach gives the best results when grown in a heavy loam, and this material should be mixed with portions of brick broken finely, and lime rubble to keep it open. If only light loam is available, use that containing plenty of fibre, and mix with it lime rubble, and to every barrowful of soil add a little bonemeal and artificial manure. Place the soil to the depth of 2½ feet; the width of the border should be a little more than the length of the longest roots, making provision for extending the border when the roots require increased room. Arrange the roots in layers, and place them near to the surface. Any roots that are very strong and bare of fibres, also any that are damaged, may be shortened, but preserve all the small roots. In arranging the soil in the border, also in planting the trees, make the compost very firm.

Lifting Peach Trees.—Young trees in fresh borders make vigorous growth for the first season or two afterwards, and in consequence produce little or no fruit. The best treatment is to lift the trees completely out of the border and replant them, but this should not be done until the foliage parts freely, otherwise the shoots may shrivel. Start at the extremity of the roots, and remove the soil carefully with the fork until it is safe to lift the base of the tree with a ball of soil attached. All strong-growing roots, including tap roots and those growing in a downward direction, should be cut back. In replanting take care to keep the roots near to the surface, and make the soil very firm, both under and over the roots. Water the border sufficiently to wet it thoroughly to the bottom, and keep the house rather close for a short time afterwards.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Bouvardia.—Bouvardias which have been planted out in the open ground or in cold frames should we watered and placed in a close pit, light, fibrous loam and leaf-mould in equal parts, with the addition of some coarse sand and wood ash. If the loam is heavy a little peat will be beneficial. When potted, the plants should be watered and placed in a close pit, frame or house, shaded from the sun. They should be syringed to prevent their flagging, and as soon as they have recovered from the disturbance at the roots they should be placed in their flowering quarters and afforded a temperature of 50° to 60°, in a house where the atmosphere is kept moist.

Housing Tender Plants.—Tender plants that have been growing out-of-doors during the summer should be brought into the glasshouses for the winter. First wash the pots, then sprinkle a little artificial manure on the surface of the soil and water the plants by means of a rose-can.

Tree Carnations.—These plants should be afforded a night temperature of 55° to 60°. Damp the bare spaces of the house and syringe between the pots on bright days to promote atmospheric moisture. It is preferable to stand the plants on a layer of ashes; if the ashes are objected to as being unsightly a light covering of gravel will give the bed a smart appearance. Before throwing away the old stock plants take a further batch of cuttings and insert them in frames or boxes provided with bottom heat, as advised in a previous calendar. I find that at Chatsworth cuttings rooted at this time of the year give far better results than those struck in January. I am not advising this practice for the South of England, where those inserted in January and February are preferable. It is because cuttings cannot be obtained in this district until the latter end of February, whereas in more southern gardens there are plenty of cuttings available just now. See that the shoots are free from red spider before they are inserted, and it will be wise to dip them in an insecticide, afterwards immersing them in cold water.

Begonia Gloire de Lorraine.—Where large batches of this Begonia and its white variety, Turnford Hall, are grown, some of the plants may be allowed to develop their flowers now. Let the plants be placed in a house having a temperature at night of from 60° to 65°. These Begonias, when in flower, should not be kept in such a damp, close atmosphere as in the earlier stages. Specimens that are well rooted may be top-dressed with a little fertiliser. Syringe between the pots to destroy red spider and fumigate the house occasionally.

Coleus thyrsoides.—Plants of this species require a temperature at night of 55° to 60°, and the roots should be fed with a fertiliser or liquid manure when nourishment is required. Admit plenty of air during the daytime, so that the growth may be sturdy, and do not syringe the foliage.

The Stove House.—Codiæums (Crotons), Dracænas, Pandanas, and Browallia speciosa major are suitable plants for furnishing the mixed stove, and they should now be established in large pots, ready for placing in the warm house. Early batches of Clerodendron fallax are on the point of flowering, and these plants also will add to the attractiveness of the stove. Plants of the later batch of Browallia intended for decorating the stove in the winter should be stopped for the last time.

Hot-Water System.—Let the flues of the furnace be swept and overhauled thoroughly. Place new firebars where the old ones are worn or rendered useless by the heat of the furnace. Flush all the pipes and cleanse the boilers, so that everything will be in perfect working order when cold weather sets in.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cauliflowers.—By making a sowing this month and wintering the plants in cold pits a good supply of Cauliflowers may be had next June. The exact date on which to make the sowing will depend on circumstances; nothing will be gained by starting too soon, as the plants will become so forward as to be too large when the time arrives for planting them out, whilst if grown in pots they would almost be sure to become stunted. Sow the seeds thinly in a cold pit, which will provide protection for the seedlings during times of frost before they are potted. The soil should not be of too rich a nature, and must be made moderately firm, so that the plants may grow compact. When large enough for transplanting the seedlings may be repotted singly into large 60-sized pots. Stand the receptacles on a bed of ashes, which should be about 18 inches from the roof-glass. There will be no need to place the lights in position until the weather becomes cold or excessively wet, and even then they should only be used when absolutely necessary. The soil for potting may consist of a mixture of three parts sandy loam, and one part leaf-mould; it should be made moderately firm about the roots. Many growers have discontinued sowing Cauliflowers in autumn, depending entirely upon plants raised in the spring. But I still obtain the best results from autumn-raised plants. At Frogmore we grow the varieties Magnum Bonum, Walcheren and Early London, and they mature in the order given. Our stock consists of 8,000 plants, which are grown in pots throughout the winter and planted out-of-doors as early in April as the weather permits.

Lettuce.—Plants raised from seeds sown early in August are ready for transplanting on a sheltered border where protection may be afforded them in November. Lettuces are often harmed by an excess of moisture in early winter, when the sun has but little power. In these circumstances it is necessary to cover as much of the crop as possible, so that a supply may be maintained well into the winter without drawing upon those in pits. All that is necessary is to provide some covering which will ward off rain water without producing a stagnant atmosphere, but it should not be placed in position before it is necessary. Spare lights or box frames will answer the purpose well. A sowing of Brown Cos, Stanstead Park, and Maximum may be made now in a cold pit for planting out next March, or earlier if the weather is favourable.

Mid-Season Potatos.—This crop should be lifted and the tubers stored as soon as possible, The tubers should not be allowed to remain exposed to sunshine. Unless there is a suitable house for storing the tubers they are best wintered in pits in the open, covering them with sufficient soil to prevent frost. The tubers should be perfectly dry before the final covering of soil is placed over them. If it is necessary to save seed tubers these should be selected now and placed in a dry shed where air is admitted freely. The haulm of late varieties is still green, and the tubers will require to be left in the ground for some time to come.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Late Plums.—Many late varieties of Plums, such as Grand Duke, Monarch, Coe's Violet and Coe's Golden Drop, will, if protected from birds, wasps and other pests, hang on the trees until the end of October. It is a good plan to wrap each fruit separately in cotton-wool, rough side outwards, tie up the end lightly, and secure the fruit to the wall. See that the tree does not suffer for want of water at the roots or the fruit will become unduly shrivelled.

Wall Trees.—The bright, warm weather is very beneficial to fruit trees on walls in ripening the wood. Soft growths should be pinched persistently, so as to allow the sunshine to reach and ripen next season's fruit buds. Many trees are cleared of their fruits, and should be syringed thoroughly, using soft water for preference. The work should be done in the early part of the day, so that the wood may become dry before night. The fruits of fan-trained Peach, Nectarine and Morello Cherry trees have been mostly gathered, and special attention should be devoted to ripening the growths of the current season, as these will be the fruiting shoots of next year. In most of the trees more shoots may have been trained in than are likely to be required; the superfluous growths, together with older wood, should be thinned out, leaving such shoots as are left thinly and lightly tied and fully exposed to light and air. Preparations may be made for root-pruning such trees as require this operation. If the tree is a young specimen it is best to lift it to make an examination of the root system, but this cannot be practised with large trees. In this case a wide trench should be cut a good distance from the stem of the tree. This will permit of the spade being used in a horizontal direction under the roots. All tap roots and those growing in a downward direction should be cut clean through. The root-pruning must not be carried out in too drastic a manner, or more harm than good may result. Old trees, which have furnished fair crops of fruit for several years, seldom need root-pruning.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, SEPTEMBER 22—
Nat. Chrys. Soc. Executive and Floral Coms. meet.

TUESDAY, SEPTEMBER 23—
Roy. Hort. Soc. Coms. meet. Special Vegetable Competitions. (Lecture at 3 p.m. by Mr. Bernard Crisp on "Autumn Border Plants.")

WEDNESDAY, SEPTEMBER 24—
North of Eng. Hort. Soc.'s Fruit and Potato Congress at Kendal (2 days).

THURSDAY, SEPTEMBER 25—
Roy. Hort. Soc. Exh. of British-grown Fruits (2 days).

FRIDAY, SEPTEMBER 26—
Ann. Conference of Affiliated Mutual Imp. Socs. at R.H.S. Hall, Westminster.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 55.5°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, September* 17 (6 p.m.): Max. 61°; Min. 52°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, September* 18 (10 a.m.): Bar. 29.6°; Temp. 58°; *Weather*—Overcast.
PROVINCES.—*Wednesday, September* 17: Max. 58°, Valencia; Min. 52°, Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY NEXT—
Dutch Bulbs at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

WEDNESDAY NEXT—
Special Trade Sale of Bulbs, Lilies, &c., Palms and Bays, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

MONDAY, WEDNESDAY, AND THURSDAY—
Dutch and French Bulbs, Palms, etc., at Stevens's Auction Rooms, King Street, Covent Garden.

The Lawes and Gilbert Centenary Fund.

The year 1814 saw the birth of the late Sir John Lawes, and 1817 was the year of birth of the late Sir Henry Gilbert. These two dates are so important in the history of horticulture and agriculture that arrangements are being made to organise a centenary fund by which an appropriate memorial may be set up.

Every cultivator of the soil has heard of Rothamsted, and many hundreds have visited the experimental plots and seen something of the work that has been done there. Very many more, however, are unconsciously utilising the results of the labours of the Rothamsted investigators, and are getting better crops at less expense than could have been obtained had the Rothamsted Experimental Station never existed.

When Sir John Lawes came into the Rothamsted Estate at the age of 19 years agriculture was still rather in the depressed state into which it fell after the Napoleonic wars. Some of the large landowners were taking a serious view of their responsibilities, but many others were careless and negligent, and there would have been nothing unusual in the circumstance had Sir John taken to the easy-going life of the English country gentleman. But he did not; instead, he began to make experiments, and in doing this he went further than such of his predecessors and contemporaries who were also experimenting, for he realised that two men are better than one at the business. He found as colleague a young chemist, Joseph Henry Gilbert, who after studying under Thomson, Graham and Liebig, had turned to calico printing near Manchester. The two men were particularly well fitted for each other; Lawes had a thorough practical knowledge of farming, while Gilbert had a thorough knowledge of chemistry; Lawes was a quick thinker given to generalising, and Gilbert was a most careful and painstaking investigator who always insisted on ample proof before he accepted anything, and compiled abundant evidence in proof of the statements he made. Thus right at the outset the work represented that combination which is rightly looked upon as necessary for horticultural and agricultural experiments: a combination of practice with science. Landowners before Lawes had made experiments, and chemists before Gilbert had attacked agricultural problems. But no one before or since has done quite so much as these two investigators, because no one man could have the combination of qualities they jointly possessed.

The first big problem they studied was: what are the substances that plants feed upon, and how may the farmer increase the supply of them in the soil? Liebig had done much to clear up the problem from the theoretical side, but the practical problems remained largely unsolved. Lawes and Gilbert therefore set out field experiments to study the requirements of the four members of the old Norfolk rotation: Wheat, Barley, Clover and Swedes, to which they later added Grass, Oats, Potatos, Sugar Beets and Mangolds. Lawes had already found that bones, so useful on other lands, were ineffective on his own, and he traced this lack of action to the insolubility of the phosphates. When the bone was treated with sulphuric acid it proved very active. Lawes understood chemistry sufficiently to know that calcium phosphate from any other source after treatment with acid would give the same result, and so he was led to the discovery of superphosphate, a valuable manure made out of two substances of less direct value to the farmer, namely, sulphuric acid and insoluble rock phosphate, both of which can be obtained in practically inexhaustible amounts.

They soon found that all crops excepting clover must have a sufficient supply of nitrogenous food or they will not grow.

But nitrogen manures alone would not give satisfactory results. Complete success was only obtained when phosphates and potash salts were applied in addition. Some crops wanted more of one than of others: Barley and Swedes wanted more phosphate; Mangolds and Clover wanted more potash; but each crop needed all these constituents in some proportion or other. When these are provided the nitrogen supply becomes the determining factor in regulating the size of the crop: as the nitrogen supply is increased so the crop is increased, so that a grower can get any sized crop he wants up to a certain point by increasing the nitrogen supply. The limit is only set when the selling value of the crop is below the cost of manure and cultivation. The best nitrogenous and other fertilisers, and the best ways of using them, were all carefully investigated.

It was also found that the crop did not take up anything like all the nitrogen supplied in the manure; there was considerable loss. In view of the great cost of these manures it became necessary to discover how the losses arose. A very ingenious field experiment showed that a winter's rain would wash out from a piece of fallow land as much nitrogen as would give a four-quarter crop of wheat. The discovery was followed by further investigations which led to much useful work on drainage water. Another source of loss was also discovered which is now being further studied.

The development of these experiments led to a complete study of the effect of manures on crops, and the general relationships existing between the soil and the plant. Many of the results of the labours of Lawes and Gilbert have passed into common horticultural and agricultural practice; they have been summarised in a convenient form in the books on soils and manures that have been published from Rothamsted during the past seven years.

Every horticulturist knows that there is no such thing as finality, either in science or in practice. If any sceptic thought there was he would only have to go for two years in succession to the horticultural exhibitions to see the advances made even in a single season. It is especially true of the science of the soil and of plant nutrition — the subject particularly associated with Rothamsted—that the pioneering work so ably done by Lawes and Gilbert has to be followed up. Fortunately an enthusiastic body of investigators are uniting at Rothamsted to carry on this work, and in order to facilitate their researches it has been decided to build a commemoration laboratory, adequately equipped and affording the necessary accommodation for future developments. For this purpose £12,000 is required, but if half this sum is raised by subscription the other half will, it is anticipated, be provided by a grant. Thus, £6,000 is asked for from the public, and of this it is hoped that £1,500 will be raised in subscriptions from growers. Rothamsted has supplied the model on which agricultural experimental

stations all the world over have been formed. No better memorial to the genius of the founders of Rothamsted could be made than the addition of a commemoration laboratory to this historic station.

The Admission of the Public to Private Grounds.

The leading article in the *Times* (August 19) referring to the gracious act of Queen Alexandra in opening the gardens and grounds of Sandringham to the public on one day a week, and applauding the growth of similar generous practices, has led to an interesting correspondence.

Sir Frank Crisp, whose generosity in this as in all other respects is so well known, gives his personal experience, stating that during the past fifteen years, though Friar Park has been visited by more than 100,000 persons, only three cases of definite damage have been recorded. He would be indeed a vandal who, after being met at the entrance gate with the welcome "Don't keep off the grass," could do other than treat these wonderful gardens with a respect equal to the courtesy which the owner of the gardens bestows on his guests. In the same issue of the paper already cited, however, is another letter from the owner of a place in Ireland, deploring the fact that the Killarney Fern which grew on the estate has disappeared at the hands of Fern-hunters. It is only too true that such things will happen; yet, much as we deplore such a loss, we concur with the writer of the *Times* leader in holding that there is "much nobility . . . about the owner who took no notice of damage beyond the repairing of it, believing that in time example would tell and confidence be repaid." It is, of course, easy to offer advice and to preach an altruism for the exclusive practice of others; nevertheless it cannot be gainsaid that the more the practice of admitting the public to private grounds becomes general the rarer will be the occasions when through carelessness, levity, ignorance or naughtiness the privilege will be abused. The letter addressed by the Hon. Vicary Gibbs to the *Times* is a generous testimonial from one of the most distinguished amateurs of horticulture to the proper consideration shown by the numerous public which is welcomed to the gardens at Aldenham House. "They are admitted every Saturday and on Bank Holiday in August to every part of the garden, kitchen garden, park, without restrictions or any special supervision. They avail themselves very freely of the privilege, and no wilful damage of any kind has ever been committed, except that on one occasion some youthful vandal scratched his initials with a nail on a Græco-Roman bas-relief."

Coloured Supplement.—The subject of the Supplementary Illustration is Nymphæa Masaniello, one of M. Latour-Marliac's hybrids, which has not yet become so well known as some others. The plant is described by Mr. James Hudson as a vigorous grower and one that should be numbered with the best hybrids in cultivation. The Coloured Plate well depicts the fragrant, brilliantly-coloured flower as cultivated in Mr. Leopold de Rothschild's garden at Gunnersbury House, Acton.

Royal Horticultural Society.—A meeting of the committees will be held on Tuesday, the 23rd inst., in the Vincent Square Hall, Westminster. Special vegetable competitions will be held, and at 3 o'clock in the Lecture Room Mr. C. Bernard Crisp will deliver an address on "Autumn Border Plants."

The House of Veitch.—A contemporary has a paragraph referring to the purchase of Messrs. James Veitch and Sons' seed business by Messrs. Sutton and Sons, in the course of which it states that "two members of the Veitch family are among the long list of those who lost their lives in the service of the firm. One was Peter C. Veitch, a son of the founder of the business, who was shipwrecked off the Australian coast, and another was his cousin, John Gould Veitch, who succumbed to lung disease brought on by the exposures and hardships of travel." This report, as most of our older readers know, is inaccurate. The two members of the Veitch family referred to were grandsons of the founder of the firm of Veitch in Exeter, Mr. James Veitch. Mr. John Gould Veitch was a son of Mr. James Veitch the younger, founder of the Chelsea firm, Mr. Peter Veitch being a son of Mr. Robert T. Veitch, who carried on the original business at Exeter after his father's death. He, in turn, was succeeded by Mr. Peter Veitch, his son. Mr. P. C. M. Veitch was, it is true, shipwrecked off the Australian coast, but he was not drowned. As a matter of fact, Mr. P. C. M. Veitch, who is head of the old Exeter firm, is much alive. He is an active member of the Fruit and Vegetable Committee of the Royal Horticultural Society, was one of the jurors at the Ghent Exhibition a few months ago, takes his place regularly on the Bench of the Exeter City magistrates, and controls personally the large nursery and landscape and seed business of the Exeter firm with vigour and success. He is, of course, a first cousin of Sir Harry Veitch. The transfer of the Chelsea seed business does not in any way affect the Exeter firm, whose business is carried on as usual.

National Sweet Pea Society.—The annual general meeting of this Society will be held at the Hotel Windsor, Victoria Street, Westminster, on Monday, the 20th prox., at 2.30 p.m. A Sweet Pea Conference will be held at 7 p.m., when Mr. J. S. Brunton will deliver a lecture on "The Sweet Pea Industry." Applications for dinner tickets must be made to the hon. secretary, Mr. C. H. Curtis, Adelaide Road, Brentford, on or before October 18. The Society will hold trials of Sweet Peas at the Burbage Experiment Station, Leicestershire, conducted by Major C. C. Hurst in 1914. No certificates or awards will be granted to novelties unless they are sent for trial. For the novelty trials a charge of 2s. 6d. per variety will be made, and novelties will be accepted only from the raiser or introducer. As all the trials will be sown this autumn, thirty seeds of each novelty must reach the hon. secretary not later than October 4, 1913. The seeds must be placed in plain packets, but each packet must bear a number or letter for purposes of identification. With the seeds there must be a letter bearing the sender's name at the top, the number or letter of each novelty sent, and opposite such letter or number the name of the variety (if any), the colour section to which it belongs, and, if orange or salmon, whether it should be shaded. Sweet Peas will also be tested for purity at a charge of 10s. per stock or variety sent. Not fewer than two dozen seeds should be sent. In every case the amount due for trials charges must accompany the seeds. Every sender will receive the report of the Floral Committee in the autumn of 1914.

——We have received a circular letter on the subject of the National Sweet Pea Society from Miss Hemus, of Holdfast House, Upton-on-Severn. It is dated September 20, and relates to proposed changes in the constitution and government of the society, for which she asks the support of the members at the annual meeting of the society, which will take place next month. The letter states that the proposed changes are for the purpose of placing the government of the society in the hands of independent amateurs, to reduce the number of varieties of Peas to a trustworthy and comparatively short list, and to control the introduction of alleged new varieties. Amateurs, it is said, will benefit because they will be protected against being asked to buy as novelties things that are not novelties, while the honest trader will be secured against the appropriation and re-naming in the future of anything good that he may have produced. Those who are willing to join the general committee are asked to inform Miss Hemus accordingly when they have seen the proposed rules.

Perfume in Sweet Peas.—The Duchess of Hamilton, in her speech in opening the Glasgow Flower Show on the 3rd inst., said if she might make a suggestion it would be that she hoped the future propagators of Sweet Peas would turn their attention to keeping the scent of the flowers. The Peas shown that day were very lovely, but she thought a great many of them had not got much of that very excellent quality of scent. The Duchess thus called attention to a fact which has become very obvious in recent years. Ever since the introduction of the large waved Sweet Peas the decline of perfume has been marked. In this the modern Sweet Peas resemble many of the finer Roses, and we are glad there are signs of a reaction. When a new Carnation or a new Rose is presented to the Floral Committee of the Royal Horticultural Society the first thing many members do is to smell it, and if this quality is lacking it influences the votes of a number. So long as the demand has been for varieties of flowers to win on the exhibition table raisers have kept the qualities of form and size continually before them to the almost entire exclusion of others such as habit and scent. In discussing the question of scent in Sweet Peas, a well-known raiser said that the attainment of greater perfume in the giant waved forms would require some years of work. To cross the best waved forms with such sweet-smelling old varieties as Lady Grizel Hamilton and Princess Beatrice might result in increased perfume, but it had yet to be proved that the delightful perfume of the old sorts would associate with the waved form. The first result of crossing will be a backward step, because a mixed progeny will be the result, and several years will be required to fix the new waved forms if the raiser is fortunate enough to get a greater degree of perfume introduced into them. The effort is well worth making, because every cultivator who is not an exhibitor would be be well content with sweetly perfumed flowers, though they did not measure 2½ inches across the standard.

Is Fragrance in Roses Desirable?—The following is an extract from a trade catalogue recently sent us:—"The most general fault with our modern Roses from the popular point of view is their want of perfume. How they have lost their fragrance is very simple. Most of our best Roses are hybrid Teas, and the Tea Rose has very little scent, and what little it has is apparently easily lost by hybridisation. Fortunately, nearly all our red Roses are still fully fragrant, and when any other varieties carry any perfume to speak about I will take care to mention it in my description. Scent was useful once to attract the fertilising insects, but it has no effect on the camel-hair pencil of the hybridiser, and, alas! little more on the hybridiser himself; he is after something of so much more moment. The new break in colour or extra length and special curve of petal are altogether too precious to let any consideration of perfume come in. Of course, fragrance is the

only excuse for the existence of the commoner flowers. We should consider Mignonette a hopeless weed if it were not so sweet; many way-back Roses have no other excuse for their place in our catalogues to-day than their perfume. In the old days, before the Rose had been developed in the exquisite varieties it has to-day, perfume was half—and admittedly a large half—of its delight. You have necessarily sooner or later to give up this association of scent with the best Roses, and I should like you to do it without much regret; it is one of our senses, of course, but it is the most primitive, and the most animal of the five."

ROSE PRINCESS MARY.—Mr. ELISHA J. HICKS informs us that he has obtained PRINCESS MARY'S consent to name a seedling Rose after Her Royal Highness. Mr. HICKS describes the novelty as resembling Irish Elegance, except in colour, the flowers being scarlet.

HOP PROSPECTS AT HOME.—The Board of Agriculture and Fisheries inform us that the crop is nearly everywhere lighter than was expected, particularly in the western counties. The chief reason is the smallness of the Hops, which, although healthy, have not developed to their full size, and they are weighing badly; but the actual quantity is also, in many cases, short of expectations. The quality of the Hops is, however, regarded as very good. No part of the country is expected to show an average yield. Kent as a whole may have about 80 per cent. of an average, while the yield in Hereford and Worcester is less than this, and may possibly not exceed 60 per cent. in the two counties. The average yield per acre throughout England may be put at about 72 per cent. of the average of the last 10 years.

HOPS IN RUSSIA.—The Board of Agriculture and Fisheries have received a report, dated September 8, from His Majesty's Consul at Warsaw stating that, according to a circular issued by the Ersten Hopfen Gesellschaft at that town, the weather in Poland and Volhynia during the last few weeks has been favourable to the development of Hops, and numerous gardens which were in a backward condition have considerably improved. Picking has already begun in several districts and will be general next week. The total Russian production is expected to be less than last year, and is estimated at about 50,000 cwts.

APPLE BEDFORD PIPPIN.—We have received a fruit of a seedling Apple raised by Messrs. LAXTON BROTHERS, and described as a cross between Ribston Pippin and King of the Pippins. It is 8 inches in circumference, almost yellow on one side and prettily marked with red on the other. In appearance it is fairly intermediate between Ribston and King of the Pippins. We are informed that the fruit was accidentally knocked from the tree, and has ripened rather earlier than usual, the proper season being October, in which case the novelty may have much value, as it will come into use for dessert earlier than Cox's Orange Pippin. The flesh is softer than either of its parents and very sweet, whilst the flavour, so far as we can judge from one specimen, is good. Another season is required to further test the fruits.

BUTTONIA NATALENSIS.—It has long been known that Buttonia natalensis, the handsomest climber in Natal, is a root-parasite, but to what host plant Buttonia natalensis attaches itself was unknown until recently. A note in the *Kew Bulletin* (No. 6, 1913), based on material sent by Dr. MEDLEY WOOD, director of the Natal Herbarium, makes it fairly certain that the host is Euphorbia grandidens. Like so many other Scrophulariaceous plants the roots of Buttonia natalensis develop haustoria, which make connection with the vascular tissues of the roots of the host, and provide good material, derived from the latter, for the growth of the parasite.

HOPS IN NEW YORK STATE AND CALIFORNIA—The Board of Agriculture and Fisheries have received a report dated August 25 from His Majesty's Acting-Consul-General at New York stating that the area under hops in the State of New York is about 10,000 acres. The weather has been favourable, and, if it should continue, the yield is estimated at about 60,000 cwts., or rather more than last year, a very high percentage of which will be of excellent quality. The stocks in brewers' hands are not very large, and growers' and merchants' stocks are smaller than they were at the same time in 1912 or 1911. Current prices for the remainder of last year's crop are 9½d. to 10d. per lb. For the 1913 crop, on contract, there is a fair demand in the Pacific Coast States at 9d. to 9½d. per lb., first cost, but growers are generally holding out for higher prices, so that the volume of business is very limited.

RECORD OF NEW HYBRID ORCHIDS.—We are informed that at the meeting of the Council of the Royal Horticultural Society on Tuesday, September 9, the resolution on this subject presented by the Orchid Committee of the Society was adopted. (See report of Orchid Committee meeting, *Gardeners' Chronicle*, Sept. 13, 1913, p. 192).

MR. JOHN MCKERCHAR.—Owing to an obituary notice which appeared in the *Daily Telegraph* last week, a rumour gained currency that Mr. JOHN MCKERCHAR, of 35, Giesbach Road, Upper Holloway, had died suddenly. We are pleased to inform our readers that Mr. MCKERCHAR is not the person referred to in that notice. He has just returned from a visit to Scotland, hale and hearty as ever.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

SEED TESTING.—I am glad to say that I am in full agreement with the conclusions arrived at in the leading article in the *Gardeners' Chronicle* of last week. When the Parliamentary Committee of the Royal Horticultural Society considered the question it did not object to the erection of a seed-testing station, but it pointed out in its opinion such was not required for horticultural purposes, and it also put on record the opinion which you quote that "a seed-testing station, if created, must provide a full and sufficient guarantee, both to buyer and seller, as to the identity of the bulk sold with the sample submitted for test." That is the crux of the whole matter, and it does not want much reflection on the part of practical men to realise the difficulties in the way of accomplishing this. Let me give two illustrations which have come under my own observation this season. Ten sacks (forty bushels) of Peas were bought from a well-known house. They were, to all appearance, a good lot of wrinkled Peas, and were sown in a ten-acre field. All I need say here is they did not turn out as represented, and the seller at once, when the error was pointed out, made the *amende honorable*. If the buyer had wished to take advantage of a Government seed-testing station he would have required to notify the seller and arrange on delivery to have samples drawn from the forty bushels in the presence of the buyer's representative, and possibly in the presence also of a Government inspector. The seed-testing station could soon have tested the sample for germinating power; but what of a test for purity? Would the seed-testing station have grown a sample? Would they have supervised the buyer's crop? Would they have made sure that the treatment was similar? With seeds we are not dealing with a product which can be sampled, sealed up, and put aside till samples are fully tested. Seeds, as a rule, are sown very soon after delivery. Impurities which can be detected by microscopic or other examination are a different proposition. The other case I have in mind is one of a field of Potatos, which I pass and repass every day. The seed ought to have represented a late variety, but it turned out to be a mid-season one, and is now being raised, the farmer obtaining something very different from what he expected, and had a right to expect. How would a seed-testing station help in this case? The people who want a seed-testing station must surely think that the majority of seed merchants are unscrupulous, whereas quite the reverse is, and must be, the case. It does not pay to swindle a customer, but it must ever be kept in mind that in the seed trade, as in the tobacco or any other trade, people must pay for quality every time. Many farmers boast they purchase their Turnip and Mangel seed at very cheap rates, and think they are doing a smart thing. How differently our largest and most successful market gardeners act! Many of them tell me the price of the seed is altogether a minor consideration. If a crop is to be worth £100 to £150 per acre an extra twenty shillings on the cost of seed is a trifle. It generally means more uniformity in the produce, because the seed is from a selected stock, and in the case of flowers it generally also means truer and purer colours, and a deal of labour saved in selecting at picking time. I have no sympathy with the man who is out for cheap seeds. If he gets his fingers burnt it serves him right, and I cannot see how a seed-testing station is going to help him very much. To the end of time the seed business will be a business of confidence. Buyers, as your article suggests, are becoming every day more educated and experienced, and as education and experience grow the cheap-jack seedsman will find his occupation going also, though there will always be some left who are out for cheapness. At present seed merchants are faced with a new situation arising out of the numbers of allotment holders and others who are forming themselves into societies or committees, and sending round for estimates for fairly large quantities of seeds and other things. Discussing this phase with one of the largest wholesale seedsmen the other day, he said the time had come when some concerted action would require to be taken, as the wholesale trade, as well as the retail trade, were being asked to estimate for these requirements. My friend thought it was the duty of the retail trade to deal with such business, and he said his firm had resolutely refused to quote. If it is agreed that it is legitimately the business of retail firms to handle such orders, then an understanding ought to be arrived at, and the retail trade should agree to support those wholesale firms who decline to supply the combinations I have referred to. I believe the cry for a seed-testing station arises largely from people who are associated with such movements as these. They are often not practical people. They believe in buying the cheapest stuff, regardless of source, and often finding it unsatisfactory, they judge the whole trade accordingly. Complaints are being sent to the Board of Agriculture that some varieties of Potatos recommended by the Board as immune from Black Wart disease are not really immune. I believe if such complaints were thoroughly investigated it would be found that those who complain have not been supplied with the true varieties. They have in all probability bought their seed from a local grocer or travelling merchant, to whom Potatos are just Potatos, by whatever name they are called. It may be said that the seed trade is afraid of a seed-testing station when the leading horticultural journal takes the trouble to doubt its value in a leading article. If so steps must be taken to support the position taken up by Sir William Thiselton-Dyer, Mr. Leonard G. Sutton, and the *Gardeners' Chronicle*. *W. Cuthbertson, Edinburgh.*

GOLD MEDAL ROSES.—There is an aspect of this question which does not seem to obtain sufficient recognition in the interesting correspondence which *White Rose* has elicited. I will put it as concisely as possible:—That the want of the Rose-loving public divides itself into two separate and distinct branches, requiring different treatment. The first is a gradual and steady improvement in the race of domestic Roses, particularly in relation to their adaptability for special purposes. The second is a winnowing of all Roses offered to the public annually by some recognised authority. For the first it is essential that the production of new Roses should be encouraged; for by this means only can we get improvement. The Roses that annually obtain some recognition as new and improved varieties are an exceedingly small percentage of the number of seedlings raised, nursed, and tested for some years by devoted hybridisers before the few are chosen by

them and the many destroyed. Those Roses that are ultimately awarded a gold medal are perhaps not more than one in a thousand of those which have seen the light of life. Something is due to the parties who have had all the care and cost of nursing these few into a public gain. They have had bitter disappointments during the process and much discouragement. A few have had the joy of occasional success to mix with it, and induce continued striving in all, while the public get the pleasure without the alloy. Do not these labourers for our benefit deserve all they can obtain from us? Their only hope of getting any return is that they may be the first to send out the remnant of their annihilated host to a public willing and anxious to test their merits. So the gold medal, to be of any use to the successful raiser, must be given before the happy survivors have become public property. It may turn out on further trial by the public that some of them do not meet with general approbation. Still, if the anxious eyes and hearts of a Rose-loving public are gladdened by some exquisite gem—and we know they are—then do not let us begrudge the raiser his success. His disappointment at the failures may be greater far than ours, and one gem is worth many gold medals. But the Roses of our country are only a portion of what are raised and put into commerce every year and which turn out on further trial to be of the class the public so much desire. Therefore what the public particularly want is that something may be done to point out to them by some recognised authority what Roses to get for themselves. They want the winnowing of the whole Rose world, the cream of all countries—France, Germany, and America, as well as Britain. How can they get it? By time and trial alone. What may be a success in one country may be a failure in another; and what may suit in one part of our country may disappoint in another. The Rose is greatly affected by environment, whether of climate, season, situation or soil. So that a single trial garden even in one part of the country and under one class of management may not give entire satisfaction. Therefore British gold medals cannot be given to British raisers of new Roses as an encouragement and appreciation while the new Roses are the raisers' private property, and at the same time satisfy the public that a sufficient test has been made of their merits, of which the gold medal is the evidence. Neither can it be made to cover the good Roses from other countries which the public also want so much, and which they may reasonably think might be included in an authorised selection, which their National Rose Society is the best authority to give to them, as well as gold medals to raisers. There has been a suggestion before the Rose public for some time which, in operation, would injure no one, but would be an immense boon to the general public, and tend to promote the extension of the cultivation of the Rose, and by this means benefit the raiser, the nurseryman, and the society which promoted it. No doubt it implies a few seasons of restraint on ardent desires, but the prices of new Roses entail that already, without bringing relief and certitude at the close, while those who have the means and cannot wait, from a keen appreciation of a perfect Rose, may try for themselves, to the mutual benefit of the raiser, the nurseryman, and, let us hope, in most cases, the cultivator Do not therefore, risk an injury to the good work of the gold medals by drastic change, but try to institute another mode of meeting the wants of the Rose public in such a way as will remove some of the pressure of undue expectation from the gold medal to a reasonable anticipation of benefit from a complementary scheme, and settle the tendency to cast blame on gold medal judges, which some of your correspondents, and many others, consider quite unmerited, and may arise out of a misapprehension of the true purpose of the gold medal awards. *Rose Le Progrès.*

Abies lasiocarpa.—There has just been cut down in these gardens a tall specimen of Abies lasiocarpa; its height was 85 feet and circumference at base 7 feet. The trunk is perfectly straight and tapering. Unfortunately, in the neighbourhood of London Conifers do not thrive so well as in a pure country atmosphere. This was the case with the specimen in question. During the past ten or twelve years some of the lower branches died annually, till the lower part of the trunk was bare. The tree is about forty-five years old, and one of the estate men who assisted in the planting was also employed in felling the tree. The wood is coarse grained, and of a very resinous nature, especially the upper portions, the bark on the mature portions being of a more or less corky nature. It would be interesting to know if a taller specimen has been felled; also if the timber is of any value. *Jas. Hawkes, Osterley Park Gardens, Isleworth, W.*

The Awards of the Royal Horticultural Society. Generally speaking, the awards of the R.H.S. leave little room for criticism, but those made to two collections of fruit at the last meeting rather make one wonder on what basis they could have been made. A critical inspection served to convince the fruit grower that the Committee (or was it the Council?) had made a mistake. Both the exhibits were good and fairly well displayed. The larger exhibit was of the class frequently observed at these meetings, just large and good, but which would not gain any further comment from a critical grower. The other and smaller exhibit was one of very unusual excellence, every dish, with perhaps the exception of Peaches, being of superb quality, the Grapes, Melons, Pears, Apples, Plums, and Nectarines being striking examples of good cultivation, around which fruit enthusiasts hovered all the day. The Gold Medal award of the R.H.S. is one that every gardener should feel proud to possess, and to obtain which he would probably give more than one year's hard work; but the recipient in this latter instance must feel shorn of a little of the honour when the same award was given to an exhibit much inferior from a cultural point of view. I would not like to say the latter was not worthy of a Gold Medal, but in that case the other exhibit was worthy of a much higher distinction. *F. R. H. S.*

London and Wise.—It may interest readers of the article in your last issue to know that there exists in the British Museum a copy of a circular advertising the foundation of the nurseries which were afterwards to become so famous. It is a folio sheet in MS. in neat writing, and bears the title :—"The Advertisement of Moses Cook, Roger Looker, John Field, and George London." (Harleian MS. 6273.) The body of the document describes the intentions and aims of the founders in starting the nursery. *Edward A. Bunyard.*

Eucryphia pinnatifolia and cordifolia and Actinidia chinensis.—There are growing and flourishing in the gardens at Tedsmore Hall, Shropshire, the two species of the Eucryphia, pinnatifolia and cordifolia, and in view of the accounts of the shrubs published in the *Field* of September 6, a description of those now growing in these gardens, as far north as Shropshire, may be of interest :—Eucryphia pinnatifolia, 16 feet high, 25 to 30 years old, flowers abundantly every year. From this were propagated fifteen years ago two others. The two have been in full flower this year, and measure 11 feet 9 inches and 9 feet 3 inches in height respectively. Eucryphia cordifolia, 11 feet 6 inches high, 15 to 16 years old. Three blooms appeared on this shrub last year for the first time. This year the shrub is in full flower at the present date, and after E. pinnatifolia is over. The Eucryphia originally planted was placed against a west wall, well protected. All the others, including the cordifolia, are out in the open, but are protected by trees from the north, north-west and north-east. They appear quite hardy, and with care came through last winter, when all the Eucalyptus in the garden were killed by frost and snow, one Eucalyptus having withstood ten winters. As there has been a discussion in the *Field* and also in the *Gardeners' Chronicle* concerning the flowering of the climber Actinidia chinensis, it may interest your readers to know that this climber has flowered well this summer in the Tedsmore Gardens for the first time. It was planted about six years ago. It would be of interest to know whether besides the Kew Actinidia (about which the discussion took place) and that in the Tedsmore Gardens others of this species have flowered this year, and where. Our soil is sandy and just above the sandstone rock. *Mainwaring Jacson (Colonel), Tedsmore Hall, Oswestry, Shropshire.*

Plum Tree's Second Crop.—I have a standard Victoria Plum tree from which last year I gathered over 100lb. of plums. This year it set as many again, but when about the size of peas they all dropped owing to blight. The remarkable thing is that the tree bloomed again, and now I have a second crop of Plums as large as small walnuts, but, of course, the fruits will only be fit for stewing. Have other readers experienced the same thing? *Edward Nutting, Dorchester.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

September 9.—*Present:* E. A. Bowles, Esq., M.A., in the chair; Messrs. R. H. Curtis, J. Fraser, W. Hales, Arthur W. Hill, Jas. O'Brien, J. W. Odell, Gurney Wilson, and W. C. Worsdell.

Adaglossum × *Juno.*—A Certificate of Appreciation to the exhibitor of Adaglossum × Juno (Ada aurantiaca × Odontoglossum Edwardii) was unanimously recommended.

Albino Wild Flowers.—Mr. Dipnall, of Hadleigh, Suffolk, sent an albino form of Carduus nutans, with some notes on colour variations, and added that he had recently discovered white forms of Vicia lathyroides, Prunella vulgaris, Geranium lucidum, and G. dissectum. These had occurred within a quite restricted area, and this suggested the possibility that soil had something to do with the variation. He had also found a bronzy-purple Papaver Rhœas, pale pink Centaurea nigra, and clear pink Myosotis palustris.

Asters Failing.—Lady Howick sent Asters with decayed shoots. The committee recommended the splitting up of the old plants as the base of stems sent were hard and had lost vitality.

Japanese Grasshoppers.—Mr. Odell showed for Mr. Goodacre, of Moulton Paddocks Gardens, a number of the Japanese grasshoppers (Diestrammena marmorata), and observed that the insects had established themselves in the large conservatory at Moulton, and had also invaded the mansion. The problem now was to exterminate them. They are large, handsome insects in the larvæ stage. When fully matured they will be very formidable-looking creatures.

Kefersteinia laminata.—Kefersteinia is a section of Zygopetalum, in the form of the flowers nearest to Promenæa, and in habit of growth (which is leafy, the pseudo-bulbs being rudimentary) to Warscewiczella. The species are chiefly Colombian, and there are some ten known species of which K. graminea is the best known. K. laminata has white flowers with rose-coloured markings on the fringed lip. A specimen was shown by Messrs. Armstrong and Brown.

NATIONAL ROSE.

Autumn Exhibition at the R.H.S. Hall.

September 11 and 12.—The Roses at the autumn show of this society, which was held in the R.H.S. Hall, Vincent-square, Westminster, on the above dates, were not of the high quality which the excellence of the recent summer exhibition might have led us to expect. Up to mid-July the season had been very favourable to the development of high-class blooms, but since that time the reverse has been the case. The prolonged drought, coupled with north-east winds, which have had such a drying effect on the plants, resulted in disappointing Rosarians, for not only were the blooms somewhat below the average in size and quality, but mildew was greatly in evidence. Notwithstanding all this, there was much to admire, and most of the blooms retained their freshness much longer than usual. Gold Medals were awarded to five new varieties, four to Hybrid Teas, the other to a Hybrid Austrian Briar. There was a large attendance of visitors. The arrangements worked smoothly under the direction of the secretary, Mr. Edward Mawley, and an excellent official list of awards was compiled by Mr. Frank Reader, of the R.H.S.

NURSERYMEN'S CLASSES.

Thirty-six Blooms of Exhibition Roses.—There were 7 exhibitors in the "Champion" class for 36 blooms of distinct varieties. Messrs. HUGH DICKSON, LTD., Belfast, were placed 1st. The varieties shown were Madame Clarice Juranville (especially fine), Maman Cochet, Mrs. Stewart Clark, Dr. O'Donel Browne, Mrs. Tom Paul (in splendid condition), Brilliant, Mrs. Richard Draper, Gloire de Chédane Guinoisseau (of exceptionally bright colour and of good size and form), Mrs. John Laing, Avoca, Frau Karl Druschki, Madame Charles Craplet, Marquis de Gany (fresh and large), Jonkheer J. L. Mock, White Maman Cochet, Mme. Eugenie Verdier, Hugh Dickson (with vivid colouring), Lady Alice Stanley, Madame Wagram, Comtesse de Turenne (beautifully tinted), Leslie Holland, Oriflame, Rev. Allan Cheales, Mrs. Godfrey Brown, Mme. Haussman, Caroline Testout, King George (of good size and very rich, dark colouring), British Queen, Claudius, Earl of Warwick, Comtesse de Ludre, Coronation, Chas. J. Grahame, Mme. Joseph Combet, Ulrich Brunner (especially good), Mrs. W. H. Calvert, and Chas. K. Douglas; 2nd, Messrs. ALEX. DICKSON AND SONS, Newtownards, with a less even collection, in which the following varieties were splendid:—Jonkheer J. L. Mock, George Dickson, Scarborough (a new variety which may be termed a glorified La France), Mrs. John Laing, and A. Hill Gray, which was the best Tea or Noisette in the nurserymen's classes; 3rd, Messrs. JAS. COCKER AND SONS, Aberdeen, who had J. B. Clark, Gloire de Chédane Guinoisseau and Mrs. Andrew Carnegie in exceedingly good condition.

Eighteen Tea and Noisette Varieties.—The only competitor, Mr. HENRY DREW, Faringdon, was awarded the 1st prize for a very moderate collection; the finest blooms were Alex. Hill Gray, Auguste Comte, and W. R. Smith.

Seven Baskets of Cut Roses.—Each basket contained distinct varieties, and the general effect was good. There were only two exhibits, and the finer was shown by Messrs. ALEX. DICKSON, who had Duchess of Wellington, Mrs. John Laing and Madame Mélanie Soupert, in excellent condition; 2nd, Mr. JOHN MATTOCK, New Headington, Oxford; his basket of Hugh Dickson was noteworthy.

Twelve Blooms of any Variety shown in a basket.—Three of the four baskets in this class contained white Roses—two of Frau Karl Druschki and one of British Queen which, shown by Messrs. S. MCGREDY AND SON, Portadown, won the 1st prize, although the blooms were inferior in form to the very fragrant blooms of George Dickson, which were placed 2nd. This basket, from Messrs. ALEX. DICKSON AND SONS, contained the premier H. T. Rose; 3rd, Messrs. HUGH DICKSON, LTD.

ROSES.

Eighteen Distinct Varieties, Shown in Vases on the Table. — The 1st prize collection from Mr. JOHN MATTOCK was much more attractive than the other two exhibits, the arrangement of the flowers being very good, and the quality superior. The yellow shades as presented by Lady HILLINGDON and A. R. GOODWIN were very noteworthy; 2nd, Mr. GEORGE LONGLEY, Chapel Lane, Rainham, Kent, who excelled in the pink shades of colour; 3rd, Mr. JOHN PIGG, Royston, Herts.

Nine Distinct Varieties.—The general effect of the exhibits in this class, which were similarly shown, was exceedingly good. Mr. FRANK WOOLLARD, Lewes Road, Brighton, won the 1st prize with an attractive display; the vases of Ecarlate, Lyon Rose, and Orleans were especially meritorious; 2nd, Mr. ELISHA J. HICKS, Twyford, Berks, whose foliage was much more free from mildew than most. The blooms were smaller than Mr. Woollard's, but presented a dainty appearance; the Rose of Rayon d'Or was charming; 3rd, Mr. W. R. CHAPLIN, Waltham Cross.

Nine Baskets of Cut Roses Distinct.—Messrs. HUGH DICKSON, LTD., won the 1st prize with blooms of fair quality, but in many instances they were affected with mildew. The most attractive varieties were C. K. Douglas, Gustave Regis, and H. E. Richardson; 2nd, Mr. JOHN MATTOCK, who had good baskets of Irish Glory and General MacArthur.

Five Baskets of Cut Roses Distinct.—The disposal of the baskets which won the 1st prize for Mr. W. R. CHAPLIN, Waltham Cross, was very effective, and the Roses were also better arranged; those of General MacArthur and Gustave Grünerwald were singularly effective; 2nd, Messrs. BIDE AND SONS, LTD., Farnham, who had a basket of Rayon d'Or with glowing colouring; 3rd, Mr. G. PRINCE, Oxford.

Twenty-four Varieties Distinct.—The three exhibits were of exceptional good quality, and there could not have been many points between them. Mr. JOHN MATTOCK was 1st, and specialised with the single varieties—the vases of Rescue (bright pink with a white "eye"), Irish Elegance, Simplicity, Apple Blossom and the nearly-single Bardou Job were all very showy; 2nd, Mr. JOHN PIGG, whose exhibit was more loosely arranged—the best two vases were of Rayon d'Or and Lady Hillingdon; 3rd, Messrs. PAUL AND SON, Cheshunt, who also showed good blooms of Rayon d'Or.

Twelve Varieties Distinct.—In Mr. ELISHA J. HICKS's 1st prize exhibit the vases of Sarah Bernhardt (single large crimson), Lady Waterlow (semi-double blush), and Lady Hillingdon (rich yellow) overshadowed the others; 2nd, Messrs. W. and J. BROWN, Peterborough.

Twelve Vases of Dwarf Polyantha Roses.—Mr. JOHN PIGG won the 1st prize in this class; the principal varieties were Orleans, Anna Muller, Mrs. Taft, and Snewitchen; 2nd, Messrs. S. BIDE AND SONS, who had rather a brighter display, but the trusses were smaller. The vases of Anna Müller and Ellen Poulsen were profusely flowered; 3rd, Mr. GEORGE PRINCE.

GROUPS OF ROSES.

The representative groups of Roses placed on the floor in spaces not exceeding 150 square feet, in which the customary aids, but not exhibition boxes, were permitted, were in marked contrast to the displays at the Summer Rose Show. The two exhibits on the present occasion indicated a difficulty, which, however, was not apparent in classes 13 and 14, in obtaining sufficient and suitable blooms for making noteworthy displays. The 1st prize was won by Messrs. PAUL AND SON, Cheshunt, who arranged green baskets of Roses, raised at varying heights from a groundwork margined with Ferns—a pretty, but slightly unfurnished effort. The most noteworthy varieties were Mrs. G. S. Crawford, Queen of the Musks, Lady Hillingdon, Hugh Dickson, La Tosca, and Orleans; 2nd, Messrs. HOBBIES, LTD., Dereham, who had a more effective design, but the arrangement was somewhat sparse and thin, the arches of Polyantha Roses being too narrow. The bowls of Lady Hillingdon and Rayon d'Or were beautiful.

In the larger of the two representative groups of Roses arranged on staging, with similar conditions except that only Rose foliage might be added, the judges had to choose between attractiveness of arrangement and quality of blooms, and the former, as exhibited by Messrs. W. and J. BROWN, Peterborough, received the Gold Medal and 1st prize. The design was that of a double line of arches disclosing a bank of massed cut blooms, the former being arranged with Polyantha and a vase of H.P. and H.T. varieties. The 2nd prize group from Messrs. DOBBIE AND CO., Edinburgh, was a mound of excellent Roses in fresh condition, and the brighter colours predominated. The old favourite varieties Ulrich Brunner, A. K. Williams and Alfred Colomb glowed with rich warm colouring, and contrasted well with such pink sorts as Mrs. John Laing, Caroline Testout and Cynthia Forde.

In the smaller group the 1st prize was won by Messrs. B. R. CANT AND SONS, Colchester, who had a delightful basket of Irish Elegance in the centre, surrounded by large vases of Rayon d'Or, Comtesse du Cayla, W. R. Smith, and Hugh Dickson. The tall stands of dwarf Polyantha varieties Jessie, Orleans and Mrs. Cutbush gave a false impression of their use and character; 2nd, Messrs. J. JACKMAN AND SON, Woking, who also arranged tall stands of Roses rising from a sloping groundwork, where there were good examples of Hugh Dickson, Rayon d'Or, J. B. Clark and Joseph Hill.

Thirty-six Varieties of all Types of Roses.—The 1st prize was awarded to Mr. JOHN MATTOCK for one of the brightest and best exhibits in the show, the examples of Lady Waterlow, Niphetos, Marie Van Houtte, La Tosca, and Mrs. Sharman Crawford being splendid. There was no competition.

AMATEURS' CLASSES.

Although the competition in these classes was not so good as at the summer show in Regent's Park the quality of the exhibits in many instances compared most favourably with those in the nurserymen's classes, and was rather better than might have been expected; the foliage was also more free from mildew.

Eighteen Blooms of Exhibition Roses.—The 1st prize in this class, which was open to all amateurs irrespective of the number of Roses they grow, was won by E. C. EVERSFIELD, Esq., Denne Park, Horsham, with a very creditable exhibit, in which Frau Karl Druschki, Caroline Testout, Ulrich Brunner, and Earl of Warwick were the outstanding varieties; 2nd, the Rev. J. H. PEMBERTON, Havering-atte-Bower.

Twelve Blooms of Exhibition Roses.—There was a stronger competition in this class, which was restricted to growers of fewer than 2,000 plants of these Roses. J. E. TURNER, Esq., Ardmay, Gourock, won the 1st prize with a good collection, which included especially good examples of Hugh Dickson, Leslie Holland, Caroline Testout, and Joseph Hill; 2nd, G. SPEIGHT, Esq., Market Harboro'.

Nine Blooms of Exhibition Varieties.—Of the many exhibits in the class open only to growers of fewer than 1,000 plants the best was shown by E. B. LEHMAN, Esq., Crawley, who had splendid blooms of Ulrich Brunner and Dr. O'Donel Browne.

In the class for 6 blooms of exhibition Roses, for growers of fewer than 500 plants Capt. R. K. STEWART, Malvern, who showed good specimens of Ulrich Brunner and Frau Karl Druschki, was placed 1st. The best of the numerous exhibits in the similar class for growers of fewer than 200 plants was staged by W. H. DOVE, Esq., Newport, Isle of Wight.

Twelve Blooms of Tea and Noisette Roses.—There were no exhibits in this class, which was open to all amateur growers, but in the class for 9 blooms, open only to growers of fewer than 1,000 plants, the exhibits were much better than in the nurserymen's class for similar varieties. The 1st prize was won by F. SLAUGHTER, Esq., Steyning, who had beautiful blooms of Mme. Jules Gravereaux, Mrs. Foley Hobbs, and Mme. Constant Soupert; 2nd, G. SPEIGHT, Esq., Market Harborough.

Miscellaneous Roses in Vases.—In the class for 7 distinct varieties in separate vases, Mr. J. WALTER SMITH, Sparrows Herne Hall, Bushey Heath, presented a splendid exhibit and won the 1st prize; the vase of Irish Beauty was alone worth a prize, the pure white petals and golden streamers made a beautiful contrast, whilst Scarlatt and Lady Waterlow were also especially noteworthy.

The display of 12 distinct varieties was very praiseworthy, and the arrangement of the Rev. J. H. PEMBERTON'S 1st prize collection was novel and effective. Tall stands of Sarah Bernhardt, Danaë, Moonlight, Gustav Grünerwald, and others, arranged in a semi-circle, made a charming framing for the low baskets and vases of Rayon d'Or, Comtesse du Cayla, Daphne, British Queen, and Earl of Warwick; 2nd, H. R. DARLINGTON, Esq., Park House, Potters Bar, who displayed vases of Mrs. Edward Powell, Lady Waterlow, La Tosca, Mme. Antoine Mari and a basket of Mrs. E. G. Hill containing beautiful blooms in a more conventional manner.

In the class for 12 varieties of general decorative Roses the Rev. PEMBERTON showed best; 2nd, Mr. C. S. GORDON CLARK (gr. Mr. Gravett).

Hips of 5 Distinct Varieties in Species.—There were 3 exhibits in this class, which should illustrate the colour value and beauty of the Rose fruits, but the colour was lacking, and only the 1st prize exhibit from Mr. H. R. DARLINGTON gave any indication of the possibilities of the Rose fruits.

In his 1st prize exhibit of 12 varieties of decorative Roses, the Rev. J. H. PEMBERTON again displayed his beautiful new varieties, Moonlight and Danaë, to great advantage.

The Ladies' Classes.

Mrs. Bide, Farnham, was the only exhibitor in the class for a dinner-table decoration of cut Roses, open only to trade members and their families. The arrangement of Sunburst and coloured Rose foliage made a charming decoration, and deserved the 1st prize, which was awarded to it.

In the amateur class there were 12 tables arranged, and the general excellence of arrangement was so uniform that the judges must have experienced considerable difficulty in awarding the prizes. Mrs. Courtenay Page, Enfield, who had a pleasant display of the pale-yellow Rose Melody was awarded the 1st prize; 2nd, Mrs. J. W. Smith, Bushey Heath, for a very pretty table of Irish Elegance and light sprays of the red-spinner Rosa sericea Pteracantha.

New Roses.

The new seedling Roses did not occupy a large space. There were no exhibits in the class for new varieties grown under glass; all the blooms shown were in class 18, which requires them to be grown in the open. The judges awarded 5 Gold Medals, chiefly to varieties which had previously received medals of less value at recent shows of the society.

Gold Medals.

Moonlight (*H.T.*).—An exceedingly beautiful semi-double variety with an appropriate name. The opening petals are of a very pale yellow colour, which passes to pure white. When fully open the flower has the appearance of a full-petalled single Rose with a wealth of rich, yellow stamens. The young foliage is beautifully tinted. This charming variety should have a great future. Shown by the Rev. J. H Pemberton.

Muriel Dickson (*H.A.B.*)—We greatly admired this hybrid Austrian Briar Rose at the recent summer show of the society, when it received a Silver-gilt Medal, but on the present occasion its appearance scarcely deserved the honour of a Gold Medal; the foliage was badly affected with mildew, and the petals lacked the brilliance they exhibited on July 4. The colour is cerise pink, and the flower has but little scent. Shown by Messrs. Hugh Dickson, Ltd.

Red Letter Day (*H.T.*)—Probably the judges took into consideration the beautiful appearance of this nearly-single variety at the summer show, when it was charming. It may be described as being an improved Ulster Standard. The petals are of a rich velvety crimson.

Edward Bohane (*H.T.*).—This splendid vivid crimson Rose has received the R.H.S. award of merit. See *Gardeners' Chronicle*, September 24, 1912, p. 253. The brightly-coloured blooms are borne on long stout stems, and the foliage is good. It should prove a magnificent Rose for garden decoration. This and the foregoing variety were shown by Messrs. A. Dickson and Sons.

Edgar M. Burnett (*H.T.*).—A very large, fragrant, conical bloom, flesh pink in the centre with paler outer petals. This magnificent variety was shown by Messrs. S. McGredy and Son.

Premier Blooms.

nurserymen's classes.

Hybrid Perpetual, Ben Cant; *Hybrid Tea*, George Dickson; *Tea*, Alex. Hill Gray. All three flowers were shown by Messrs. Alex. Dickson and Sons.

amateurs' classes.

Hybrid Perpetual. — Horace Vernet, shown by Rev. R. F. Cobbold.

Hybrid Tea.—Joseph Hill, shown by Mr. J. Turner.

Tea.—Henri Berger, shown by Mr. S. Burgess.

SWANAGE HORTICULTURAL.

At the recent show of the Swanage Horticultural and Industrial Society the Coronation Cup offered for a collection of fruit and vegetables was won for the third time in succession by Mrs. Bankes, of Kingston Lacy, Wimborne (gr. Mr. D. Hill).

ROYAL CALEDONIAN HORTICULTURAL.

September 10 and 11.—The autumn show of this society was held in the Waverly Market, Edinburgh, on these dates. The weather was fine, and there was a satisfactory attendance at the formal opening of the exhibition, which was performed by the Countess of Wemyss. The entries were fewer than at last year's show, chiefly because the single dish classes for Apples were restricted on this occasion to growers in Scotland. Exhibits of cut flowers and vegetables were more numerous than on the previous occasion. The nurserymen's exhibits were exceptionally numerous, and with these and the fine display of cut flowers in the competitive classes the spacious hall was more crowded than it has been for years past.

Fruit.

The Earl of Wemyss, Gosford (gr. Mr. Wm. Galloway) was the only exhibitor in the class for a table of dessert fruits, decorated with plants, flowers, or foliage, or any combination of these (Orchids excluded), and was awarded the 1st prize, £4 for fruit, and £1 10s. for decoration. The following fruits were shown in the exhibit:—Grapes: Black Alicante, Madresfield Court, Black Hamburgh, and Muscat of Alexandria. Peaches: Royal George and Bellegarde. Nectarine: Lord Napier. Plums: Jefferson and Kirk's. Pears: Durondeau and Souvenir du Congrès. Apples: Worcester Pearmain and James Grieve. Melon: Universal and Emerald Gem.

For a collection of 12 dishes of fruit grown in Scotland, decorated with plants, flowers, or foliage, not more than two dishes of each of the following kinds, Grapes (one bunch to a dish), Peaches, Nectarines, Apples, and Pears, and one dish each of any other kind of fruit, there were four entrants, and the Marquis of Tweeddale, Yesta House, Haddington, was placed 1st; Lord Elphinstone, Carberry Tower, Musselburgh (gr. Mr. D. Kidd), 2nd; and John Graeme Thomson, Esq., Norwood, Alloa (gr. Mr. Jas. Small), 3rd. Lord Tweeddale's collection consisted of one bunch each of Grapes, Muscat of Alexandria and Lady Downes; Peaches, Stirling Castle and Bellegarde; Nectarines, Pine-apple and Humboldt; Fig, Brown Turkey; Plum, Jefferson; Pears, Marguerite Marillat and Souvenir du Congrès; Apple, Emperor Alexander; and Melon, Superlative.

There were three competitors in the class for 6 bunches of Grapes, four varieties, not more than two of any variety, decorated. The 1st prize of £6 and gold badge was won by Sir Herbert Maxwell, Bart., Monreith (gr. Mr. S. Gordon). The following were the bunches shown in the exhibit, with the points awarded:—

	Maximum No. of Points.		Points Awarded.
Muscat of Alexandria	10	...	7½
Madresfield Court	9	...	7
Black Hamburgh	9	...	7
Black Hamburgh	9	...	7
Alnwick Seedling	8	...	7½
Mrs. Pince	9	...	8½
Totals	54	...	44½

2nd, W. Mackay, Esq., Ascog, Rothesay (gr. Mr. D. Halliday) with 42½ points out of a possible 50, and R. M. Donaldson, Esq., Blairvaddock, Row, Dumbarton (gr. Mr. Robt. Glen), 3rd, with 39½ points out of a possible 55.

Lord Balfour of Burleigh, K.T., Kennet, Alloa (gr. Mr. J. J. Wann), was placed 1st for 4 bunches of Grapes, distinct varieties, with Muscat of Alexandria, Mrs. Pince, Gros Maroc, and Black Alicante; 2nd, W. Forbes, Esq., of Callendar, Falkirk (gr. Mr. J. Middleton); 3rd, the Right Hon. A. J. Balfour, Whittinghame, East Lothian (gr. Mr. G. Anderson).

The Earl of Mar and Kellie, K.T., Alloa Park (gr. Mr. W. J. Buchanan), excelled in the class for 2 bunches of Muscat of Alexandria; W. Forbes, Esq., for 2 bunches of Black Hamburgh: the Earl of Mar and Kellie, K.T., for 1 bunch of Muscat of Alexandria; W. Forbes, Esq., for 1 bunch of Black Hamburgh; Major Thorburn, Peebles (gr. Mr. J. McNeill), for 1 bunch of Black Alicante; Sir Herbert Maxwell, Bart., for 1 bunch of Alnwick Seedling; Claude A. Hamilton, Esq., Larbert (gr. Mr. Jas. Wood), for 1 bunch of Gros Colman; Lord Elphinstone for 1 bunch of Lady Downes; W. Forbes, Esq., for 1 bunch of Appley Towers; R. M. Donaldson, Esq., for 1 bunch of Madresfield Court. Sir Herbert Maxwell, Bart., showed the best new Grape introduced since 1900 (Directeur Tisserand); Lord Elphinstone excelled for 1 bunch any other Black Grape not named above with Gros Maroc; Sir Herbert Maxwell, Bart., for any other White Grape not named above with Buckland Sweetwater; and John Graeme Thomson, Esq., for 1 bunch of a Black Grape with the finest bloom, showing the variety Appley Towers.

Wm. Forbes, Esq., excelled in the class for a Green or White-fleshed Melon with Ringleader, and J. Graeme Thomson, Esq., for a Scarlet-fleshed variety. H. W. Hope, Esq., Luffness (gr. Mr. Ronald Johnson), was 1st for 12 Figs having fruits of the variety Black Ischia.

Captain Cheape, Gateside, Fife (gr. Mr. W. Laing), excelled for 6 Peaches (Princess of Wales); N. E. D. Menzies, Esq., Newtonairds, Dumfries (gr. Mr. W Smith), for 6 Nectarines; and the Duke of Richmond and Gordon, Gordon Castle (gr. Mr. Charles Webster), for 12 Apricots (Moorpark) and 12 Gage Plums (Count Althann's Gage). The Marquis of Tweeddale won the 1st prize for 12 Yellow Plums, staging Jefferson; C. L. Gordon, Esq., Threave House, Castle Douglas (gr. Mr. Jas. Duff), had the best 12 Red Plums, showing the variety Pond's Seedling; and Sir Herbert Maxwell, Bart., the best 12 Purple Plums in the variety Goliath.

There were three exhibits in the class for a collection of Dessert Plums in 4 varieties, 9 fruits of each, and Mr. R. G. Sinclair, market grower, Congalton, Drem, excelled with Kirk's Seedling, Washington Gage, Lawson's Golden Gage, and Jefferson. Mr. Sinclair also won the 1st prize in the class for a collection of culinary Plums, 4 varieties, 9 fruits of each, for which there were also three entrants, with Magnum Bonum, Pond's Seedling, Victoria, and Belle de Louvain.

Mr. E. W. Caddick, Caradoc, Herefordshire, was placed first for a collection of Apples in 18 varieties; 2nd, Mr. R. M. Whiting, Credenhill, Hereford; 3rd, the Marquis of Ripon, Coombe Court, Surrey (gr. Mr. Thos. Smith). The Rev. G. H. Davenport, Hereford (gr. Mr. R. Currie), excelled in the class for a collection of 12 varieties of Apples, and also in that for a collection of 6 varieties.

In the class for 4 dishes of pot-grown or orchard house Apples, Messrs. Bell, Rossie, Forgandenny (gr. Mr. W. Nicholl), excelled with superb fruits of James Grieve, Wealthy, Gascoyne's Scarlet Seedling, and Emperor Alexander.

In the classes for Apples grown in Scotland, the 1st prize for the collection of 12 varieties, 5 of each, and also that for 6 dessert varieties, was won by C. L. Gordon, Esq.; while Mr. Gordon also excelled in the single-dish classes of varieties grown in that country for the following varieties:—Gascoyne's Seedling, Lady Sudeley, Worcester Pearmain, Bismarck, Duchess of Oldenburg, Golden Spire, Grenadier, Lane's Prince Albert, Lord Derby, Peasgood's Nonesuch, and "any other dessert Apple" with Allington Pippin. The Duke of Richmond and Gordon excelled in the same classes for Bailie Neilson, Beauty of Bath, Warner's King, and any "other culinary Apple" with Norfolk Beauty; Lady Sinclair, Stevenson House, Haddington (gr. Mr. J. Borrowman), exhibited the best fruits of Irish Peach and Dumelow's Seedling; R. G. Sinclair won the 1st prizes for Cellini and Lord Grosvenor; Admiral Milne, Inveresk Gate, Musselburgh (gr. Mr. R. McAndie), for Ecklinville Seedling; the Earl of Dalhousie, Panmure, Forfar (gr. Mr. J. Simpson), for Emperor Alexander; C. E. Gilroy, Esq., The Grange, Monifieth (gr. Mr. J. Bethel), for James Grieve; J. Neilson, Esq., Mollance, Castle Douglas (gr. Mr. J. M. Stewart), for Charles Ross; Jas. Romanes, Esq., Fordell, Melrose (gr. Mr. A. Morrison), for Lord Suffield; T. Rankin, Esq., Dalswinton (gr. Mr. R. A. Grigor), for Potts's Seedling; and Sir Robt. Usher, Bt., Norton, Ratho (gr. Mr. G. McKinna), for Stirling Castle.

John Brennand, Esq., Baldersley Park, Thirsk (gr. Mr. J. E. Hathaway), showed the better of two exhibits in the class for a collec-

tion of Pears; Mr. P. M. WHITING being second. Five competitors entered for the collection of Pears grown in Scotland, 6 varieties, 4 of each, and the Earl of WEMYSS excelled in this class; 2nd, H. W. HOPE, Esq., of Luffness.

The Earl of WEMYSS also excelled for single dishes of Beurré d'Amanlis, Conference and Louise Bonne of Jersey; the Rev. G. H. DAVENPORT for Durondeau and Souvenir du Congrès; the Marquis of RIPON for Williams' Bon Chrêtien; JAS. LAW, Esq., Dirleton (gr. Mr. J. E. Laidlay), for Jargonelle; J. BRENNAND, Esq., for Doyenné du Comice; and Mr. R. M. WHITING for any other dessert Pear with Dr. Jules Guyot.

Miss HAMILTON, Rozelle, Ayr (gr. Mr. A. Harvey), excelled for pot-grown or orchard-house Pears, for which there were 4 entrants, J. BRENNAND, Esq., being 2nd; Mrs. ANDERSON, Peebles (gr. Mr. J. Bertram). A. BRYDON, Innerleithen; W. G. THORNBURN, Esq., Innerleithen (gr. Mr. A. Dickson), and R. M. PILKINGTON, Newport, Fife, were first for Gooseberries and Red Currants, White Currants, Raspberries and Cherries respectively.

PLANTS.

The 1st prize was awarded to Major THORBURN, Craigerne, Peebles (gr. Mr. J. McNeil), for 4 stove or greenhouse plants in flower; 2nd, Sir ROBT. USHER, Norton (gr. Mr. G. McKinna). Mrs. SIMSON, Bonaly, Colinton, excelled for one stove or greenhouse plant with Bougainvillea glabra Sanderiana; R. HINDLE, Esq., Edinburgh (gr. Mr. A. Jeffs), for one Orchid (Odontoglossum grande); A. DRYBURGH, Esq., Gogar Park, Midlothian (gr. Mr. A. Findlay), for 3 Cypripediums; Major THORBURN, for 4 exotic Ferns; R. A. ROBERTSON, Esq., Gogar, Midlothian (gr. Mr. T. Hermiston), for 4 Adianums; ALEX. COWAN, Esq., Penicuik (gr. Mr. J. Turnbull), for 4 British Ferns; Mr. J. C. BROWN, Edinburgh, for 9 hardy dwarf Ferns, and 6 Scolopendriums. Mrs. HUTCHINSON, Carlowrie, West Lothian (gr. Mr. J. Thom), excelled for 6 foliage plants (exclusive of Palms), and also for 6 of the same plants in pots not exceeding 7 inches in diameter. The Earl of HOME, Douglas Castle (gr. Mr. A. McMillan), was placed 1st in the classes for four, two and one Palm, respectively; while Sir R. USHER excelled for one Cycad. In the classes for 2 plants, Mrs. HUTCHINSON excelled for Dracænas and Aralias; Sir W. LAWSON, Bart. (gr. Mr. A. Knight), for Codiæums (Crotons), and Mrs. HOG, Gogar Burn, Midlothian (gr. Mr. Wm. Brow), for Coleus

For a display of any one kind of hardy herbaceous or Alpine plants or cut flowers, preference being given to subjects of recent introduction, the 1st prize, consisting of the National Hardy Plant's Society's Gold Medal and £2, was awarded to C. W. COWAN, Esq., Dalhousie Castle (gr. Mr. W. G. Pirie); and the 2nd, N.H.P.S. Silver-gilt Medal and £1, to Mrs. FLEMING HAMILTON, Kirkcowan (gr. Mr. W. Young).

CUT FLOWERS

Mr. J. STEWART, Whins, Alloa, excelled for 12 Gladioli; and Mr. W. T. LANDRETH, Coldstream, for 6 Gladioli. Mrs. ANDERSON, Peebles, for 6 Hollyhocks; Mrs. DUNCAN, Balfour, Brechin (gr. Mr. H. Rutherford), for 12 Cactus Dahlias; and Mr. J. PAUL, Killeam, for 6 vases of Collerette Dahlias.

Sir T. BURNETT, Bart., Crathes Castle, Aberdeen (gr. Mr. J. Petrie), was placed 1st for 12 bunches of Sweet Peas, distinct, and he also obtained the 1st prize, consisting of the Scottish Challenge Cup presented by the N.S.P.S. and 21s., in the class for 12 bunches of Sweet Peas, distinct, not more than one variety from any colour division in the N.S.P.S. classification to be shown. T. RANKIN, Esq., Dalswinton (gr. Mr. R. A. Grigor), excelled for 6 bunches of Sweet Peas.

The Earl of DALHOUSIE (gr. J. Simpson), showed best in the class for 24 Roses in not fewer than 18 varieties, and also in that for 12 H.T. Roses distinct. Mrs. FLEMING HAMILTON (gr. Mr. W. Young) was 1st for 12 Tea Roses, and T. R. B. ELLIOT, Esq., Harwood, Hawick (gr. Mr. J. Darling), for 6 vases of Roses, one variety in each vase.

For a collection of cut flowers, consisting of 36 vases from the open border, on a space 8 feet by 5 feet, the 1st prize, a Silver Cup presented by Messrs. D. King and J. Phillips, Edinburgh, and 30s., was awarded to M. G. THORBURN, Esq., Glenormston, Innerleithen (gr. Mr. A. Dickson); 2nd, Mrs. FLEMING HAMILTON, Kirkcowan (gr. Mr. W. Young).

Messrs. G. MARR AND SON, Prestwick, were awarded the 1st prize for 24 Gladioli; Messrs. ADAM AND CRAIGMILE, Aberdeen, won for 36 Roses, distinct, and 18 H.T. Roses; Messrs. D. and W. CROLL, for 18 T. Roses; Mr. R. C. FERGUSON, Dumfermline, for 12 blooms of any red or crimson Rose and 12 blooms of any pink Rose; and Messrs. D. and W. CROLL for 12 blooms of any white Rose. Mr. R. C. FERGUSON was also awarded the 1st prize for 12 vases of Roses, exhibition varieties; and Mr. W. FERGUSON for 12 "garden" or decorative Roses. Messrs. JAS. FAIRLEY AND CO., Cairneyhill, Fife, were awarded the 1st prize for a collection of Roses.

VEGETABLES.

(OPEN CLASSES.)

The Earl of LAUDERDALE, Thirlestane Castle (gr. Mr. R. Stuart), won the 1st prize in the class for a collection of vegetables, consisting of 18 dishes in not fewer than 12 kinds, arranged on a space 6 feet by 4 feet; 2nd, Mrs. FLEMING HAMILTON, Kirkcowan. For a similar display of vegetables grown in Scotland, but consisting of 12 dishes in 12 kinds, S. MITCHELL, Esq., Kippen (gr. Mr. C. Shaw), was awarded the 1st prize.

AWARDS TO NON-COMPETITIVE EXHIBITS.

Gold Medals were awarded to Messrs. SUTTON AND SONS, Reading, for flowers and vegetables; DOBBIE AND CO., Edinburgh, for cut flowers; STORRIE AND STORRIE, Glencarse, for pot-fruit trees; JAS. VEITCH AND SONS, LTD., London, for stove and greenhouse plants and Orchids; JOHN DOWNIE, Edinburgh, for Begonias; JOHN FORBES (Hawick), LTD., for Pentstemons, Phloxes, and other hardy flowers; THYNE AND SONS, Dundee, for a group of flowers; FAIRBAIRN AD SONS, Carlisle, for Sweet Peas and Dahlias; JAMES COCKER AND SONS, Aberdeen, for Roses and hardy herbaceous plants.

Silver-Gilt Medals were awarded to Messrs. CUNNINGHAM, FRASER AND CO., Edinburgh, for Chrysanthemums; GIBSON AND CO., Bedale, for hardy plants; S. A. JONES, Kilkenny, for Gladioli; EDINBURGH AND EAST, of Scotland College of Agriculture, for bottled fruit; H. N. ELLISON, West Bromwich, for Ferns; THOS. WARE AND SONS, Feltham, for Begonias; and WM. ARTINDALE AND SON, Sheffield, for Sweet Peas and Dahlias.

Silver Medals were awarded to Messrs. MCOMISH, Crieff, for Phloxes; WM. CUTBUSH AND SON, London, for Carnations and herbaceous plants; R. B. LAIRD and DICKSON AND SONS, LTD., Edinburgh, for Coniferæ; YOUNG AND CO., Hatherley, for Carnations; A. F. DUTTON AND SON, Iver, for Carnations; PIPERS, LTD., Bayswater, for Pæony-flowered Dahlias; SANDER AND SONS, St. Albans, for Orchids; and J WILSON, Hereford, for Onions.

Bronze Medals were awarded to Messrs. J. GRIEVE AND SONS, Edinburgh, for Chrysanthemums and other flowers; AMOS PERRY, Enfield, for herbaceous plants; IRVINE AND SONS, Jedburgh, for Phloxes; and CAMPBELL AND SON, Blantyre, for Carnations and cut flowers.

Awards to Novelties.

FIRST-CLASS CERTIFICATES.

Spiraea filipendula grandiflora, *Helenium Bronze Queen*, and *Achillea Perry's White*. These three shown by Mr. AMOS PERRY, Enfield.

Pentstemon Mrs. L. Cutbush, exhibited by W. CUTBUSH AND SON, Highgate.

AWARDS OF MERIT.

Collerette Dahlias Eddystone and *Ineheolm*, both exhibited by Messrs. DOBBIE AND CO.

Variegated Antirrhinum, exhibited by Messrs. JOHN FORBES (Hawick), LTD., and THOS. CHRISTIE, Kinglassie, Fife.

Viola Mrs. C. Milligan, exhibited by M. MILLIGAN, Wishaw.

A Strain of East Lothian Stocks, shown by Mr. D. W. THOMSON, Edinburgh.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

AUGUST 21.—*Committee Present:* Rev. J. Crombleholme (in the chair), Messrs. J. Bamber, E. H. Davidson, A. G. Ellwood, A. Hanmer, A. J. Keeling, D. McLeod, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (secretary).

A Silver-gilt Medal was awarded to R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), who staged a mixed group, Odontoglossums being well represented; Silver Medals to A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), for a miscellaneous group; and Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), for a small group of Cypripediums. Other exhibitors included: Mr. E. H. DAVIDSON, Twyford, Berkshire; Mr. D. MCLEOD, Chorlton-cum-Hardy; and Mr. J. BIRCHENALL, Alderley Edge.

AWARDS.

FIRST-CLASS CERTIFICATES.

Odontoglossum Woodroffeae (O. Rossii rubescens × O. Queen Alexandra), large flowers, good colour and well spotted; *Cattleya Harrisonae alba Davidson's Variety*, a good round flower, with lip broad at the base, both from Mr. E. H. DAVIDSON.

Odontoglossum crispum Virginale Ashlands Variety, well-formed flowers of good substance, shown by R. ASHWORTH, Esq.

AWARD OF MERIT.

Cypripedium × *Muriel Hollington*, a pretty variety, with good, large flowers, the property of the Rev. J. CROMBLEHOLME.

VEGETABLE SHOW AT MANCHESTER.

SEPTEMBER 11 and 12.—We are informed that the fifth annual vegetable show conducted by Messrs. Dickson and Robinson was held in the Manchester Coal Exchange on Thursday and Friday of last week. Four hundred exhibits, representing 34 counties, were staged.

In the open class for four bulbs of Premier Onion, R. CORY, Esq. (gr. Mr. Cobb), was easily 1st with four bulbs of exceptional merit; 2nd, Mrs. JENNER (gr. Mr. Wheeler).

Mr. CHAS. PARKER, of Chester, was awarded the 1st prize in a similar class, open only to growers north of Birmingham; Mr. THOS. JONES, of Ruabon, followed closely.

The prize offered for the most perfect bulb of Premier Onion was won by Mr. COBB, with a superb specimen. Mr. WHEELER also showed well in this class.

In the class for the heaviest bulb Mr. WHEELER'S specimen was placed 1st. His bulb weighed 3 lb. 6 oz., and was of good form.

There was a good competition in the classes for Hercules and Lancastrian Peas. For Hercules C. BLUNDELL, Esq. (gr. Mr. Guy), was placed 1st with splendid pods; 2nd, T. C. HORSFALL, Esq. (gr. Mr. Leary). Mr. BLUNDELL was also 1st in the class for the variety for Lancastrian; 2nd, C. B. J. MORTIMER, Esq. For Exhibition Runner Beans there was also a strong contest. The 1st prize was won by Earl CURZON (gr. Mr. West); 2nd, Misses HOWELL (gr. Mr. Jones). The best Exhibition Beets were shown by JAMES BROWN, Esq. (gr. Mr. France)—a fine exhibit; 2nd, Earl CURZON. The best Crimson Globe Beets by Mr. THOS. JONES; 2nd, Mr. WM. HOOPER. The best three heads of Model Cabbage by Capt. LUBBOCK (gr. Mr. Lowe), 2nd, Mr. GEO. ASHLEY. The best six roots of Perfection Carrots by Rt. Hon. JAS. ROUND (gr. Mr. Bishop); 2nd, Mr. H. TYSOE. The best six roots of Matchless Carrots by Mr. JAMES WHITE; 2nd, Mr. CHAS. PARKER. The best three heads of Standwell Cauliflowers by Mr. THOS. JONES; 2nd, Mr. WM. HOOPER. The best three heads of Prize Pink Celery by Mr. WM. HOOPER; 2nd, Mr. H. TYSOE. The best six plants of Exhibition Leeks by Mr. H. TYSOE; 2nd, Mr. E. WINCHESTER. The best six roots of Selected Hollow Crown Parsnips by Earl CURZON; 2nd, Lord NORTH (gr. Mr. Janes). The best three heads of Early Favourite Savoys by C. BLUNDELL, Esq.; 2nd, Mr. WM. HOOPER. And the best six roots of Manchester Market Turnips by C. BLUNDELL, Esq.; 2nd, Mrs. JENNER. Mr. ABBOTT (gr. Mr. C. Newington), again carried off the premier prize for Moneymaker Tomato. His bunch bore

24 uniform fine fruits, of which four only were unripe. 2nd, Capt. Lowe (gr. Mr. Lubbock).

The firm staged a large exhibit of Dahlias, Scabious, and other flowers from their nursery grounds, which are but six miles from the centre of Manchester. The Cactus Dahlia Eclipse and the decorative variety Delice were shown well. They also had on exhibition seedling Delphiniums.

ORSETT AND DISTRICT AGRI-HORTICULTURAL.

September 4.—This society held its nineteenth annual show in Orsett Park, adjoining the charming gardens and grounds of the President (J. H. D. C. Whitmore, Esq.), in favourable weather conditions. Hardy fruit is always well represented at the Orsett Show, and on this occasion Apples Red Astrachan, Worcester Pearmain, Quarrenden, Lady Sudeley, and Cox's Orange Pippin were shown in fine condition. Mr. T. Ridgwell, Orsett, was the most successful exhibitor in the class for a basket of hardy fruit; 2nd, J. H. D. C. Whitmore, Esq. (gr., Mr. E. Neighbour). Mr. Neighbour was awarded the first prize for a collection of 20 dishes of hardy fruit, distinct; 2nd, Mr. Ridgwell. The Apples, Pears and Plums in these collections were exceptionally good. These exhibitors occupied the same positions in the class for 10 dishes of fruit, distinct. Mr. G. Orsett won the 1st prize in the class for a collection of six dishes; 2nd, Mr. A. Humphrey, Haveringbery. Mr. Ridgwell showed the best four dishes of Pears, and Mr. W. Sutton, Orsett, the best four dishes of Plums, his fruits of Pond's Seedling and Monarch being uncommonly good. Mr. Neighbour was successful in the Grape class with neat bunches of Muscat of Alexandria, fine in berry and beautifully coloured; 2nd, Mrs. Russell, Romford, with Black Alicante. For two dishes of Dessert Apples the 1st prize was awarded to Mr. T. Sutton, for the varieties Red Astrachan and Worcester Pearmain; 2nd, Mr. R. Crisp, Grays. Mr. W. Bailey, Grays, excelled in the class for two dishes of Culinary Apples with Peasgood's Nonesuch and Warner's King. Mr. R. Crisp showed the best two dishes of Dessert Pears, and Mr. T. Sutton was placed in the first position for two dishes of Plums; but for one dish of Plums Mr. J. R. Hall, Orsett, was awarded the 1st prize. The varieties shown in these classes were mainly Pond's Seedling, Monarch, Jefferson and Victoria. In the class for 12 Apples of any one variety Mr. T. Sutton was 1st for grand fruits of Red Astrachan. Mr. Neighbour was successful for one dish of 12 dessert Pears with Pitmaston Duchess. The 1st prize for 12 Worcester Pearmain Apples was awarded to Mr. Ridgwell, who also showed the best fruits of the variety Warner's King, of Cox's Orange Pippin, and Stirling Castle varieties. Vegetables, greenhouse and stove plants, and cut flowers, including good spikes of herbaceous plants, fine blooms of Dahlias, Asters, etc., table decorations, sprays and buttonholes were shown. Miss L. Ridgwell was awarded the 1st prize for table decoration with a light and very pleasing arrangement.

ENGLISH-GROWN TOBACCO.

As long ago as 1886 an attempt was made to grow Tobacco for commercial purposes in these islands, and experimental plantations were made in certain districts of England, Scotland, and Ireland. The plants grew well, but the quality of the crop was not equal to imported Tobacco, and there were also excise difficulties which prevented any development of the industry. Yet the fact that Tobacco plants would grow satisfactorily in our climate was well known to all gardeners, for in even average summers there was no difficulty in growing Nicotiana Tabacum to a height of from 4 to 5 feet. Such a species as N. colossea could be grown very much taller, and the plants bore large and stout leaves, apparently quite suitable for making high-grade Tobaccos. But, in spite of their appearance, these home-grown leaves produced inferior Tobacco to the imported leaves. High quality is due to the "gum" which is exuded by the hairs of the leaves, and in this country the rains and heavy dews of late summer and autumn wash this essential gum from the foliage. So the problem to be surmounted was the retention of the exudation, and experiments made for the English Tobacco Growers' Association with the Pullen-Burry Travelling Glass-houses at Sompting, Worthing, show that this difficulty may be overcome, and that with these structures Tobacco equal or even superior to the imported brands may be grown in this country.

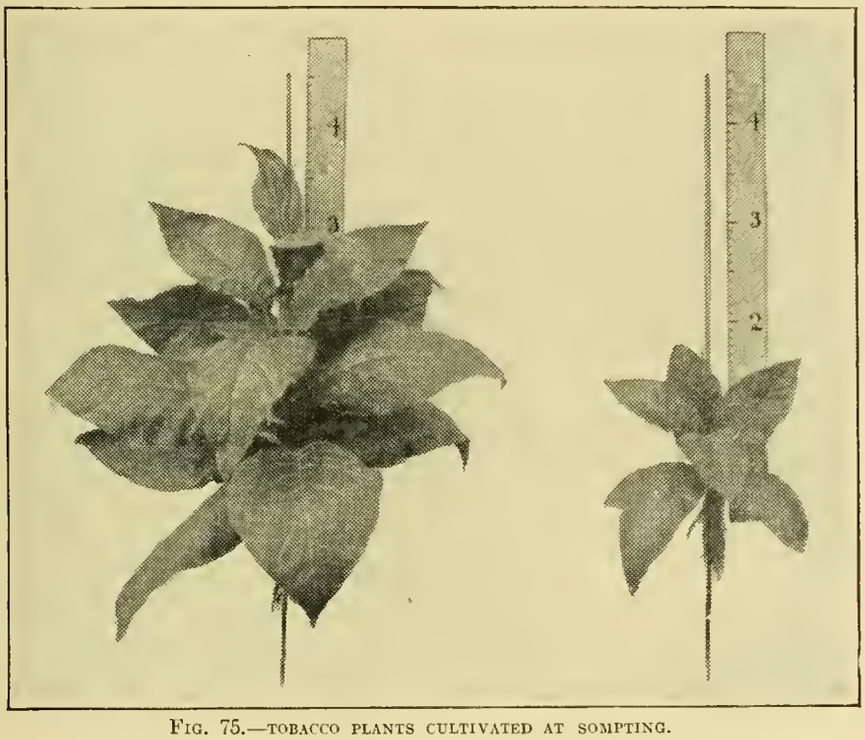

Fig. 75.—tobacco plants cultivated at sompting.
Showing the difference in growth induced by a fortnight's treatment under a movable glasshouse.

The Pullen-Burry Transverse Travelling Hothouses were the subject of a lecture at the Horticultural Club on June 17 last, of which the issues of the *Gardeners' Chronicle* for June 21-28 contain a report. This principle was primarily invented for the purpose of growing early crops of vegetables and fruits, and it is now shown that if Tobacco is grown in conjunction with these crops it may prove to be a highly remunerative undertaking, because the capital expenditure will be met by the profits on the winter and spring crops, the houses being placed over the Tobacco plants at a time when they are not required for ordinary crops. The aim of the commercial Tobacco plant-grower is to obtain large leaves, with small mid-ribs and veins, retaining all the gum, and with the aid of the Pullen-Burry glass-houses this can be readily done.

The Tobacco plants at Sompting, where the experiments are being made, were not planted until July 14, yet in spite of the late planting a party of about 70, who journeyed from London on Wednesday last to inspect the crop, found the leaves ready for harvesting. The method followed was to plant a "traverse" (plot of ground equal in area to the house), keep the hot-house over it until the plants had become established, then remove the house to other traverses until the first crop is "finishing"; the house is then moved over the first crop for a fortnight, and an astonishing difference is soon apparent between the indoor plants and those grown in the ordinary way. The illustration in fig. 75 shows two plants of Blue Prior Tobacco. The larger specimen has been grown for a period of fourteen days under a movable glass-house, during which time it was neither watered nor manured. The smaller plant was of the same batch, this being grown in a well-sheltered situation out-of-doors, and set out at the same time as the other. Both plants were the finest grown under the two methods. *A. C. B.*

Obituary.

Adolphus Henry Kent, B.A.—After a long and painful illness Mr. A. H. Kent passed away at his residence, Mycene, Doria Road, Fulham, on the 12th inst., aged 85 years. He was born at Bletchingley, Surrey, and was educated privately for the post of schoolmaster. For many years he played an instrument in the village choir, and was one of two chosen to represent the choir at the first Handel Festival at the Crystal Palace. He matriculated at the University of London in 1870, and in the following year obtained his degree of B.A., being placed in the first division. He was also elected an Associate of the Linnean Society. On relinquishing his duties of schoolmaster, owing to increasing deafness, he accepted an engagement with Messrs. James Veitch and Sons, of Chelsea, and for many years filled the position of private secretary to Mr. (now Sir Harry J.) Veitch, eventually retiring on a liberal pension, which was continued until his death. Much of his time was devoted to the theoretical and practical study of horticulture, botany and foreign languages. Deceased was the writer of that valuable work, *A Manual of Coniferæ*, published in 1881, and it met with such a favourable reception that a new and greatly enlarged edition was published in 1900. Some of our readers will remember the extreme care and pains Kent exercised in order that the work should be accurate and trustworthy. He had an extensive library of classical and scientific books, which are bequeathed to his nephew, Mr. Charles H. Kent. Deceased was a widower with no issue.

John Snow Moss.—We regret to record the death of this well-known amateur horticulturist, which took place at his residence, Wintershill Hall, Bishop's Waltham, on Thursday, September 11, at the age of 54 years. Mr. Moss, who had been on a visit to the Continent, was taken ill on his return, but succeeded in

reaching his home, where he was seized with an apoplectic stroke, from which he failed to recover. Mr. Moss was a member of the Orchid Committee of the Royal Horticultural Society, and an expert in the cultivation and raising of hybrid Orchids, Odontoglossums being his special favourites. He was one of the judges at the last Horticultural Exhibition at Brussels, and also at the Ghent Quinquennial in April last, being present on that occasion at the British gathering at the Hotel de la Poste. He was well known in horticultural circles generally as a successful grower of plants, including Chrysanthemums.

Answers to Correspondents

CHRYSANTHEMUM BUDS: *W. W.* Unfortunately, the specimens arrived so badly shrivelled that we have some difficulty in determining the actual cause of the decay in the buds. If you are certain that the buds have been bitten by some insect it is most probably the work of earwigs. These creatures usually make a small hole just under the bud, which causes it to die or become distorted. There is also a very small spotted insect which pierces the stem, and thus causes a check to growth, but rarely do the flowers rot after injury by these two insects. Tits sometimes attack the buds, and this season they have been very troublesome. These birds usually pick little holes in the flower or bite small pieces out of the stem just under the flower-buds, and we are inclined to think that these have caused the damage in your case. The birds feed on small thrips, that have been very prevalent on Chrysanthemums this season. You will probably have no further trouble now, but you should continue to trap the earwigs in hollow Bean stalks, and examine the plants for the pests each evening with a lantern. Another season spray the plants once a week with Quassia Extract, and if this does not keep them quite free from pests it will at least minimise the trouble. A little artificial manure applied once each week should increase the quality of your flowers; soot and cow manure are not sufficiently stimulating at this season.

CRINUM LEAF: *M. F.* The red blotches are caused by mites puncturing the leaves early in the season. Use an insecticide.

CYANIDING VINERIES: *E. S.* At or about pruning time, when the Vines are quite dormant, for the destruction of mealy-bug two cyanidings should be given at intervals of twenty-four hours of 2½ ounces sodium cyanide, 5 fluid ounces sulphuric acid, 15 ounces water. The exposure should last for fifty minutes, and the temperature of the house should be 50° to 55°. The quantities given are for each 1,000 cubic feet contents.

FERNS: *An Old Reader.* Eelworms are the cause of the injury, and the pests are present in the soil. Remove the plants, wash all the soil from the roots, and re-plant in soil that has been sterilised or obtained from some source where eelworms are not present.

FIG VIOLETTE SEPON: *A. G. S.* The reason why fruits of the first crop of this variety seldom split is because the roots are more active at that stage, and leaf development greater than later on. At the time of the second crop the foliage cannot assimilate so much sap, which is more directly absorbed by the fruits; hence they become very liable to splitting. If the atmosphere is kept drier there would not be so great danger of the fruits cracking, and this trouble may also be largely prevented by partially severing the stalk of each fruit before splitting takes place. Another plan is to cut through the skin on each side of the fruit with a sharp knife, which often checks the splitting of the fruits across the "eye." Maintain drier conditions generally, in order to reduce the amount of sap taken up by the plants. Violette Sepor is one of the best varieties both from the point of view of fertility and good flavour.

FIGS FALLING: *P. H. R.* There is no disease present. The trouble is due to some wrong cultural treatment, which only those on the spot can determine.

FIREBLAST ON APPLES: *C. E. F.* Drench the trees thoroughly with a solution of sulphate of iron—1 lb. in 25 gallons of water in the winter before the buds swell.

GRAPES DISEASED: *H. W. R.* and *G. S.* The cause of the Grapes decaying is a fungus disease known as Grape rot (Gloeosporium ampelophagum). When the berries have become decayed, such as those you send, it is too late to attempt remedial measures, but precaution must be taken to cut out any that are diseased and burn them, as they are a source of infection. When the vines are at rest wash every part of them with a solution of sulphate of iron, using 1 lb. of the iron salt to 25 gallons of water. The vines should receive two dressings, allowing an interval of one month to elapse between them. Iron sulphate should only be applied when the buds are quite dormant. See that none of the diseased berries are allowed to fall to the floor of the vinery, which should receive a thorough cleansing at the end of the autumn, using a little carbolic and soft soap in the water for washing the woodwork.

GRAPES UNHEALTHY: *A. H. R.* The injury is caused by the Vine Mildew (Oidium Tuckeri). Dryness at the roots will sometimes predispose a plant to an attack of mildew, whether it is growing indoors or out-of-doors. While the fungus appears white and is spreading the atmosphere of the house should be kept drier than usual. The house should be ventilated freely, but endeavour to keep the degree of heat as uniform as possible. Apply flowers of sulphur to the hot-water pipes, but it should not be applied for a short period immediately after the setting of the berries. In unheated houses and out-of-doors, where mildew is most common, it is not so easily eradicated. The means available include dusting the leaves with flowers of sulphur whilst they are damp and syringing them with water containing flowers of sulphur, or spraying with a solution of half an ounce of potassium sulphide to a gallon of water. It has been recommended by Professor Galloway that the first application of sulphur, or spraying with sulphide, should be made ten or twelve days before the flowers open, the second when in full bloom, and a third three weeks or a month later.

NAMES OF PLANTS: *H. P.* Lissochilus speciosus. *A. O. J.* 1, Veronica longifolia subsessilis, a Japanese plant illustrated in *Gard. Chron.*, December 17, 1881, p. 788. The plant has been catalogued as Veronica Hendersonii. 2, Hæmanthus coccineus. 3, Hæmanthus natalensis. *T. H.* Epidendrum lanipes. *Assam* The plant of which you send a sketch and description is Pholidota obovata. *Foreman.* 1, Cupressus nootkatensis; 2, C. Lawsoniana var.; 3, Cryptomeria japonica; 4, Cupressus Lawsoniana var. ochroleuca; 5, C. L. var. albomaculata; 6, C. obtusa var. albo-spica; 7, C. pisifera var. filifera; 8, C. p. var. squarrosa. *F. E. G.* The specimen was too withered to identify. Send when in flower. *A. J., Southport.* A Cratægus, probably C. tomentosa. The species cannot be determined without fruits.

OAK DISEASED: *H. R.* Oak mildew is present. Nothing can be done when the mildew is present on a large scale, although spraying with liver of sulphur checks the disease.

ODONTOGLOSSUM CRISPUM: *C. V. C., Ghent.* The spot is caused by drops of water condensing on the leaves and being chilled at night. To prevent this, the temperature between night and day should not vary greatly.

PEACH BORDER: *J. T.* Chop the turf a little, and mix it with the finer portions of the loam, and to this add lime rubble, wood-ashes, and horse-droppings at the rate of one cart-load of each to five loads of the loam, also one ordinary barrowful of soot. Should lime rubble not be available one load of freshly slacked lime may be employed instead, taking care that every lump of the lime is pulverised before being added to the other ingredients. If water is at any time likely to rise to within 2 feet of the surface of the border it will be advisable to place a layer of pounded chalk at the bottom of the trench to the depth of 4 or 5 inches to prevent the roots of the trees being submerged at any time, and growing in the uncongenial subsoil. Your Peach house will accommodate three permanent trees in the front to train up under the roof glass, and the same number of standard trees to be planted at the foot of the back wall. Plant one tree in the centre of the house back and front and one on either side at 10 feet from the central tree. This will allow 4½ feet at each end for the development of the trees in that direction, dwarf-trained supernumeraries being planted between the permanent trees back and front. We should advise you to plant Hale's Early and Crimson Galande Peaches, and one Rivers' Early Nectarine in the front, planting Royal George and Barrington Peaches and Pineapple Nectarine against the back wall, with Lord Napier and Humboldt Nectarines and Alexander Peach as supernumeraries. The wires of your roof trellis should be fixed at not less than 12 inches from the glass, 15 inches would be none too much; the wires (consisting of No. 14 galvanised) should be about 6 inches apart, and should be painted two coats when fixed. The artificial manure you mention can be applied as a surface-dressing immediately before watering the border when the trees are swelling their crops of fruit, but not before (see also paragraph on p. 203).

PEACH LEAVES: *J. L.* The Peach trees are attacked by the Shot-hole fungus (Cercospora circumscissa). Next season spray the trees with ammoniacal solution of copper carbonate just as the leaves are expanding, and repeat the operation at intervals.

PEAR DISEASED: *C. S.* The trouble is caused by the Pear leaf blister mite. Remove all fallen leaves from the ground, and drench the trees during the winter with a solution of sulphate of copper—1 lb. in 25 gallons of water.

PELARGONIUM (GERANIUM) WITH WHITE STEM AND LEAVES: *A. L.* The variety is probably that known as "Freak of Nature." This is an old sort in which some of the stems and foliage are devoid of green matter. But you will never get the plant to become wholly etiolated, for without the green chlorophyll the plant cannot assimilate food, and must die from starvation.

PLANTS SHADING A NEIGHBOUR'S GARDEN: *Shady.* Your neighbour cannot complain if your plants merely obstruct his view or cast a shadow over his garden. He would only succeed against you if he could prove (*a*) that the plants obstruct the light coming to his window; (*b*) that he has enjoyed such light for a period of over twenty years up to the present time; and (*c*) that the obstruction is of such importance as to amount to a legal nuisance.

TULIPS: *A. J.* The bulbs should be dusted with flowers of sulphur when stored. Kainit worked into the soil will prevent infection of the leaves.

VEGETABLE SHOW: *L. G.* Your letter states that one of the rules of the show is that no prize would be awarded in any class if there were fewer than three entries. It further states that in four of these classes there were only two exhibits, consequently you did not award the prize, and the exhibitors complained of the treatment meted to them. It appears to us that they have every reason to complain, provided they can show that notwithstanding the exhibits fell below the number three, nevertheless the entries exceeded that number in each class. Most secretaries know to their cost that it is possible to have many entries but few exhibits. You stipulated for three entries, and if you received these the prizes should have been awarded, notwithstanding that the exhibits were fewer than you expected.

Communications Received.—L. S. H. (thanks for 1s. for R.G.O.F. box)—F. W. H.—S. J. H.—A. G. S.—A. S.—G. B.—W. G. D.—J. B.—J. H. A.—F. E. G.—E. S.—A. M.—W. J.—W. E. W.—L. S. H.—C. F. H.—A. W.—W. W.—T. W. & Co.—W. G. R.—H. M. B.—J. H. B.—C. G.—T. H.—W. E. H.—W. T. B.—J. F. H., Ltd.—W. M. G.—H. G. O.—H. W. W.—A. D. R.—A. J. L.—W. S. L.—A. L. G.—W. B.—T. H.—W. T. R.—B. I. M.—W. G.—Muscat—W. E. H.—B. K.—E. P., Torquay—W. M. G.—J. E. H.—J. H.—R. P. B.—T. W. P., Washington.

NYMPHÆA "MASANIELLO"

One of the gayest Nymphæas in Mr Leopold de Rothschild's collection at Gunnersbury.

THE
Gardeners' Chronicle

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ILLUSTRATIONS.

NOTES FROM THE MOUNTAINS.

CAMPANULA RAINERI.

THIS year, in ascending the Grigna, I took a false turn; my delusive track wandered in and out of terrible gorges, and in a pathless precipice at last was wholly lost. Yet the labour was not all lost. Ahead of us I suddenly saw plaques of blue upon the cliff, cried out with prophetic joy, and leapt towards C. Raineri, here in the full glory of its flower, while on the rocks higher up it was still in colourless bud. C. Raineri is certainly the most sensational of its race; the beauty of it takes one violently. Imagine a bloom of C. turbinata softened to a delicate china-blue, then blob this thickly over a tight tuft, wedged implacably into a huge limestone precipice far overhead, then you may have some notion of what C. Raineri is like in August, clothing the abysses of the Grigna with dabs of delicate colour against the hard rock. This wonderful species is very rare, endemic to the high limestones of the Bergamo Alps, between Edolo and Brescia, Tione and Varenna. Here it inhabits tight chinks, a profusely-ramifying species of which every fragment, if well-treated, will produce a thriving plant, for C. Raineri is as wonderfully easy as its other Alpine cousins—calling only for well-drained, light, rich loam, with plenty of lime, preferably with a crevice to pervade and fill. Here it increases year by year unregarded as C. pusilla, and flowers as freely in lovely masses, whose only enemy is the slug, that perpetually goes about seeking what Campanula it may devour.

CAMPANULA ELATINES.

I have been a very long time in recognising the outstanding beauty of this rare little Campanula. But now at last C. Elatines has come to its own, and revealed itself as striking out a wholly original line of loveliness and charm. C. Elatines is a very saxatile species, endemic to the hard hot granites of the Cottian Alps. In the black chinks it forms close tufts at the end of a thick rock-cleaving rootstock of stalked, cordate, dentate leaves, either glabrous or grey with down. I cannot trace any relation between these alternatives, and the situations, sunny or shady (often in caves and grottoes, or under overhanging rock), affected by the Campanula. From this compact tuft then emerge long, brittle wandering branches, after the style of C. garganica (to which C. Elatines is more nearly affiliated than to any of its nearer neighbours), and these are thickly set all along their length with large, flat stars of a deep, sumptuous sapphire-blue, not to be matched, so far as I know, in the race, though the open stars of C. Waldsteiniana are least unworthy of comparison. Despite its habits and habitat, C. Elatines proves even here, in so damp a climate, to be perfectly prosperous and hardy, flowering all the summer, but only less beloved by slugs than by me. They love to crawl over the tuft and eat through the brittle boughs and nibble the corolla away to the calyx. It is plain that warm, well-drained rocky positions (it seems here to have no anti-lime views at all), will best suit this exquisite and solemn beauty; but, granting these, there is no reason why every one should not grow so notable a species, and every reason why they should.

SAXIFRAGES IN THE MARITIME ALPS.

I return from wanderings in the very regions traversed by Professor Mader to find his most interesting elucidation of the various Saxifrages of the Roya Valley (see *Gard. Chron.*, August 23, p. 134). This year I made a point of getting to them while still in flower, and consequently have been able to note such variations as occurred to me. I began with S. lingulata lantoscana round St. Martin Vésubie, and having watched the beatings of the sun all day on the range opposite St. Martin where the Saxifrage dwells, I am able to feel now quite confident that this form, so valuable and beautiful, does definitely choose the small folds and convolutions of shade that the cliffs afford; the only exception to this choice of site being certain isolated needles on the very top of which dense colonies of S. lantoscana may be seen waving their snow-white plumes. S. lantoscana varies little, and the best forms were almost always out of reach. It is particularly magnificent and unattainable on the precipices below Venanson, but though S. aizoon occurs freely, in a very unattractive form, on the open limestone slope, I came on nothing here that suggested a hybrid.

From St. Martin I crossed two high passes and so down upon San Dalmazzo in the Roya Valley. Alas, that the once lovely and peaceful little village, quiet in its Chestnut woods and illuminated chiefly by fireflies, should now be turned into a howling wilderness and pandemonium by the railway works there immediately proceeding! None the less, in chosen districts S. cochlearis and S. lingulata Bellardii were still in flower. Of this last glorious plant good forms occur in considerable numbers, and are not so impossible to cull from their cliffs. But S. cochlearis (whose affinity is surely with S. lingulata, not with S. aizoon or S. crustata?) appeared to me, in the gorge of Saorgio and in the Rio at the back of Briga, to vary extremely little. And readers of Prof. Mader's letter must, I think, translate into terms of the English climate his description of S. cochlearis' shade-loving propensities, for though in October the gorge of Saorgio is cool and comfortable, in June it is a trough of sun and dust and heat as stifling as a hot-house. While as for the Rio I do not think I know a place more dry and torrid anywhere. Yet S. cochlearis is as happy and abundant here on its most baking exposures as on those which by comparison and an extreme stretch of courtesy might perhaps be called the cooler. On the cooler, however, Professor Mader will probably be able to supplement my record of a single plant definitely intermediate between S. cochlearis and S. lingulata Bellardii. I do not know of S. lingulata Bellardii nearer than the Tenda Cliffs, but these are by no means too far for the transmission of pollen, and the plant is a very distinct thing, so that I anxiously await the new development of its characteristic rosette.

Interesting, however, as the distribution of these curious rare or endemic species may be, to me the cloud of obscurity hangs thickest round that of the almost universal S. aizoon. All authorities, including M. Correvon and Prof. Mader, speak of this as a species calcicole by choice. Yet, in my own far more limited experience, S. aizoon has always seemed essentially a plant of granite or sandstone. Will not other travellers compare notes with me on this point? Unfortunately one gets into the habit of taking S. aizoon everywhere so much for granted in the Alps that it needs a special effort to note its presence in an unusual area. However, I have always made a special note of exclamation in my mind whenever I have seen S. aizoon on limestone; so here I will give some of the experiences which have led me, as a habit, whenever I come on granite or sandstone in a limestone district, to prophesy with tolerable confidence "Now we shall soon see Eye-zoon" (for so, following the pronunciation of certain famous gardeners, I often jocularly syncopate the lovely syllables of A-eizóön). In the Maritimes, for instance, S. aizoon is local and very inferior on the limestones of the Venanson slopes; get on to the granites of the Boréon or the Madonna Valley and at once it erupts into the wildest profusion and the

finest forms. In the Roya Valley I do not recall it specially, but on the Col de Pesio it occurs uglily on limestone—and here intermediates may, I think, be found between this and S. lingulata Bellardii. Again in the Central Alps I certainly always remember S. aizoon finest and freest on granite or sandstone. In the Dolomites, too, it appears to me that crustata prevails, though aizoon is undoubtedly found, e.g., on the Fedaja Pass. But the moment you get on to granite or volcanic rock, as on the way up to the Rolle Pass, or on Puflatsch opposite the Schlern, then you at once have jungles of S. aizoon all over the place and in very fine form. The same applies to the Bernina district, where aizoon is universal and magnificent on the granite alone. Indeed, I cannot here range over all the Alpine chains, but such has been my experience as far as it goes. I can no longer, as once, incline to think that S. aizoon really avoids the limestone altogether; the plant is too universal. But it has certainly hitherto seemed to me as if on the limestone it were feebler in habit, sparser in distribution, dowdier and smaller in flower, whereas on the granite it is healthy and hearty and widespread, and obviously at home, generous of habit, opulent in size of flower and spike, and capable, here only, of yielding varieties worthy of recognition. Will someone record a first-class aizoon from the limestone? My own Rex is from the sandstone of the Tossenhorn Moraine; and my punctatissima was bred from a spotted form collected on the Hubel below the Rosenlani glacier, where, I think, though calcareous outcrops occur, the chief of the formation is primary. Altogether, in the light of my own small wanderings, I cannot but be surprised at this general attribution by high authorities of S. aizoon principally to the limestone. And I hope that my observations, my bewilderment and inquiry, may rouse other collectors to resolve my doubts with a record of what they themselves may have noted in the matter. *Reginald Farrer.*

CAMOENSIA MAXIMA IN JAMAICA.

In 1893 a plant of Camoensia maxima was received at Hope Gardens, Jamaica, from the Royal Gardens, Kew. It was planted so that it could climb over a Calabash tree (Crescentia Cujete) on one of the lawns. For several years it made very little progress and looked unhappy.

As it is a forest climber the conditions in which it was first cultivated were not suitable to its requirements, and we decided to improve them. First, we removed the soil about its roots and gave it a good dressing of humus; then a water-pipe was laid down to its roots so that it could be regularly irrigated, and thirdly, a bushy Palm (Chrysalidocarpus lutescens) was planted a little to the south of the Camoensia to protect its rooting area and stems from the mid-day and afternoon sun.

The beneficial effects of this treatment were soon apparent; the plant produced strong shoots with healthy foliage, and it rapidly grew into a vigorous specimen.

It flowered for the first time in April, 1901, and every year since it has produced its beautiful flowers in increasing numbers. This year it bore upwards of 600 racemes, each of 10 to 20 flower buds in various stages of development. The flowers in each raceme usually expand first in pairs, then in sets of three, and finally by single blooms, so that the plant is in flower all through the summer months.

It produces its pods and seeds freely. The pods take several months to mature, and when ripe they burst and scatter their seeds in every direction, often as far as 30 feet from the parent plant.

The Palm that was planted to afford shade grew too large and was removed two years ago, but the rooting area and the stems are now shaded by the branches of the Calabash tree, which has also benefited by the treatment afforded the Camoensia.

I may mention that the annual mean temperature at Hope Gardens is 76° F. (Max. 84°, Min. 68°). During the summer months the maximum temperature is often over 90°, and in winter the night temperature is occasionally as low as 62°. Except during the rainy months—May-June, October-November—the atmosphere is usually very dry.

Camoensia was discovered by Dr. Friedrich Welwitsch, the eminent botanist and African explorer, in Angola, West Tropical Africa. He named it Giganthemum scandens in 1859, but renamed it Camoensia maxima in 1865. The former name should be accepted as correct, although the plant is better known as Camoensia, the name under which it came to us.

It is said to be the largest flower of any plant belonging to the Leguminosæ.

Welwitsch described it as "a robust shrub, climbing to a great height, and then hanging down its graceful branches, constituting the highest ornament amongst the climbing shrubs of this region [West Tropical Africa], flowers very large, emitting a peculiar odour."

At Hope Gardens the flowers measure 10½ inches from base of sepals to tip of standard. The standard is 7 inches long by 4½ inches broad. The petals are pure white, the edges beautifully crisped and margined with a line of gold. The standard, in addition, has a deep shading of yellow down the centre breaking up into irregular, small patches of pure gold near the apex.

FIG. 76.—CAMOENSIA MAXIMA FLOWERING IN JAMAICA.

The flowers emit a delicious, aromatic fragrance which perfumes the air for a long distance from the plant, but it is conceivable that in a close atmosphere the odour from a large number of flowers would be unpleasantly strong.

Mr. H. H. (now Sir Harry H.) Johnston, in his book on "The River Congo," in speaking of Camoensia, states that "in the still, warm night, the Clove-like odour of these flowers becomes almost overpowering, but there is nothing sickly or narcotic in their perfume."

When he was in Jamaica, in 1909, Sir Harry

mentioned to us that he had seen miles of this beautiful plant in the regions of the Congo, but that the odour from such a profusion of bloom was altogether too strong and almost overcoming. *W. Harris, Superintendent of Public Gardens, Jamaica.* [See also page illustration of inflorescence of Camoensia in *Gard. Chron., November 14, 1896,* when the species first flowered in Britain.—Eds.]

ORCHID NOTES AND GLEANINGS.

THE COOKSBRIDGE COLLECTION.

The Orchid nurseries of Messrs. J. and A. McBean at Cooksbridge, Sussex, first became famous for the culture of Odontoglossum crispum, and for the possession of a number of the best blotched forms. A recent visit served to show that the culture of these plants is still maintained at its former high standard, for Mr. A. McBean believes that the great beauty of the best types of blotched crispum will cause them to again become more popular than the hybrids. Among the thousands of sturdy specimens contained in the houses devoted to these plants are good displays at the ends of each house, composed of the best white type, with a few of the blotched forms, which certainly compare favourably with the hybrids arranged with them We remarked several noble hybrids of the O. eximium and O. mirum class, with large and handsomely-marked flowers; a batch of O. ardentissimum, including one superb form which was almost wholly of claret-purple colour; also the white varieties xanthotes and Snow Queen. Among the O. Pescatorei was a beautiful specimen with two spikes which bore together 128 flowers. Odontoglossum Edwardii crosses have many in flower of various parentages, but few are equal to the best form of O. Thompsonii raised here, and which has fine reddish-purple and rose-coloured flowers on dwarfer spikes than in other forms. McBean's form of the large deep-red Oncidioda Cooksoniæ (Oncidium macranthum × Cochlioda Noezliana), which is quite a cool-house plant, is sending up spikes freely; Oncidium McBeanianum is in flower, and several interesting wide crosses, including Adaglossum Juno, a hybrid obtained between Ada aurantiaca and Odontoglossum Edwardii, with interesting though not showy flowers.

Odontiodas are popular because they are strictly cool-house plants, and one or other of the family may be found bright with their scarlet flowers all the year round. The whole of the side staging in one long house is occupied by Odontiodas in flower or in spike, and a fine show they make, the brilliant flowers being borne above the large, leafy pseudo-bulbs on self-supporting spikes. The type of O. Charlesworthii raised at Cooksbridge is the favourite, and the secret of its excellent character is disclosed by Mr. McBean, who showed us the noble form of Odontoglossum Harryanum in bloom, which he used in crossing with Cochlioda Noezliana to obtain his batch. Notwithstanding the excellence of the type there is still great variation in the plants, which respectively show more or less of the O. Harryanum parent. One form now in bloom is very remarkable for its large, flat, broad-petalled flowers of a deep-red colour, the broad labellum showing O. Harryanum as much as though it were a secondary cross of that species. The forms of O. Bradshawiæ obtained from the best parents are also of excellent quality, some of them being nearly as large as O. crispum, with vermilion-red flowers. O. Vuylstekeæ, the first Odontioda, is still one of the best when well grown. Several are here in bloom, including one bearing a spike of 32 flowers. Others noted were O. Keighleyensis, O. Lambeauiana, O. Cooksoniæ, and the pretty mauve O. Thwaitesii, all promising a good show of flowers for a long time to come. In each of these cool houses various species are in flower; among others noticed were some scarlet Sophronitis, Lælia monophylla. Odontoglossum nebulosum, O. aspidorhinum, O. Uro-Skinneri; a fine lot of Oncidium Marshallianum, with very large plump pseudo-bulbs, and a batch of the elegant O. incurvum with numerous tall spikes of white and rose-coloured flowers.

Cattleyas, Lælio-Cattleyas, and Brasso-Cattleyas are the principal features in the long ranges of intermediate houses, and the plants are in superb health, some of the Cattleyas being grown with pseudo-bulbs, quite double the size of any ever imported. One pseudo-bulb on a plant of Cattleya Schröderæ measured 6 inches in circumference, and others on C. Warscewiczii, C. Mossiæ and C. Mendelii were proportionately large. An interesting point is the large number of flowering growths in proportion to the old pseudo-bulbs. In a batch of white-flowered Cattleyas four flowering growths were remarked on each plant of Cattleya Mossiæ Wageneri, C. chocoensis alba, and C. Mossiæ Reineckiana, and all the plants showed fine blooms. Cattleya Dowiana aurea grows well here suspended from the roof, and some of the specimens have flowered regularly for the last five or six years.

Noting some of the prominent plants in flower, or remarkable batches in the many houses of sturdy specimens, we found Cattleya Dowiana and its rare variety Rosita, C. Mendelii alba Memoria J. McBean, C. O'Brieniana alba, and many other white Cattleyas, together with numerous crosses from them, some of the best being C. Brenda, C. Maggie Raphael alba and C. Lord Rothschild albescens.

At the end of one house an arrangement of Cattleya Iris was very pretty, one superb variety quite new in colour having the sepals and petals a bronzy orange and the large fringed lip claret-crimson. With it were Lælio-Cattleya Ganymede, Cattleya Lord Rothschild, C. aurea, the beautiful Lælio-Cattleya Geo. Woodhams, and some unnamed crosses. Other handsome and rare plants in the house include Lælio-Cattleya St. Gothard McBean's variety, and L.-C. McBeaniana, both of which received First-class Certificates at the Royal Horticultural Society last year; a batch of Lælio-Cattleya Helios (L.-C. G. S. Ball × C. Mossiæ), but out of which it is scarcely hoped to flower a hybrid of equal merit with the clear Apricot-yellow original now

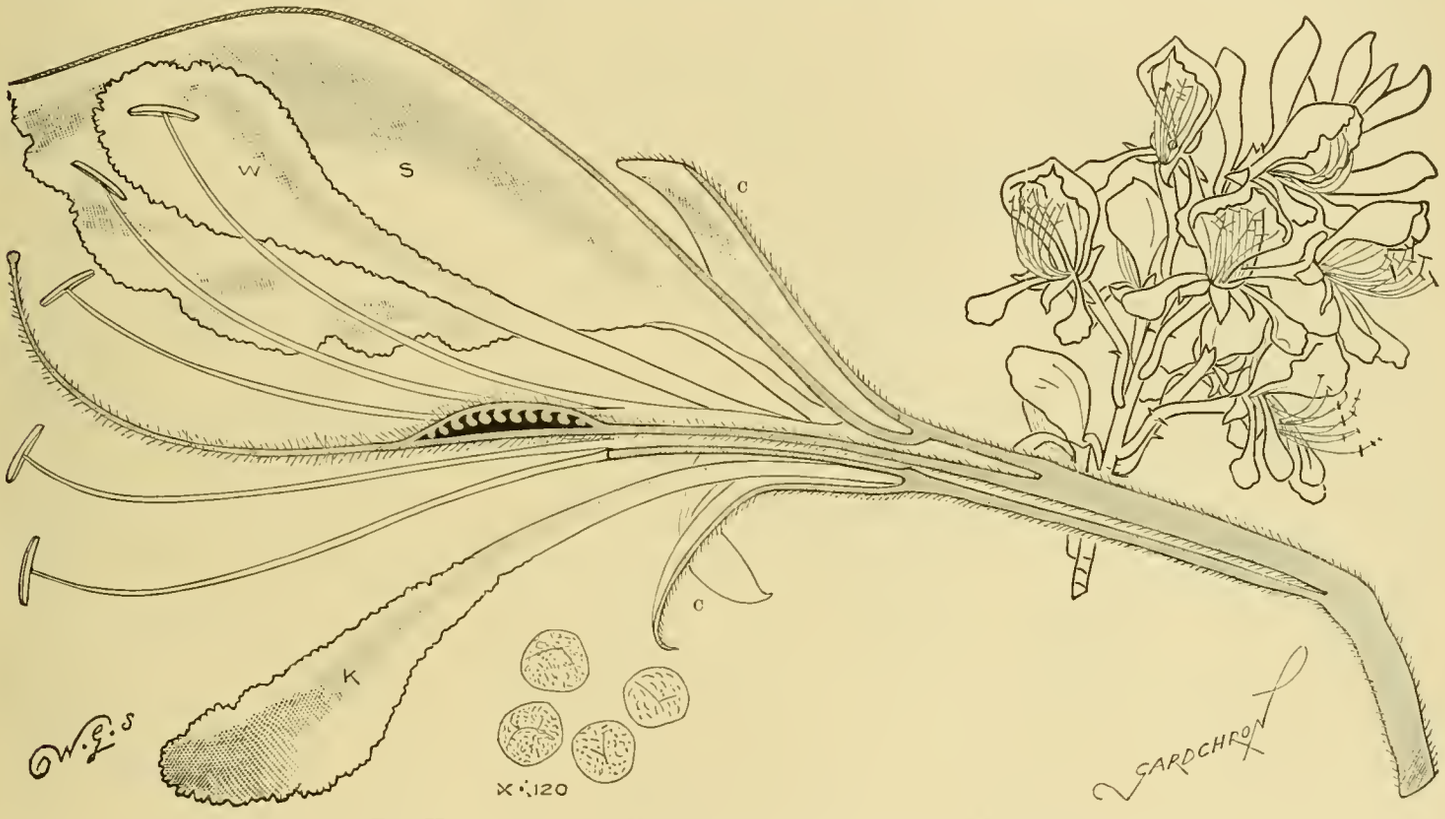

Fig. 77.—Camoensia maxima: flower seen in section, with details.

S, Standard petal; W, side petals, forming the wings K, lower petals, forming the keel; C, C, sepals. Pollen cells magn. 120 diam.

in the collection of Baron Bruno Schröder; a good batch of Cattleya Fabia of both the light and the dark types; and some promising crosses of albinos which are soon about to flower. Passing through the remaining houses we find one entirely filled with hybrids of Cymbidium insigne (Sanderi), the plants, though not in flower, being extremely graceful and ornamental. Of the best of those raised here are C. Schlegelii, C. Doris, C. Alexanderi McBean's form, C. Pauwelsii, and hybrids of C. erythrostylum, which are well on the way to flowering size.

Then follow several houses of hybrids of various sizes and numerous batches of Brassavola Digbyana crosses in fine health, and well set with flower sheaths; several batches of Sophronitis grandiflora crosses, some of the secondary hybrids being exceptionally promising; the best forms of Miltonia vexillaria, with some good examples of M. v. Memoria G. D. Owen; batches of M. Bleuana, M. Hyeana, and other vexillaria crosses, with some in bloom; a healthy lot of M. Phalænopsis, McBean's variety being the finest in colour; a house of Cypripediums; a well-flowered lot of the white Dendrobium Dearei, with a few of the pretty D. Sanderæ, and some D. Phalænopsis; a selection of the showier Masdevallias; a small house shaded only by a very thin gauze or tiffany shading, full of white forms of Lælia anceps, chiefly Schröderiana, very vigorous and well furnished with spikes; and smaller lots of most of the showier species.

TREES AND SHRUBS.

SEEDLINGS RAISED AFTER THE HOT SUMMER OF 1911.

DURING the year 1911 many trees and shrubs bore fertile seed in this country which do not, as a rule, do so, and I have been successful in raising seedlings of several varieties from the specimens in the arboretum here. The most noteworthy is, I consider, a seedling Magnolia acuminata. Though occasionally I have found an odd seed or two of this species that appeared fertile, I have never succeeded in raising one before. At the end of October, 1911, the gardener was able to collect a number of seeds, which, after being washed clean in warm water, were planted in a pan on November 20. One seed germinated on May 24, 1912, and is now growing well; the pan was kept, and another germinated on April 2 of this year, but did not live. The parent of the surviving seedling (No. 190, *Hortus Arleyensis*), is mentioned in *The Trees of Great Britain and Ireland*, Vol. VI., p. 1,587. I should be glad to hear if anyone else has succeeded in raising this Magnolia from home seed, as Mr. Elwes states in the above work that he is not aware that the tree has ever ripened seed in this country, and quotes Bunbury, *Arb. Notes*, 55, 1889. Among other seedlings raised I may mention Pyrus salicifolia. The seed (from No. 104, *Hortus Arleyensis*), was planted in February, 1912; one germinated in March of the same year, and was pricked out and potted on. It did not, however, show the distinct whitish or Willow-like foliage of the parent, and I was extremely anxious to see what the others would do if more germinated, which they did freely in January of this year. Unfortunately, however, some slugs made a raid on them on the 13th of the same month, and I was only able to save one more plant, which is now about 4 inches high, but it does not show the colour or shape of leaf of its parent. I should be glad to hear if anyone else has raised this tree from seed, and the result, as it is classed as a distinct species, and presumably ought to come true from seed. I have also raised Pyrus elæagnifolia (from No. 268, *Hortus Arleyensis*). The pips were removed from the Pears and planted on February 21, 1912, in a pan and were germinating freely in March, 1913. This tree is mentioned in *The Trees of Great Britain and Ireland*, Vol. VI., p. 1,558.

Prunus serotina (from No. 245, *Hortus Arleyensis*). The seed was planted on November 7, 1911, and germinated on April 2, 1912. They are now making nice plants. The parent tree is mentioned in *The Trees of Great Britain and Ireland*, Vol. VI., p. 1,549.

Tilia platyphyllos (from seed from No. 329, *Hortus Arleyensis*). Planted on November 7, 1911, one germinated on May 24, 1912; one more in July, and the rest in February of this year. Self-sown seedlings of this species of Lime have been found growing about the grounds here before, and two are now 5 to 6 feet high and growing fast and vigorously. Tilia cordata has not been raised, nor have I seen any self-sown seedlings.

Carya amara seed was sown from four different trees here, but none has germinated.

Fertile seeds were produced on Æsculus parviflora, and they were already germinating on the ground in Nov., 1911, when I found them. They were collected and placed in a pot, but I was not successful in raising them. Loudon says Æ. parviflora seldom ripens seed in England (Vol. I., p. 474), and, quoting Mr. Poiteau, adds that the nuts ought to be sown as soon as ripe, for if exposed to the air, they soon lose their vegetative power. This no doubt was the cause of my failure. I have never seen seed on this shrub before 1911.

I raised a large batch of Acer rubrum in 1907 (see *The Trees of Great Britain and Ireland*, Vol. III., p. 673), and several of the young plants bore flowers in April, 1912, when only five years old and 5 feet in height, and produced fertile seed, from which I have raised another batch of seedlings, which are now 8 inches high. They were planted on May 29, 1912, and germinated at once. *Robert Woodward, jun., Arley Castle, Bewdley.*

SAMBUCUS RACEMOSA.

Is there any well authenticated instance of poisoning by the berries of this plant? It is often casually mentioned that the berries are poisonous, but I have not been able to obtain any confirmation of the statement, and notice that birds eat the berries, apparently, with impunity. If the fruits are harmless it is a pity that the species is not more generally planted, as it forms a most beautiful object in the shrubbery and similar positions, when laden with its bright, scarlet fruits. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

THE ROSARY.

IRISH ROSES.

IN few places is the raising of seedling Roses carried on more extensively than in the district around Belfast and Portadown. It is difficult to realise the scope of the work carried on without actually seeing it. I believe it would be correct to state that more novelties are raised by the three firms who are engaged in this district (Messrs. Alex. Dickson and Sons, Hugh Dickson, and S. McGredy and Son) than by all other firms put together. They excel, moreover, not only in quantity, but also in quality. Of ten good Roses introduced each year it may safely be said that eight or nine come from Ireland. Few firms are capable of allotting from fifty to sixty thousand stocks for the budding of seedlings, which was the number to be used for this purpose this year in one of the nurseries I visited a short time ago.

I went first to the famous nurseries at Newtownards. I was met by the chief, Mr. Alex. Dickson, and his brother, Mr. George Dickson, both of whom were good enough to spend nearly the whole day in showing me the seedlings. The vast display of blooms, of numerous colours and shades, presented an effect difficult to describe and not soon forgotten. It is sometimes suggested that fewer new Roses should be introduced than at present; but I saw at Messrs. Dickson's sufficient really first-class novelties to last, at the rate of ten a year, for twelve or fifteen years. We seem hardly to have had time as yet to admire some of the recent novelties, such as Duchess of Wellington, yet here I found seedlings described in my notebook as "glorified" Duchess of Wellington, "improved" George C. Waud, etc. The outstanding features of the Newtownards new Roses are freedom of growth, continuity of flowering, and high quality of bloom. They are thus equally suitable for garden decoration and for exhibition. Messrs. A. Dickson and Sons purposely try their novelties upon stocks planted without any special regard as to high culture, so that a correct estimate may be arrived at as to their merits when grown in quite ordinary conditions.

In Irish Fireflame we have a single Rose, in colour like a rich Nasturtium, riotously vigorous in growth, and I saw long lines of it, every plant in the most perfect health. This Rose resembles Irish Elegance in that it does not need much pruning. The Hybrid Tea Rose will probably be the most popular bedding Rose for years to come. Messrs. Dickson have taken pains to raise varieties specially suitable for the purpose. Upon some of the seedlings I counted as many as seventy blooms, including buds, on one stem, and the flowers were equal to exhibition blooms. When massed such Roses produce an extraordinarily fine effect; there were scores of different shades, ranging from deep reds to orange yellow. I also saw some yellow varieties, deeper than Rayon d'Or. It may be news to some of my readers that Messrs. Dickson were working upon Austrian briars before the advent of Soleil d'Or.

There is no necessity to enlarge upon the merits of the novelties of former years, but I may mention that the variety Mrs. Foley Hobbs has taken more medals this year as the best Tea than any other variety. Of this year's new Roses I may say a few words.

Queen Mary is a lovely Rose and should be in every garden. Its perfume is delicious, a feature which is noticeable in many of the Newtownards Roses. Lady Dunleath may be described as a yellow Betty and is extremely attractive. Chrissie Mackellar is a glorified Edu Meyer. It has a very long flowering season, blooming continuously until the frosts appear. Hilda Richardson presented a colour resembling that of the old Maiden's Blush and is deliciously fragrant. Mrs. Forde represents the high-water mark of excellence in form and it richly deserved the Gold Medal awarded. For exhibitions and for the garden it will be equally sought after. Of Roses not yet in commerce I noted fully seventy different varieties; few of these had been named, but I can give the names of one or two. Margaret Dickson Hamill is a magnificent Rose of fine form and perfect habit. The colour is a deep orange gold. Donald McDonald will make a splendid bedding Rose; the colour is vivid carmine, suffused with orange. Edward Bohane is a scarlet Rose of massive form with fine foliage. It was well shown at Shrewsbury this year. Mrs. Wemyss Quinn is a deep golden yellow and is of a fine habit of growth. H. V. Machin is an excellent Rose, and will be sent out next year. It is certain to be extremely popular. I saw one seedling which will undoubtedly surpass General McArthur. Mrs. S. T. Wright resembles a deep Apricot-coloured Harry Kirk. Killarney Brilliant is one of the best of the Killarney race which has yet appeared. It is double the size of Killarney and the colour is deep and rich. Mrs. Wakefield Richardson, a glorified Earl of Warwick, is a particularly fine flower; Molly Bligh is a Rose of splendid

vigour and form; George A. Hammond well deserved the Gold Medal it obtained at Gloucester—it is a Rose of many merits, the colour being a fine golden orange. Red-letter Day will be welcomed by all lovers of the semi-double and single Rose. It is a beautiful variety of very conspicuous colour; it will make a first-class bedder. Irish Adoration is a single, orange-coloured flower which will be much admired; it would make a splendid hedge Rose. Thousands of vigorous plants of George Dickson bore testimony to the popularity of this fine Rose. It is without doubt the best crimson variety ever raised. —*Experience.*

COLLERETTE DAHLIAS AT EDINBURGH.

On the occasion of a recent visit to Messrs. Dobbie and Co.'s nursery at Edinburgh we examined whole breadths of seedling varieties of the Collerette type of Dahlia, and compared them with named sorts from the Continent which were also in flower. There is very little doubt that this type will come into general cultivation, for already the flowers have gained much public favour. It is recognised that whilst they possess qualities that make them exceedingly effective from the colour point of view, yet it is possible to have them with exquisite refinement. Messrs. Dobbie are selecting seedlings that possess the following qualities:—(1) Good habit, which means moderate growth, freedom of flowering, and erect stems that bear the flowers well above the foliage; (2) general refinement, such as circular outline of bloom, imbricate segments, and moderate development of collerette; (3) attractive colouring. From the colour point of view varieties may be selected for different reasons, as, for instance, in one case the ray florets are in strong contrast to the collerette, whilst in others they are in harmony, though perhaps differing in shade.

Dungeness, the variety illustrated in fig. 78, was amongst the number inspected, and it has since been shown at a meeting of the Royal Horticultural Society, where it gained an Award of Merit. The ray florets are bright crimson and the collerette pale yellow. Another fine variety was named Tuscar, an exquisite flower, of which we hope to publish an illustration in colour. The segments are crimson, and the collerette white. There is also a narrow band of yellow surrounding the disc. Prince of Orange has flowers about 5 inches in diameter. In this variety the ray florets and the quill-like florets that form the collerette, harmonise, being shades of orange-salmon, the quills a trifle paler. These latter are rather more than half the length of the rays, and lie almost flat upon them. The flower stalks are wiry and erect, and the variety is exceedingly decorative.

Apart from the Dahlias, of which all the sections were blooming abundantly, the nurseries were brilliant with hardy flowers and annuals, whilst Rose-budding was proceeding apace in the area devoted to the culture of these plants. It was interesting to see the specimen plants of Sweet Peas, representing every variety mentioned in the firm's catalogue for comparison by visitors to the nurseries. The glasshouses had their interest also, and it was noted that all were conveniently connected by a spacious corridor. To hear the propagators talking of the number of Dahlia and Viola cuttings raised in these houses every season makes one wonder where so many plants could be distributed. The fine stone building which faces the Portobello Road, and provides the necessary offices and seed and bulb stores, gives to this nursery an appearance of first-rate importance. To those who were in the habit of visiting Messrs. Dobbie and Co. at the old nursery at Rothesay, the new establishment at Edinburgh will strikingly illustrate the great progress the firm has made in recent years.

NOTES FROM SOUTHERN ITALY.

Where is now the South Italian summer? Perhaps in Africa, but not here. We have had two weeks of very hot weather, from July 26 to August 15, but the rest of the summer has been damp; hot enough at mid-day, but fresh in the evening and morning. However, for gardening purposes it was favourable. The lawn is fresh as in springtime, and the flowers are lasting longer than in former years. A feature of our gardens is the blue-cap Lilies, Agapanthus umbellatus and its white variety, also the little A. minor Mooreanum and the new A. caulescens. This last-named species is deciduous, with a leaf-stem like Crinum Moorei, and will certainly be hardy in England.

Fig. 78.—Collerette Dahlia Dungeness: ray florets bright crimson; collerette pale yellow.

In the year 1908 I crossed this Agapanthus caulescens with the pollen of A. umbellatus. The few seeds gathered were sown in the autumn, and the young plants were all evergreen, although the mother plant is deciduous. In the past year one of my plants flowered, and this season all have flowered, and all are the same, so that I shall name this hybrid Agapanthus × Milleri. It is a gigantic plant resembling A. umbellatus, with a long leaf-stem like the mother plant; the leaves are bright green, very large, and somewhat plicate; the flower-stem is from 1.75 to 2 metres in height. The single flowers are pale blue with darker midline; the segments are longer, narrower and more open than in A. umbellatus. More than 200 flowers are borne on a single stem.

Campanula fragilis alba was long a desideratum for me, and last year I had the fortune to find this albino variety. It was not the first time, but on previous occasions the plants were growing in such awkward places that I was not able to bring the plants with roots home. Last year, however, I obtained a large clump with full flowers from a crevice and planted it in pots filled with pumice stones. They rooted early, and now this long-desired plant is acclimatised. The flowers are as large as those of the type; the colour is milk-white, not pure white, but certainly for alpine plant lovers it will be an acquisition, not only for the rockery but also as a pot plant.

The feature of my garden now is the hybrid Crinum. Some of the hybrids come into flower in April and May, but the finest flower in midsummer. I cannot say which is the best; all are good and floriferous, and some I propose to name. Crinum × Prainianum, fine pink-coloured, funnel shape, and very rich flowering. C. × Tremaynianum has large pure white flowers. C. × Luisæ is pure white, like L. candidum. C. × Victoriæ, white flushed with pink, well formed, but with rudimentary stigmas. I cannot understand why these should not be more cultivated than the C. Yemense, to which they are superior; perhaps people think that they are not hardy in England. They are not to be recommended for culture in pots.

Lycoris squamigera, L. incarnata, L. Sprengeri and L. radiata have been in full glory, and now are coming the Belladonna Lilies, the finest flowers in early autumn. A few years ago I saw a Belladonna Lily in July in flower in a garden here, and the gardener told me that the name was Amaryllis Belladonna æstivalis, but I know no such name. Can any reader tell me what it is? I have all the varieties of A. Belladonna, also the var. alba and the dark red rubra major. *Willy Müller, Fratte di Salerno.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

CATTLEYA AND LÆLIA.—Plants of Lælia purpurata should be examined to see if they require more root room. The young shoots of this species, having grown several inches, will soon commence to produce roots. These roots in every case should have sufficient space to grow inside the rim of the pot; therefore in giving a plant a larger pot it is desirable to allow space for two seasons' growth. Old plants that require to be broken up should be divided, all useless back pseudo-bulbs removed, and dead roots cut away, taking off as much of the old soil as is possible without injuring the roots. Several hybrids obtained from this species will also need similar attention. L. elegans has flowered during the past few weeks, and the plants will feel the operation of repotting less if it is done just after flowering, as the fresh compost will be ready for the roots as they push out from the base of the flowering growth. This Lælia being of the long bulb section, it is important that the plant, when repotted, be made firm by tying one or two of the pseudo-bulbs to neat, strong stakes. Some plants as Cattleya Trianiæ, C. Mendelii, C. gigas, C. Schröderæ, C. Percivalliana, C. labiata, C. Bowringiana, and others which have ceased to grow should receive less water at the root. They should be exposed to every ray of sunlight, and plenty of ventilation employed. Such treatment will assist the newly-formed pseudo-bulbs to mature, and induce the plants to make many roots, but not growths. If any of these plants have grown too large for their pots, and are likely to suffer for want of rooting material, that is, if the new roots are pushing themselves over the edge of the pot, they may be afforded more rooting space, but care must be taken not to disturb the old roots more than is avoidable; merely break the pot, and take away as much of it as possible without interfering with the drainage, then place the whole into a larger pot of suitable size. If the work be carefully done, and the roots but little disturbed, and new roots soon become plentiful, no injury will accrue, and the plants will bloom in their due season. Afford these plants plenty of drainage material and Osmunda-fibre and A1 fibre in equal parts will be found a suitable compost for them to root into. The present is a critical time with some Cattleyas and Lælias, especially if they are cultivated in badly-ventilated houses or where the house is kept constantly charged with moisture. It often happens that the outer covering of the pseudo-bulbs becomes damp and discoloured, and this may cause the bulb to decay. When this is observed increase the ventilation, even if it becomes necessary to employ a little artificial heat. Give as much light as is possible, and for a few days keep such plants rather dry at the roots, and also see that there is less atmospheric moisture in the house, especially during the middle hours of the day, when the atmosphere, with sunshine and ventilation, is comparatively dry. These two agencies, light and air, when properly balanced, are the best means we have to obtain solidity in the pseudo-bulbs, also to minimise the ill effect of fluctuations in the temperature of the houses, which are often difficult to prevent. Plants of C. Bowringiana, and several of its hybrids, as C. Martinii, C. Mrs. G. Whiteley, C. Browniæ, C. Wendlandii, C. Portia and C. Tiresias, that have finished their growth should be kept rather drier at the root, and not so much water afforded at each watering; the flower sheaths should be watched daily, and immediately the flower spikes are observed pushing up at their base a slight increase of water may be allowed, the supply to be again reduced when the flowers open. These plants will soon make a good display in the Cattleya house, and although their flowers are not of the largest size, their rich colouring affords a fine effect, especially when seen in artificial light. Plants of C. Dowiana and C. D. aurea that are in bloom should be placed where they will be exposed to the light, and no water given them.

THE FLOWER GARDEN.

By EDWARD HARRISS, Gardener to Lady WANTAGE, Lockinge, Berkshire.

ANCHUSA ITALICA.—This beautiful Borage, one of the most effective of hardy flowers, may be had in flower from early summer until late autumn by propagating a few plants annually. The old plants need lifting every two or three years, and at such times plenty of young plants may be propagated. It is not unusual to see seedlings springing up around the old plants, but they cannot be relied upon to come true to type, therefore to perpetuate a good variety, such as the Dropmore variety, it is best to divide the old plants. In very severe winters many plants are killed, and for this reason it is well when dividing the roots to pot some of the pieces up, and winter them in a cold frame, planting them out in the spring. Those left in the open may be protected by placing ashes around them. Plants which were raised from seed sown in the spring must be wintered in cold frames, plunging their pots in ashes.

DAHLIA.—From now till the end of October Dahlias will be full of flower unless a severe frost occurs. Where they are massed in beds an effort should be made to shelter them from frost, as they will prove of great value for indoor decoration during the next two or three weeks. The stakes should be renewed if necessary, at the same time supporting some of the growths with fresh ties as a precaution against autumnal gales.

HEUCHERA.— The species of Heuchera have been augmented recently by the addition of several beautiful hybrids. Nowhere are Heucheras seen to better advantage than when planted in bold groups in the rock garden. A good number of plants should also be put out in the reserve garden for cutting for indoor decorations. Heucheras may be increased now by cuttings or division of the old plants. These should be inserted in a sandy compost in boxes and kept rather close and shaded in a cold frame till they are rooted. They must then be thoroughly hardened off. Keep them in frames during the winter, putting them out into their flowering positions in the spring.

THE ROCK GARDEN.—Take away any dead flowers and foliage at regular intervals, and cut back any of the stronger-growing plants which have grown out of bounds. Plant such bulbs as are suitable for growing among the rocks, including the smaller-growing Narcissi, Galanthus, Muscari, Chionodoxa, and Scillas. The beautiful Habranthus pratensis should also be included, but it must be planted in a sheltered situation exposed to sunshine. Anemones should also be planted freely in the Rock garden, especially A. apennina, A. blanda, and A. alpina.

THE KITCHEN GARDEN.

By JOHN DUNN, Foreman, Royal Gardens, Windsor.

MINT.—Young plants set out in April and cut down a month ago are producing plenty of clean, young growths, which will continue good until destroyed by frost. The remainder of the plantation should be cut over, and the roots allowed to remain dormant until the middle of October, when they may be lifted and placed over a gentle hot-bed in order to produce a continual supply of green leaves throughout the winter. The bed may be made with fallen leaves; strong bottom heat is harmful to the roots. Spread a layer of fine soil over the bed, and place the roots as closely together as possible in order to produce a good thick crop of young shoots. When the roots are placed in position a covering of finely sifted leaf-mould should be placed over them, and the bed moistened with water at a temperature of 70°.

PARSLEY.—The plants should be cut over without delay, so that an abundance of young growth may be produced before the season is too far advanced. Stir the soil between the rows, and dust soot lightly along the rows several times during the autumn. Young plants may be transplanted into cold pits to produce a supply of leaves in winter.

SWEET MARJORAM.—Let some plants of this herb be potted at once to furnish a supply of green leaves during the winter. They may be placed in a cold pit, keeping the latter closed for a few days until fresh roots are made, when air should be afforded freely to harden the plants before winter. Very little heat is necessary to grow this herb in winter; the greatest trouble to overcome is damping.

FRENCH BEANS.—Sow French Beans in pots to provide for winter supplies. Choose pots 7 ins. in diameter, and fill them to within two inches of the rim with a compost of three parts sandy loam and one part manure from a spent Mushroom bed. The compost should be made rather firm, and seven or eight beans inserted in each pot, covering them with an inch layer of fine soil. The pots should be placed in a frame or house where the atmospheric temperature is 60°, and when the young plants are well through the soil the pots may be raised to within two feet of the roof glass. As growth advances a few twigs should be placed round the plants, to keep them in an upright position; and while they are growing freely, they may be watered frequently with liquid manure. The temperature should be maintained at 60° at night, but ventilation should be employed freely during bright weather, and the plants should be syringed twice a day to check insect pests. Good varieties for this sowing are the Belfast and and Osborn's Forcing. French Beans planted in pits should be ventilated freely in mild weather. If slugs are troublesome the plants may be dusted with soot; the roots should be kept moist, or red spider will appear.

BEETROOT.—The main crop of Beetroots will now be ready for lifting; this operation must be performed with care, as any damage will injure the quality of the roots. They should be stored in a cool, dry shed, in sand or dry soil, so as to exclude the air.

WINTER SPINACH.—This crop may now be thinned, allowing two or three inches between the plants. Overcrowding would be favourable to the spread of mildew, especially in low-lying districts. The Dutch hoe should be used for stirring the ground between the plants, and a dusting of soot or lime in the early morning will prevent slugs. As the crop advances in growth the largest leaves should be gathered, whether required for use or not; if left on the plant, they have an injurious and weakening effect.

TURNIPS.—Late-sown Turnips should be thinned severely before they become too large. The soil between the rows should be stirred frequently, and the plants dusted with wood ash or soot.

CELERY.—Late plantations of Celery will now require earthing-up. If the bed is dry, a good soaking of clear water should be applied a day or two before the earthing is done. All side growths and rough leaves should be removed before the plants are tied. After the soil has been piled round the plants the ties can be removed and used again. Frequent applications of soot will be effectual in keeping off Celery fly. The Celery will take five or six weeks to blanch, or a little longer in the case of late crops, whose stems have been exposed to the weather and become hard. Too much soil should not be placed about the plants at one time, as this is apt to cause an injurious check.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

EARLY-FLOWERING TULIPS.—Bulbs of early-flowering Tulips should be potted without delay, especially if required for Christmas flowering. Proserpine is a very good variety for this purpose. It is a good plan with most bulbs to cover the pots lightly with manure from a spent Mushroom bed or rough leaf-mould before putting on a layer of ashes. Do not attempt to force the bulbs until it has been ascertained that the pots are well filled with roots.

FREESIA AND SPIRÆA.—Early batches of Freesias which are well advanced in growth should be staked before the growths become damaged or broken. It is a good plan to use Birch-broom twigs instead of stakes, as with the former no ties are necessary. A batch of retarded Spiræas can now be started; after pot-

ting the soil and crowns should be thoroughly soaked with water and the pots placed in a temperature of 55° to 60°. As soon as the growths appear, liberal supplies of water are necessary, but the foliage should not be syringed. When the flower-spikes appear, the plants may be moved into a warmer house, and a little manure water applied to the roots.

Begonia Gloire de Sceaux and Statice.—If large plants of this winter-flowering Begonia are required they should now be transferred to larger pots, and this also applies to Statice profusa. A sowing of Statice Suworowii made now will be useful for flowering in spring. The houses which will now be required to accommodate winter plants should be fumigated.

Lilium longiflorum giganteum.—Bulbs of this plant should be unpacked on arrival, and either potted immediately or spread out so as to allow air space between each. The size of the pot to be used will vary with the requirements of the grower; if the flowers are to be used for cutting, three or more bulbs should be placed in a large pot, the compost to consist of rich loam, leaf-mould, decayed cow-manure, coarse sand, and a little wood-ash. Sufficient room should be left in the pot for a top-dressing to be applied later on. The pots should afterwards be plunged in ashes and treated as advised for Tulips.

Coleus.—Cuttings should be taken from the old plants of Coleus and inserted in sandy soil, putting three cuttings in each small pot. The pots should be placed on a shelf in the propagating house or stove, as near the glass as possible, and the plants watched carefully to prevent damping. It is advisable to save a few old plants for stock, in case the cuttings fail to root.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Muscat Grapes.—These Grapes are now ripe, and it may be desirable to keep them as long as possible in good condition. If wasps are troublesome the ventilators should be covered with close-meshed netting. The atmosphere of the house should be kept cool, dry, and airy. In dull, wet weather just sufficient heat should be maintained in the water-pipes to keep the air dry. Decayed leaves and berries should be removed whenever they are discovered. Ripe crops of mid-season Grapes should be examined, and all berries showing any signs of decay removed. Laterals and unnecessary growths should be cut away, and everything done to keep the foliage healthy as long as possible. It is desirable to keep the surface of the inside border dry, but under the surface the soil should be rather moist. If it needs watering a bright day should be chosen, and an inch or two of the dry surface removed, replacing this on the top after the soil underneath has been watered. If it is not possible to remove the top soil it can be watered in the ordinary way, and an inch of dry manure from a Mushroom bed or short litter scattered over the surface. A little warmth should be maintained in the water-pipes to keep the atmosphere dry; in dull, wet weather the house should be kept closed, but on bright days free ventilation may be employed.

Late Grapes.—On account of the dryness and warmth of the season late Grapes will be ripe by the end of the present month, and in any case, Grapes intended to keep upon the vines through the winter should be encouraged to ripen as soon as possible. Red spider—more than usually troublesome this year—must be kept well under, as the Grapes will not keep good if the foliage fails to be healthy and clean. In localities where the autumn rainfall is excessive the outside borders should be covered with shutters or some such protection. Some varieties are slower in ripening than others; until these are ripe a mean temperature of 60° to 65° should be maintained, with free ventilation on bright mornings. Lateral growths and decayed berries should be removed, and if the inside border seems too dry to carry the crop through the winter it should be watered at once in moderation. When the Grapes are all ripe the surface of the inside border should be kept dry and the temperature reduced to 50°. A little constant heat should be kept in the pipes, combined with careful ventilation, so as to maintain a dry, warm atmosphere.

The Earliest Vines.—Vines from which the fruit was cut early, and which are intended to be used again for early forcing, should be pruned. The loose bark should be removed from the rods, but they should not be severely scraped. Gishurst Compound should be applied for the removal of insect pests, or a mixture of soft soap and water brushed into all the crevices. The surface soil should be removed as far down as the roots, as mealy bug frequently lodges there. A good preventive of this pest is to make a mixture of two parts stiff clay and one part gas tar, with sufficient water to form a paste, and paint the rods with it, being careful to keep the brush away from the buds. The interior of the house should be thoroughly cleansed, using a mixture of soap and paraffin for the woodwork, and limewashing or painting the walls. The borders should, if necessary, be renovated now, while the weather is still fine.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Late Apples.—The mistake is often made of gathering fruit indiscriminately—thus stripping whole orchards or batches of trees at one time regardless of variety and condition. This is sometimes done because it is thought to tend to tidiness, both in the orchard and fruit room, but it will well repay the grower for any little inconvenience he suffers at present if he gives extra care in regard to gathering late-keeping varieties of Apples at the right time and not before. Fruit gathered before it is properly matured loses much of its flavour and good appearance. The tree, too, suffers, as the fruits have to be dragged off, pulling leaves and often young growths with them. A constant watch is necessary at this time of year, for Apples change quickly; in fact, some varieties, notably the heavier ones, will pay for going over twice, the outside and topmost fruits being ready first for gathering. Many main-crop dessert varieties, such as Cox's Orange Pippin, King of the Pippins, and Wealthy will now be ripe, and of kitchen sorts may be mentioned Emperor Alexander, Waltham Abbey Seedling, Lord Derby, Cox's Pomona, and Flower of Kent, but late-keeping varieties, such as Court-Pendû-Plat, Adams's Pearmain and Northern Spy (Dessert), and Alfriston, Reinette de Canada, Norfolk Beefing and Hambledon Deux Ans (Kitchen varieties) are better, as a rule, when allowed to remain upon the trees well into October. In storing, care must be taken to reject all damaged or decayed fruits, or the rot will quickly spread. It is better to store quantities of late Apples rather thickly together for the first few months, as it tends to keep them more plump than when laid out singly on dry shelves. An exceptionally dry place is not an advantage; at the same time moisture must not be allowed to collect, nor frost to enter the fruit room. Clean Wheat straw only should be used in the fruit room, never hay or the softer and quickly decomposing grass. A damp shed with north aspect is most unsuitable for storing fruits.

Late Pears.—Many of the later varieties of Pears will repay trouble for being treated with regard to gathering in the same way as advised for the early varieties. Pears coming into use with us now for dessert purposes include Pitmaston Duchess, which should not be gathered until the fruits are almost ready to fall; if the trees are on a coped wall the fruits can be tied to prevent damage through falling, thus keeping them well into November. Louise Bonne of Jersey is a valuable October Pear, and, excepting Doyenné du Comice, I do not know any that excel it. Marie Louise is an excellent Pear; this Pear, with Doyenné du Comice, should be kept as long as possible, there being none superior to these. Other useful Pears ripening next month are Thompson's and Maréchal de Cour. Later Pears, all of which should be left hanging as long as possible, are Winter Nélis, Chaumaumontel, Glou Morceau, Easter Beurré, and Beurré Rance, in the order given. Pears, unlike Apples, should be stored singly on shelves. They are more liable to decay, and should be kept cool but protected from draughts, which have a drying effect that causes the fruits to shrivel.

THE "FRENCH" GARDEN.

By Paul Aquatias.

The year's work in the French Garden is completed, and the grower must draw up a scheme for the coming season. Though spring was very trying, especially for crops on the hot-beds and the early crops outside, the season has been very favourable, and the prices satisfactory. The crops on cold beds, the Melons and Cauliflowers especially, have been very profitable. It may be necessary in future to delay sowing and planting of the first crops outside, although they may be forwarded where manure or black soil is plentiful and a well-laid irrigation allows an occasional watering on bright days during April and May. Vegetable Marrows were very scarce until the middle of July, and several growers intend to pay special attention to this crop. They will use the frames and lights from the cold beds early in May, setting three plants to each frame instead of growing them under bell glasses as formerly. The frames would be at liberty for placing over the Melon plants late in June.

Winter Salading.—Lettuces Little Gott or White Passion pricked out early this month for a winter supply are ready for planting in their final quarters. The frames intended for their reception should be filled very close to the top, as it is essential to have the plants near to the glass. Set the variety Little Gott 8 inches apart or 108 plants per frame, but for White Passion allow a space of 9 inches. Keep the lights closed till the plants are well established. During bright weather a little ventilation may be afforded to prevent undue flagging in the middle of the day. Witloof Chicory may now be thinned of the biggest leaves, and, where the plants are too thick, some may be removed. Though the forcing of the roots is started earlier now than a few years ago, it will be advantageous to keep the plants in the ground until the third week in October, as the crowns are not over-large this season. Like Rhubarb, the roots are exposed 8 or 12 days to the influence of the weather before they are forced.

Spring Cabbage.—Many growers have commenced planting this crop, but the work may be delayed until early in October, as the ground is very dry and warm, which may result in quick, tender growth, rendering the plants susceptible to frost, and cause them to bolt later on. They are set 1 foot apart each way and planted 1 inch over the collar. When planted in drills 3 inches deep, the trench acts as a shelter in time of severe weather.

Nursery Beds.—The Cauliflowers intended for planting on hot beds and cold beds have been sown, and the batch for outside work will be inserted at the end of the present month. Plants of this late sowing grow very slowly through the winter, but they do not become drawn in March as those of the first sowings. Such varieties as Driancourt, All Year Round, and Early Erfurt should be selected. Prepare the winter quarters for the seedling Lettuces at an early date. Place the black soil to be used as top dressings handy whilst the weather remains favourable. It is, however, not advisable to apply top dressing and set the glasses in position for the present, especially after such a dry summer. A sowing of Lettuce Little Gott to furnish plants for hot and cold beds should be made on or about October 5. The Cos Lettuce Green Flat or Paris Grey should be sown two or three days later, while the variety White Passion for planting either on cold beds or out-of-doors should be sown about October 15. When very early forcing is contemplated seeds of Lettuce Little Gott or Milly may be inserted on September 28 or 30, to supply plants for setting on the hot beds soon after Christmas. This batch is very liable to the mildew, and so many of the plants are lost from damping when set in their final quarters that many growers have abandoned this crop.

EDITORIAL NOTICE.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS.

APPOINTMENTS FOR OCTOBER.

WEDNESDAY, OCTOBER 1—
Nat. Chrys. Soc. Sh. at the Crystal Palace (2 days). Co. Clare Hort. Soc. Fruit and Farm Produce Sh.

SATURDAY, OCTOBER 4—
Soc. Française d'Hort. de Londres meet.

TUESDAY, OCTOBER 7—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. E. A. Bunyard on "The History and Development of the Strawberry"). Scottish Hort. Assoc. meet. Nat. Amateur Gard. Assoc. meet.

THURSDAY, OCTOBER 9—
British Gard. Assoc. (London Branch) (Lecture by Mr. G. P. Berry, at Carr's Restaurant, at 8 p.m., on "Some Causes of Soil Fertility").

MONDAY, OCTOBER 13—
United Ben. and Prov. Soc. meet. Nat. Chrys. Soc. Floral Com. meet.

THURSDAY, OCTOBER 16—
Leeds Fl. Sh. (N.E.H.S.) (2 days).

TUESDAY, OCTOBER 21—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by the Rev. Prof. G. Henslow on "The Evolution of Plants and the Directivity of Life as shown by the Reproductive Organs.")

WEDNESDAY, OCTOBER 22—
Herefordshire Fruit, Root, Grain and Chrys. Soc. Sh. (2 days).

MONDAY, OCTOBER 27—
Nat. Chrys. Soc. Executive and Floral Coms. meet.

TUESDAY, OCTOBER 28—
Southampton Royal Hort. Sh. (2 days).

WEDNESDAY, OCTOBER 29—
Kent County Chrys. Sh. (2 days). Borough of Croydon Chrys. Sh. (2 days). Watford Hort. Soc. Sh.

THURSDAY, OCTOBER 30—
Torquay Fl. Sh. Weston-super-Mare and District Chrys. Sh. in Knightstone Pavilion. Maidenhead Chrys. Fruit and Veg. Sh.

FRIDAY, OCTOBER 31—
Enfield Highway Chrys. Soc. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 54.3°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, September* 24 (6 p.m.): Max. 72°; Min. 55°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, September* 25 (10 a.m.): Bar. 29.8°; Temp. 66°. *Weather*—Fine.
PROVINCES.—*Wednesday, September* 25: Max. 64° Shields; Min. 61° Yarmouth.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, WEDNESDAY, AND THURSDAY—
Dutch Bulbs, Palms, Azaleas, etc., at Stevens' Auction Rooms, King Street, Covent Garden, at 12.30.

MONDAY—
The Freehold Nurseries at New Eltham and Sidcup, with 62 Greenhouses, Trade Buildings and Land; total area, 7¼ acres. On the premises (re T. W. Childs, dec.), by Protheroe and Morris, at 11.30.

MONDAY AND TUESDAY—
The whole of the Stock of Ferns and other Plants, Horses, Carts, Utensils, and Sundries, at New Eltham and Sidcup as above (re T. W. Childs, dec.), by Protheroe and Morris, at 11.30.

TUESDAY AND WEDNESDAY—
39th Annual Sale of Nursery Stock, at Sunningdale Nurseries, Windlesham, Surrey, by Protheroe and Morris, at 12.30.

WEDNESDAY—
Special Sale of Bulbs, etc., for the Trade, at Protheroe and Morris' Rooms, at 1.

FRIDAY—
Orchids at Protheroe and Morris' Rooms, at 12.45.

Medical Science and Plant Pathology.

Those who were at pains to follow even cursorily the proceedings of the recent Medical Congress could not fail to be impressed by the spirit of hopefulness which pervaded that Congress. Nor may that spirit be attributed solely to the sanguine attitude natural to the successful practitioner; for it is based—in part, at all events—on facts accomplished. The most remarkable expression of this hopeful attitude of mind came, moreover, from one of the most distinguished members of the Congress, Dr. Ehrlich, whose vision it is that it should be possible to combat a disease due to a specific micro-organism not by the tedious uncertain method of applying a drug which shall do more harm to the microbe than to the person attacked thereby, but by the "one fell swoop" method—that is, by applying a specific reagent which shall be mortal to the microbe and innocuous to the patient. Instead of seeking to destroy the invading micro-organism little by little the doctor of the future may be able to do in truth in each several disease what the quack of the present claims for all maladies—namely, to provide an infallible cure. The dream, though grandiose, is not without a basis of fact, and Professor Ehrlich's profound studies and bold hypotheses on the nature of immunity supply that basis. When the student of plant pathology learns of this new hope of medicine he cannot fail to wonder whether in some far-off time a similar hope and a similar stimulus may not breathe new life into the science of plant diseases. At present the curative branch of that science is as empirical as was the medicine of infectious diseases in the pre-Pasteurian days, and the task of the plant pathologist is confined mainly to the work of preventing the spread of a disease rather than to that of its eradication. Now and again these preventive methods are wonderfully successful, but even in such cases the malady is arrested rather than cured. In yet other cases the prevention is far from satisfactory, and only too often involves the destruction of the patient plants. Let it be admitted at once that the problem before the plant doctor is profoundly difficult; that it appears to be less easy to introduce prophylactics into the plant body than into that of the animal; that the plant from the grower's point of view is generally not an individual but a crop, and that therefore it does not greatly matter if some individuals are sacrificed so long as the profit from the remainder pays the cost of prevention or arrestation of the disease. Yet when all these and other similar admissions of the difficulty of the problem and the difference between animal and plant medicine are made, the fact remains that we are not yet on the certain track of the proper way of treating plant diseases. To breed for disease resistance sounds fine, and is indeed laudable; but what it means in practice is to have the luck to find some plant that resists a given disease, and then, mating it with a good but susceptible variety, to trust again to luck that the quality of resistance will be inherited and fixed in certain members of the second generation arising from the cross.

So far as we know there is but one set of facts which justify us in predicting that in the future the plant pathologist will be able to proceed on more scientific and certain lines. The late Marshall Ward discovered that the immunity of certain grasses from rust is, so to say, an active and not a passive immunity. The rust fails to corrupt the plant owing to a definite antitoxic reaction on the part of the latter. The rust gains access to the interior of the plant, but fails to drive its suckers into its living cells. In this bare fact there are grounds for hope of new methods and suggestions for whole series of researches which have yet to be made. Analogy with immunity in animals suggests that this resistance is due to a definite chemical substance manufactured by the immune plants, which substance is capable of destroying or neutralising the toxin produced by the invading fungus. What is that substance? By what means may the plant be induced to produce it? May it be produced artificially? These are some of the questions to which answers must be obtained before that branch of the science of plant pathology which deals with healing can be said to have been founded. These are the questions which must be examined by any institute of plant pathology which aspires to investigate that subject in a scientific manner. The answers to such questions may be slow in forthcoming, and perhaps the knowledge gained in the course of getting the answers may be difficult of practical application; nevertheless, it would appear from these considerations that something more than spraying with a few fungicides is required before it can be claimed that a therapeutics of plant disease has a valid existence. Swiftly on the heels of Pasteur's great discovery has come the new medicine based thereon; yet in the case of plant pathology the practical remedial treatment of disease remains to be discovered. The fact is the stranger in that the parasitic nature of many plant diseases was established by de Bary, Berkeley and others at about the same time that Pasteur was working. It looks as though the plant pathologists of the present were on the wrong track, and that it would repay some of the more enterprising and younger of them to start anew from first principles and on fresh lines.

The Agricultural Resources of Canada.

The work done by the Dominion Experimental Farms formed the subject of an interesting address delivered last year by Mr. Frank T. Shutt at the Canadian Institute, Toronto. Mr. Shutt, who is Assistant Director of the Government Experimental Farm at Ottawa, points out that agriculture is the basic industry of Canada, and that at the present day it employs directly more than half the population of the Dominion. The land of the nine provinces of Canada is estimated at 986,533,000 acres, of which 36 per cent., or 358,835,000 acres, is capable of occupation as farm land. Of this latter area

only some 78,000,000 acres, or about 22 per cent., is at present put to agricultural use. In the western provinces of Manitoba, Saskatchewan, and Alberta there are upwards of 170,000,000 acres suitable for cultivation, and at present, in spite of the rapid development of these lands, only some 8 per cent. is under tillage. To the north and west lie the territories of Mackenzie, Athabasca, and Yukon, and to the forward-looking mind's eye of the Canadian there are some 500,000,000 acres in the two former territories which await settlement. That this optimism is not unfounded is evident from the fact that 30,000 bushels of wheat were harvested in 1908 at Fort Vermilion on the Peace river, 591 miles north of the latitude of Winnipeg. Official statistics demonstrate the prominent value of the agricultural products of the Dominion. Thus in 1910 farm products yielded 1,150,000,000 dollars, fisheries about 30 million, forest products 166 million, and mineral products 102 million dollars.

Recognising that the future of Canada lies in its fields, the Dominion Government established long ago a system of Experimental Farms, the business of which is to give instruction and advice on agricultural subjects, and to carry out investigations calculated to advance the science and industry of agriculture.

This enterprise dates from 1884, in which year a special committee was appointed to inquire into the cause for the depression of Canadian agriculture. The committee found that the methods of farming in vogue were generally irrational and wasteful. As a consequence of these methods crops were poor and land was deteriorating as the result of exhaustion. To remedy this state of affairs the Experimental Farms were established, and Dr. Saunders was appointed Director, which post he filled with distinguished success until his retirement in 1911. By 1888 five farms were established, the central farm at Ottawa, and branch farms in Nova Scotia, Manitoba, Saskatchewan, and British Columbia. Later, in 1906, one farm was added to serve as an experiment farm for Southern Alberta, and in the following year a second experimental farm was established in Alberta. The success which has attended the adoption of this system is indicated by the fact that since 1907 no fewer than eight new stations have been opened. Thus there are now no fewer than sixteen experimental farms in the Dominion.

Coloured Supplement.—The subject of the Coloured Plate to be published in the next issue is Abutilon insigne.

Gold Medal Awarded for Dahlia Cultivation.—At the meeting of the President and Council of the Royal Horticultural Society on the 9th inst., a Gold Flora Medal was unanimously awarded to Mr. Reginald W. Cory, of Duffryn, near Cardiff, for his collection of over 7,000 decorative Dahlias grown in his gardens as a trial, to determine the varieties most suitable for garden purposes from the decorative point of view, that is, those which add most to the beauty of the garden. The Society sent delegates to judge the Dahlias on September 2 and 3, and the report thereupon is being prepared and will appear in the *Journal* of the Society in due course. *W. Wilks, Secretary.*

The Veitchian Orchid Seedlings Purchased by Messrs. Flory and Black.—We are informed that the seedling Orchid establishment of Messrs. Jas. Veitch and Sons, Ltd., at Langley, Slough, will be taken over by Messrs. Flory and Black, who, having purchased the whole of the stock, will commence business at Langley on the 1st prox. At Langley the development of the famous Veitchian collection has been steadily pursued, especially during the past few years, and guided by former experience only the choicest forms have been employed in the cross-breeding. The houses contain excellent stocks, and most of the plants have yet to flower. Mr. Sidney W. Flory is well known in connection with Tracy's Orchid Nursery at Twickenham, where he was for many years with his uncle, the late H. A. Tracy, and where he will continue as proprietor and manager. Mr. J. M. Black has for many years managed the Orchid collection of R. G. Thwaites, Esq., Chessington, Christchurch Road, Streatham, and is one of the most successful raisers and growers of Orchids.

Protection of Wild Plants.—A meeting on the subject of the Protection of Wild Plants was held at Burlington House on the 19th inst. under the auspices of the Selborne Society. Dr. A. B. Rendle, F.R.S., presided, and there was a good attendance. In the course of the meeting it was remarked that legislation in the direction of abating the smoke nuisance would do a great deal to preserve the vegetation in the neighbourhood of large towns. With reference to the decrease in the number of wild plants, a great deal of this was due to the indiscriminate manner in which children were allowed to collect specimens for nature study and botany lessons. Hawkers who dug up roots of Primroses and Ferns for sale were also responsible in part for the shrinkage. Something might be done by the public in refusing to buy roots of wild plants. One remedy suggested was of scheduling some of the rarer plants for protection, as had been done in the case of wild birds. In a Wild Plants Protection Bill a distinction should be made between plucking flowers and digging up roots; though the former practice should be kept within reasonable limits.

Mr. John Heal.—We were glad to note on Tuesday last that Mr. John Heal, of Messrs. James Veitch and Sons, is sufficiently recovered from his serious accident to be able to again attend the R.H.S. meetings. On the next occasion he hopes to be there, as formerly, to take charge of a Veitchian exhibit.

A Seedsman's Will.—The will of the late Mr. Robert Sydenham has now been proved, the gross amount of the estate being £13,374. Mrs. Robert Sydenham is named as residuary legatee after the payment of various legacies to members of the deceased's family and of the staff of Robert Sydenham, Ltd. The Royal Gardeners' Orphan Fund and the Gardeners' Royal Benevolent Institution are mentioned as legatees in certain contingencies.

The World's Consumption of Artificial Fertilisers.—Tolstoi in *War and Peace* puts into the mouth of his ideal landowner words to the effect that he did not bother about new artificial manures; but, judging from the figures published recently by the International Institute of Agriculture, the landowners of the world are no longer so careless. Thus in eight years, from 1903 to 1911, the production of mineral phosphates has increased from about 2½ million metric tons to 6 million, basic slag from some 2 million to 3 million, the production of superphosphates, in 1903 5 million tons, is now more than double that amount. The demand for potash has increased yet more—from 300,000 tons to over 800,000 tons. The nitrogen hunger of the world seems also to be unlimited. In 1903 the output of nitrate of soda and of sulphate of ammonia was just 2 million tons, in 1911 it had grown to 3½ millions, and this notwithstanding the fact that new nitrogenous manures, cyanamide and nitrate of lime, had come into existence in the meantime, and by 1911 were being produced on a scale already large, though small in comparison to the amounts now being made.

Phosphates for Fruits.—The value of phosphatic manures for the production of fruit is well known, but the following figures demonstrate this value in a sufficiently emphatic manner to be worth recording. They are supplied by M. M. A. Magnien to the *Journal of the National Society of Horticulture of France*; they were obtained by M. Vinardi, a fruit-grower at La Thurelle (Seine et Marne), and are the result of six years of observation on some 2,000 Pear and Apple trees. The ground occupied by the trees was divided into sections, and one section was treated annually with moderate amounts of farmyard manure, the other received during two successive years basic slag at the rate of 7 cwt. to the acre, an amount which in the third year was increased—unnecessarily, as we should think—to 21 cwt. per acre. The number of fruit buds and flowers was :—

Variety.	Manured with basic slag.		Farmyard manure.	
	No. of fruit buds.	Flowers.	Fruit buds.	Flowers.
Triomphe de Jodoigne ..	255	2,025	105	712
Passe-Crassane	296	712	98	595
Beurré de Naghin	315	2,735	120	728
Bergamotte Crassane ..	150	1,287	50	342
Beurré Bachelier	180	1,625	42	285
Doyenné du Comice ..	487	4,283	162	1,235
Saint Germain	127	1,085	48	322

The Annual Value of the Seeds of Farm Crops.—In the course of a contribution to the *Transactions of the Highland and Agricultural Society of Scotland*, 1913, entitled "The Farmer's Interest in Good Seed," Mr. H. C. Long cites the following statistics of the cash value of the seeds of the principal farm crops annually used in Great Britain :—

—	Acres.	Cost per acre.*	£†
		£ s. d.	
Wheat	1,906,038	0 17 4	1,651,900
Barley or bere	1,597,930	0 14 6	1,158,500
Oats	3,010,671	0 12 9	1,919,300
Rye	46,374	0 13 0	30,140
Beans	311,833	0 19 3	300,140
Peas	167,903	0 18 2	152,510
Turnips and Swedes ..	1,563,390	0 2 4	182,395
Mangolds	452,320	0 6 4	143,235
Rape	78,573	0 1 9	6,875
Vetches	110,543	1 5 3	139,560
Lucerne	53,140	1 2 0	58,455
Clover, sainfoin, and rotation grasses	1,373,269‡	0 16 3	1,115,780
Permanent grass	273,396	1 6 3	358,830
Total value			£7,217,620

* Average of four estimates.
† To the nearest five pounds.
‡ In this case taking one-third of the acreage as sown annually.

Alcoholic Fermentation.—Text-books of chemistry tell us that alcohol is formed on fermenting sugar or starchy material with yeast, and adequate proof that the statement is correct is afforded by the industrial production of enormous quantities of alcohol in this manner. During the last year or so it has been shown in the laboratory that certain other bodies, of which pyruvic acid is the type, may be fermented to alcohol by yeast; recently the accuracy of the discovery has been established beyond all question by the preparation of alcohol from pyruvic acid on a large scale by Professor C. Neubero, of Berlin. He is thus the first to prepare any quantity of alcohol by a fermentative process from a material other than sugar. Of course, the process is not likely to be a commercial one, as pyruvic acid is itself a costly substance. The value of the discovery is two-fold—in the first

place it gives more than a clue to the intermediate stages in the fermentation of sugar; secondly, it has a bearing on important questions in plant respiration. As is well known, all manner of oxidising and reducing changes go on in the plant cell. These are apparently initiated and regulated so as to take place in a definite manner only by substances known as enzymes. They are also influenced by the state of concentration of the cell-sap. In plants the formation of aldehydes of all kinds is a well-known phenomenon. The latest work supplies us with an explanation of the manner of their transformation into alcohols by reduction under the influence of enzymes such as occur in yeast and other plants. The subject is an involved one, but we can none the less welcome every scientific success which brings us nearer to an understanding of the chemical processes which go on in plants.

EASTON LODGE

(See Supplementary Illustration).

THE Essex home of the Earl and Countess of Warwick is situated about three miles from the town of Dunmow, which has been celebrated since 1244 for the annual award of the Dunmow Flitch.

Although Easton Lodge has been an important residence for very many years, until the last decade there was very little gardening of note, but during the last ten years important additions have been made, and now the gardens take rank amongst the finest in East Anglia. It is interesting to note that the principal portion is on the north side of the house. The sunny aspect is the entrance front, and there on a stone-paved terrace is a small garden of square beds, which are filled with bright flowers, their levelness relieved by splendid specimen golden Hollies and tubs of Fuchsias. Along the balustrade of this suntrap the more delicate Roses find a congenial home, and now, at the end of September, such fragrant varieties as Lady Roberts, Lady Battersea, Papa Gontier, and Madame Abel Chatenay are flowering profusely. The front of the house, which is faced with cement, is covered with Virginian Creeper, fast assuming its vivid crimson colouring. From the front door there is a view of the magnificent deer park, some 1,000 acres in extent, with avenues of Chestnut and Hornbeam, and clumps of Scots Pines, Beeches and Elms, whilst here and there occur splendid round-topped Oak trees, probably a thousand years old, with short, sturdy, gnarled trunks. Through the park, to the left, is to be found the "Garden of Friendship," where floral contributions from famous visitors to Easton Lodge are grown. Each plant possesses a large heart-shaped label, with the name of the plant and its donor. We note several—Megasea, Michaelmas Daisy, Thalictrum, and the like—from the Prince of Wales (the late King Edward). The present Queen, when Princess May, sent a root of Anemone japonica, which is planted near to the white Phlox from her Royal mother, the late Duchess of Teck. Close to this little garden there is a very promising example of the Maidenhair tree (Ginkgo biloba), which was planted by the late King during a visit to Easton in 1892, and bordering the enclosure on one side is a "Shakespeare Garden," which includes the plants named in Shakespeare's works. On the opposite side is the "Sentiment Garden," with examples and quotations, such as "Rosemary—that's for Remembrance." In the far end of this little enclosure, opposite the quaint old tea house, there is a splendid living sundial, with a gnomon of Yew and figures of Box, which was made by Mr. Lister at the request of Lady Warwick. This is the best example of this kind of work that I have seen, and it will be a lasting monument to the painstaking care which Mr. Lister expends upon his work. Passing from this enclosure, there is at hand a tiny Rose garden, with its centre occupied by a climbing variety trained in the shape of a small marquee, and round about are small beds of Roses with tall labels, fashioned like the old Tudor Rose, and bearing Rose quotations.

But these are only off-shoots from the real gardens, which are the glory of Easton Lodge. Next to the house there is the flower garden, flanked by old Cedar trees and a fine specimen of Catalpa bignonioides. There are some twenty square beds, four of the largest being raised above the level of the grass and bordered with a stone coping. Each of these contains an icon on a tall ornamental plinth, and is filled with tuberous Begonias of mixed colours. The remaining sixteen beds are on the grass level, and are filled with distinct varieties, chiefly Fairy Queen and magnifica, of the fibrous-rooted B. semperflorens , and a shapely central plant of Ricinus Gibsonii : a singularly effective and uncommon summer-bedding design. Adjoining the flower garden there is a slightly-terraced Croquet lawn of ample proportions and luxurious green turf. At each end it is framed by delightful pergolas of the sixteenth-century type, their distinguishing features being tall pillars with arched roofs meeting in the middle at lofty domes. These graceful pergolas are sufficiently covered with Roses, Wistaria multijuga, Honeysuckle, Polygonum baldschuanicum, and at the present time the fragrant autumn-flowering Clematis Flammula and C. paniculata pleasantly scent the air, whilst the foliage of an occasional Virginian Creeper gives a blaze of vivid colouring.

The principal feature of the gardens is the sunken garden, part of which may be seen in the top half of the Supplementary Illustration. The centre is occupied by a balustraded Water-lily pool, broadly canal-shaped, with rounded corners, and 100 feet long. The balustrading, whereon one may lean comfortably and enjoy the brilliant beauty of the many Nymphæas, is a most delightful and somewhat unique feature. Not content with growing most successfully the best of the Marliac and other hybrid Water-lilies, of which James Brydon, Gladstoniana, Wm. Shaw, Frœbellii and Graziella are the names of a few, Mr. Lister has experimented with the blue-flowered tropical varieties, N. stellata, pulcherrima and Listeri, and has achieved a large measure of success. His hybrid, N. Listeri, which, a cross between N. stellata and N. zanzibariensis, bears flowers in the Nymphæa house fully nine inches across, still looks happy and continues to produce fragrant blossoms. Around the Water-lily pool the broad-flagged walks permit the lowly-growing plants in the large square beds and long borders to wander out of their places, and thus pleasantly break the rigid lines without unduly restricting the pathways. This season a feature has been made of the rich yellow-flowered Othonnopsis cheirifolia, which revels in the warmth radiated from the flagstones, and is flowering profusely. The planting of the beds and borders is done on bold lines, so as to get the necessary colour combined with good effect. Banks of Fuchsias of mixed varieties, with sprays of dark Heliotrope intermingling, make a fitting foil for the crimson flowers of the Pentstemons. Salvia patens is used as a groundwork for a goodly breadth of the soft yellow Calceolaria amplexicaulis, and adjoining is a mass of the scarlet Begonia Lafayette. Pæony-flowered Dahlias, Nicotiana sylvestris, Michaelmas Daisies, and such-like, all aid in making a glorious display. Perfect specimens of the upright, glaucous, Irish Juniper (Juniperus communis fastigiata), grown under Miller's name of J. suecica, set at the corners of the beds, give the necessary touch of formality, but the large, rounded bushes of Portugal Laurel will very soon have passed beyond an appropriate size.

Evergreen hedges are features in this part of the grounds, and note is made of the splendid effect of a 6-ft. high partition of Cupressus Lawsoniana Allumii, which borders the way to the quiet and reposeful adaptation of the French style of bleached Limes, and triangular Box-edge partitions. Here is also a shorter hedge of Cupressus macrocarpa lutea, which has quickly formed a screen, and retains all its beauty of form and colouring. Near by there is the Rosary, which occupies the site of a very much older Rose garden. It is an exceedingly pleasant and sheltered spot, well framed, screened from wind by tall trees, amongst which the dark Yews provide a splendid background to the encircling borders of monthly Roses. There is no definite design in the Rose garden; the beds are cut in the grass, and the general effect of colour massing is principally aimed at. Large beds of Caroline Testout, Ulrich Brunner, Madame Ravary, Charles Lefebvre, Hugh Dickson, and others provide summer displays. Madame Antoine Mari is one of the best autumn-flowering varieties grown in the garden, and the bushes bore large numbers of fine blooms. The climbing American Pillar is a favourite Rose; a large bed is filled with this variety, and tall pillars stand well above the pegged-down shoots. Nearer to the house the Daisy garden, a small enclosure laid out in the Dutch style, with Box-edged beds and gravel walks, attracts admiration. Here Carnations, Begonias, Fuchsias, Dahlias and Hollyhocks luxuriate.

The more recent gardening at Easton Lodge includes planting the large pond and making the Japanese tea house (see Supplementary Illustration), as well as making the valley from the sunken garden. On the higher slopes of the pleasantly undulating valley shrubs and flowering trees are tastefully grouped and give spring blossom and autumn colour. Almonds, Amelanchiers, Pyruses, Kœlreuteria paniculata, Escallonia langleyensis, E. exoninensis, and many other shrubs gain beauty from the prostrate Junipers which break the outlines so effectively. The way to the ponds lies along a very broad mown drive, which has young avenues of Scots Pines and tall Lombardy Poplars, and more shrubberies beyond. In the large pond the choice Nymphæas bloom almost as profusely as in the warmer sunken garden, and along its banks Gunneras, Typhas, Primulas, Irises, Berberis Thunbergii, and other suitable plants help to make a noteworthy effect. Beyond, there is a semi-wild bog garden, with broad sweeps of Spiræas (Astilbe Davidii and others), Acanthus, and large beds of Primula pulverulenta.

THE GLASS HOUSES.

The chief of these structures is the tropical Nymphæa house, where Mr. Henry Lister, who has so well managed the gardens for the past thirty-four years, raises the new varieties for which he has received several awards of merit. Of these mention must be made of N. The Earl of Warwick, N. Lord Brooke, and N. Listeri. An unnamed seedling which was raised from N. Earl of Warwick and N. Listeri promises to be a notable addition to the tender varieties, and there are many seedlings raised this year which will flower in 1914. Mr. Lister has solved the problem of propagation which arises from the difficulty often experienced in keeping the tubers through the winter, by saving seed early in each autumn and sowing it at once. The seedlings almost invariably live through the winter, and bloom well the following summer. At the end of the house a large Allamanda Andersonii trained to the roof bears scores of fragrant blooms, and besides the general stove plants a few specimens of the Cotton plant (Gossypium herbaceum) are grown. One house is devoted to "Malmaison" Carnations, which share in the general appearance of vigour and health which characterises the gardening at Easton Lodge. In a long Peach case there are still fine fruits of Lady Palmerston, a handsome Nectarine-flavoured variety. Attached to the residence there is a walled kitchen garden, but a large quantity of vegetables are also grown in a two-acre garden some distance away. Apples bear good crops, but Pears, except on the walls, are not so successful.

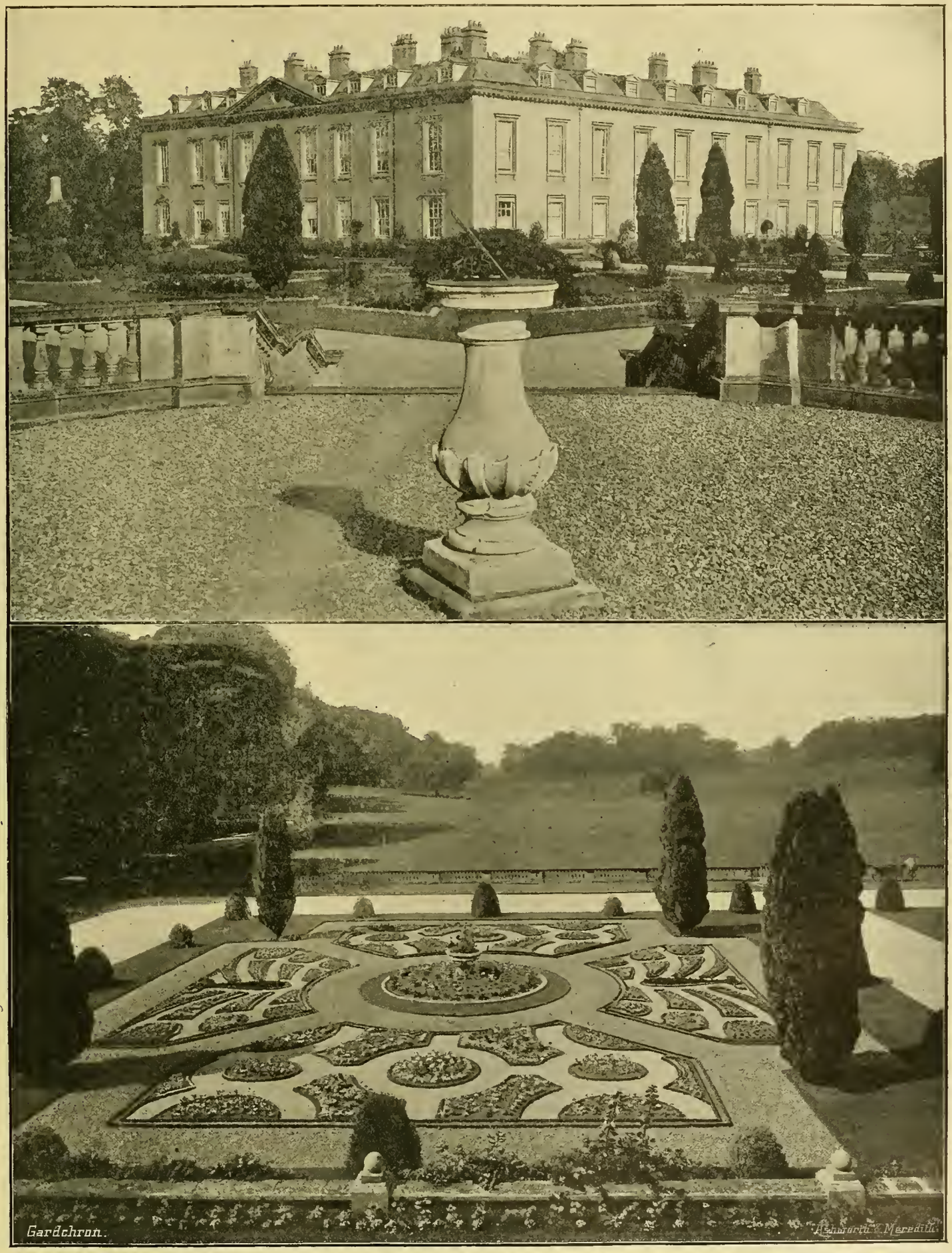

Fig. 79.—ALTHORP PARK, NORTHAMPTON, THE RESIDENCE OF EARL SPENCER, P.C., WHERE THEIR MAJESTIES THE KING AND QUEEN HAVE SPENT PART OF THE PRESENT WEEK.

HOME CORRESPONDENCE.

LE JARDINIER SOLITAIRE."—I was interested in reading the excellent article on London and Wise (p. 181) by Mr. Brotherston. It is not easy to understand why *The Retir'd Gard'ner* should generally be thought to be a translation of one French book, for as he very rightly says it is a translation of two books very important works in their day and generation. The error may have originated in the first place in the too hasty scanning of the title page, for a glance inside the book would have easily disposed of any question as to its composition. The title page of the first volume of *The Retir'd Gard'ner* says "being a translation of *Le Jardinier Solitaire*," while that of the second volume says, "being a translation from the Sieur Louis Liger." Hence Liger has been credited with the authorship of the work in the first volume. As a matter of fact there need have been no mistake about it at all, for the translators say quite plainly on the first page of their preface, "Our next business, therefore, is only to acquaint the world concerning the following work, which is taken chiefly from two books written in french, the first of them intitled [*sic*] *Le Jardinier Solitaire* (the author whereof has conceal'd his name); the second, *Le Jardinier Fleuriste and Historiographe*, written by the Sieur Liger of Auxerre." This work as I know it is in two volumes octavo, London, 1706, not *quarto*, as Mr. Brotherston says. Notwithstanding this very definite information it is curious that Mr. H. Inigo Triggs in his recent beautiful book, *Garden Craft in Europe* (p. 222), repeats the error by saying, when referring to London and Wise, "In 1706 they jointly published *The Retired Gardener, which is a translation of* Le Jardinier Solitaire *by the Sieur Louis Liger of Auxerre.*" *Le Jardinier Solitaire* is such a well-known book that it seems almost unnecessary to remind the reader that it was first published in one volume 12mo in Paris in the year 1704 without any author's name. In the French bibliographies it is stated that the work was by Dom Gentil, in religion Brother François, a Carthusian monk, and this must have been known here in England at that time. It was a popular book in France in spite of its being written in dialogue, and it passed through a number of editions between 1704 and 1771, in which year, I believe, the last issue appeared. The reason for assuming that the name of the author was known is found in the fact that *The Retir'd Gard'ner* was issued under another title in the same year, apparently independently of London and Wise. This work incidentally mentioned by Mr. Brotherston is entitled *Le Jardinier Solitaire, the Solitary or Carthusian Gardener, etc.*, and is in one volume. It evidently contains the two works. I have not the book at hand, only the title page, and on it we read concerning the first part, "written in French by Francis Gentil, lay brother of the Order of Carthusians, etc.," and concerning the second part, which is called the *Compleat Florist*, "By the Sieur Louis Liger d'Auxerre, newly done into English." Louis Liger was the author of other works; his *Le Jardinier Fleuriste* was first published in Paris in 2 vols. 12mo in 1703. His book, like that of Gentil's, seems to have had a long run of popularity, for it was often reprinted, and I have one dated as late as 1776. *C. Harman Payne.*

SECOND CROP OF PLUMS.—A standard tree of Victoria Plum in my garden in West Middlesex, which bore a heavy crop last year, has this season behaved in exactly the same manner, and under similar conditions as to blight, as that of your correspondent, Mr. Nutting, described in your columns on p. 207. *W.*

——— I enclose two second-crop Plums taken from a tree of the Victoria variety. The first crop was slight, and whilst the fruits were ripening the tree flowered again. *James Bashford, The Gardens, Great Sanders, Battle.*

——— I send two shoots of Victoria Plum. The larger piece shows immature fruit spurs carrying fruit, the smaller a wood growth of the present season, which developed a flower and fruit at the extreme tip. This occurs on all our young trees, but I cannot find any second fruiting on the old trees. *A. J. Elgar, Killarney House Gardens, Co. Kerry.*

WASPS.—It may interest some who may not have already discovered it that it is not easy to destroy a wasps' nest with cyanide of potassium, which frequently is only partially successful. My gardener has destroyed nineteen nests this summer, and on digging out one nest found eighteen queens all alive in and under the combs, which were full of maggots, also alive. He dug out another nest, and got thirty-one queens, and then another and very large nest, and got scores of queens, all alive. At the entrance to all the nests there were hundreds of dead wasps. This shows that it is necessary to dig out and burn every nest, so as to kill the queens, otherwise they would live under the ground all winter and come out in the spring. *A. F. Eden, Woodstock, Ascot, Berks.*

PEAR TREE FRUITING ON MAIN STEM.—I send you a photograph (fig. 80) of a Pear tree which has eleven fruits produced direct from the trunk. I do not know the name of the Pear, but it is a small, late variety. The tree is planted on the inside wall of a cowyard facing south, and the cobblestones forming the causeway run close round the bottom of the trunk. You will notice the boards nailed across the stem of the tree to prevent the cattle barking same. The tenant of the farm is Mr. H. Robinson, White House, Worlaby, Grimsby. The number of Pears seems interesting, as there is hardly

FIG. 80.—PEAR TREE WITH FRUITS ON MAIN STEM.

room for them on the small growth the stem has produced. *F. E. Astley-Corbitt, Elsham Hall, Grimsby.* [Are the fruits those of the stock, or are they similar to those borne on the upper parts of the tree?—EDS.]

FLORAL PICTURES AT CHATSWORTH.—With a crowd of sightseers from various continents I presented myself recently at the Grand Lodge at Chatsworth to view the noble house and its treasures, and was confronted at the very outset with one of the brightest of floral pictures. An avenue of closely-pruned Tulip trees (Liriodendron tulipifera) skirts the broad gravel road leading to the main entrance, and in front of these the soft green foliage forming an exquisite background. In 30-inch square boxes are placed gigantic pyramids of scarlet Pelargoniums, twenty or so on each side. The plants stand 7 feet apart, are 10 feet high, and as much in circumference. The variety is one known as Viscount Kitchener, and has slightly semi-double flowers, brilliant in colour; the plant is exceedingly floriferous and an excellent grower. Such is one of the pictures. A complete contrast to the above was seen on the opposite side of the mansion, where 200 yards of fairly steep grass slope above the flower garden displays a set of chain and pendant beds. These were formerly occupied by permanent evergreens, but are now made charming by a perfect blend of Violas in choice varieties. The pendants each have a large breadth of a dark purple Viola, its richness being heightened by a narrow band of white-edged, with a broad band of the bluish-shaded variety, Maggie Mott. The connecting chains are arranged in three lines, which broaden towards the centre, of Baden Powell yellow, Primrose Dame pale yellow, and Duchess white. These Violas made such a picture of delicate tones as will live in my memory for a very long time. *A Continent.*

CROPPING QUALITIES OF PLUMS.—Even in adverse seasons the varieties Victoria and Czar may generally be relied upon to bear crops. We are using Victoria this year for the dessert, for the trees being planted on a south-east wall, the fruits develop a good size, colour and sweet flavour. On the wall trees the fruits required thinning; liberal supplies of liquid manure and frequent waterings have been applied to the roots; but all this is amply repaid by the result. Czar, on standard trees, is giving some good fruits, and can be used for either dessert or kitchen purposes. Young standard trees, especially of Victoria, planted three years ago, have some good fruits, but many of them are affected with silver leaf. Coe's Golden Drop has a few fruits on young trees, and an old tree on a north wall generally bears well, but it has very few fruits this season. Old trees on a south-west wall, named Large Green Drying and Fellemberg, have some fruits, the former being very good for dessert. Young trees of Kirks, on the same aspect, are bearing good crops. Ickworth Impératrice and Red Magnum Bonum, on a south-east wall, bore fruits. Young trees of Gages are bearing a few fruits and growing well; they will require root-pruning in the autumn. The young wood has grown well since the summer pruning. The soil is light, resting on clayey subsoil. *A. B. Wadds, Englefield Gardens, Reading.*

FURCRÆA BEDINGHAUSII.—I was very glad to see, in your issue of September 6, an illustration of the Furcræa at Pendarves, Camborne, which flowered recently. I had the privilege of seeing this plant in full flower, and was very much struck by its appearance. Great credit is due to Mr. Hart (the gardener at Pendarves, in whose cottage garden the plant flowered), and if he can be induced to describe his methods of cultivation in your columns your readers would find his notes of great interest. I note in your issue of September 13 that Mr. Divers has to report the non-success of the Furcræa at Belvoir Castle. Perhaps this lack of success was due to the presence of too much water at the roots, as these plants seem to fail completely, even in Cornwall, where there is anything like excessive moisture at the roots. *Wm. H. Johns, Hort. Instructor, Municipal Technical Institute, Belfast.*

GOVERNMENT SEED TESTING (see pp. 104, 188, 206).—Have we really lost anything by not having Government seed-testing stations already? Are our seeds inferior? I should be inclined to doubt it; on the contrary, I imagine that the seeds sold by English seed merchants are quite equal to, if not better than, those of other countries. Our stocks are kept purer than those of other nations, more care and trouble being expended on their selection and improvement. It seems to me that this important point—that of the selection and improvement of strains—has been overlooked in the present demand (or fancied demand) for the establishment of Government seed-testing stations, which would, I presume, exist for the purpose of determining the germinating power only of the seeds supplied. It is my opinion that an agriculturist or horticulturist would prefer a germination of 60 per cent. in a finely-selected stock of seed to a germination of 80 per cent. or even 90 per cent. in a poor stock. We have had a succession of four bad harvests, and there is every indication that the fifth will be equally bad. The seeds produced by such harvests could not possibly possess normal germinating power. The authorities of the Government station could not alter or improve the strains in this respect; and if a high standard were fixed (which is probable) most of the English-grown seed would fail to pass the test, and be destroyed as useless. In such circumstances English agriculture, so far from being assisted, would be severely ham-

pered, and foreign stocks, although inferior in quality, would be used on account of their superior percentage of germination. There are numbers of English agriculturists who grow seeds in large quantities to supply the seed merchants, besides those which they retain for their own use. One might easily ask what would become of the seeds grown in a bad year if they failed, as they probably would fail, to attain the standard of germination fixed by the Government? The seed merchant could hardly be expected to take them, and the problem seems to be to determine which shall be ruined, he or the farmer who grew them. Every seed merchant of high standing tests the growth of all kinds of seeds before they are sold, keeping an accurate register of the results. From whom, then, comes the demand for a Government test? Who paints such a dismal picture of the adulteration occurring in seeds of various kinds? Hardly the experienced agriculturist; more probably the ignorant grower, who, unaware of the proper conditions necessary for the germination of his seeds, puts down their failure to adulteration. I have frequently found that seed sown on various parts of the same farm has yielded different crops. Dry ground, an unfavourable position, an unusual number of slugs—these and many other causes contribute to the failure of the seed to germinate. During the uncongenial spring of this year many seeds failed to develop, but this does not prove that they were adulterated. In the last week of May I sowed three acres of runner Beans. They germinated very badly, only one-third of the number appearing above the ground; but in the middle of July, after a day of rain, the rest of the seed developed and came through the soil. Excessive drought was the sole reason for the failure of two-thirds of these seeds. Those which grew did so because they had chanced to get a little deeper into the soil than the rest, which were compelled by the dryness of the ground near the surface to wait for the rain. Another cause of failure is that the seeds sometimes get only just enough moisture to cause them to germinate, but not enough to enable them to continue their growth. This is well known to all experienced cultivators of the soil, who are sufficiently just to acknowledge that the source of misfortune is traceable to unsuitable conditions. Others blame the seedsmen and talk of adulteration. I think, with Sir W. Thiselton-Dyer, Mr. Leonard G. Sutton, Mr. Cuthbertson, and the *Gardeners' Chronicle*, that the case for the establishment of seed-testing stations is far from being a strong one. *Englishman.*

Quick Justice.—In the City of Llandaff, South Wales, on September 16, four cows were straying on the road. They entered the grounds of a private residence at a lodge gate that was open, and immediately began to break the Rhododendrons, completely destroying two good plants with their horns; they also damaged the turf. They were driven out and put in the pound. Four clickets or wooden tallies were given to the man to keep till the damage was paid. The owner put his claim for the plants at 15s. Eventually 12s. was paid by the owner of the cows, and the tallies were given up, he having to pay 1s. per head poundage. All this took place between ten o'clock in the morning and two o'clock the same afternoon, when the fine was paid. The pound system is not extinct in Wales, but is probably nearly so in England. *A. F., Llandaff.*

SOCIETIES.

ROYAL HORTICULTURAL.

September 23.—Although the chief interest in the meeting and exhibition of the R.H.S., which was held last Tuesday at Vincent Square, was centred in the vegetable show, there were sufficient flowers on view to make an attractive display.

The Floral Committee recommended that 8 Medals and 15 Awards of Merit be given to collections of flowers and to novelties. Of the Awards of Merit 8 were to new Dahlias, and were made by a joint committee of the R.H.S. and the National Dahlia Society.

The Orchid Committee recommended two Awards of Merit and four Silver Floral and three Silver Banksian Medals.

The Fruit and Vegetable Committee recommended that one Gold and five other Medals be awarded to collections of fruit and vegetables.

At the 3 o'clock meeting of Fellows in the Lecture Room Mr. Bernard Crisp delivered a lecture on "Autumn Border Flowers," which was illustrated by lantern slides.

Floral Committee.

Present: H. B. May, Esq., in the chair; Messrs. G. Reuthe, W. P. Thomson, J. W. Moorman, Chas. T. Druery, Wm. J. James, Chas. E. Pearson, Charles Dixon, George Gordon, John Green, E. A. Bowles, H. J. Jones, Arthur Turner, Thos. Stevenson, J. T. Bennett Poë, W. Howe, W. Cuthbertson, F. Page Roberts, W. G. Baker, R. C. Notcutt, John Jennings, Bernard Crisp, and R. Hooper Pearson.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, exhibited Carnation blooms, featuring the fragrant variety Salmon King, which received an Award of Merit. (Bronze Flora Medal.)

Messrs. Allwood Bros., Haywards Heath, also showed an attractive collection of Carnation blooms, the varieties Yellow Stone, Fairmount, Rosette, and the fragrant Mary Allwood being very charming.

Messrs. Robert Veitch and Son, Exeter, contributed plants of Nerine Bowdenii, which had been grown in the open ground at Exeter; the stout spikes were well furnished with large flowers. The variety pallida may also be planted out-of-doors, where the Belladonna Lily flourishes. Plants of Salvia uliginosum and Lobelia Cavanillesii were also on view.

Messrs. Wm. Cutbush and Son, Highgate, again showed a selection of their fine strain of Pentstemons.

The Wargrave Plant Farm, Ltd., Wargrave, Berks, exhibited an exceedingly attractive collection of Michaelmas Daisies, the pink shades of which were very striking, and included Lady Lloyd, Elsie Perry, Rosy Morn, and Mrs. J. D. Day. (Bronze Flora Medal.)

Mr. Ernest Ballard, The Court, Colwall, Herefordshire, filled a long stretch of tabling with a comprehensive collection of Michaelmas Daisies. Special prominence was given to Lady Lloyd, Mary Ballard, Jupiter, and Cloudy Blue. (Silver Banksian Medal.)

Mr. James Box, Lindfield, Haywards Heath, arranged splendid spikes of Lilium sulphureum, L. nepalense, Cimicifuga simplex and Liatris pycnostachya. (Bronze Flora Medal.)

Messrs. W. Wells and Co., Merstham, displayed a very showy selection of Phloxes and early-flowering Chrysanthemums. (Silver Banksian Medal.)

Messrs. Dobbie and Co., Edinburgh, provided a blaze of colour in their magnificent collection of Collerette Dahlias. (Silver Flora Medal.)

Mr. J. B. Riding, Chingford, Essex, set up a fine collection of Decorative Dahlias of such varieties as Mme. Capron, Montrose, Queen May, and Beethoven. (Bronze Flora Medal.)

Mr. W. Treseder, Cardiff, was awarded a Bronze Flora Medal for a couple of tastefully-arranged shower bouquets composed of Dahlias and greenery.

Messrs. J. Burrell and Co., Cambridge, showed a collection of Dahlias.

The Dahlia Competition.

Two classes for groups of decorative garden Dahlias were arranged, the object being "to discover the most decorative varieties, that is, those which add most to the beauty of the garden." The blooms were required to be shown as grown and these classes evoked excellent competition. Class A was for amateurs, and 12 feet run of 3 feet of tabling was allotted to each of the competitors. The R.H.S. Silver Cup and the Veitch Memorial Medal were awarded to the Rev. Arthur Bridge (gr., Mr. C. Daisley) for a very attractive collection, in which such Cactus varieties as Snowdon, Mary Purrier, and Mrs. Landale were splendidly shown. The Singles were also very good, especially those of Leslie Seale, Rosebank Scarlet and Owen Thomas. A Silver Banksian Medal was awarded to the Duchess of Albany, Esher (gr., Mr. J. Kelly) for a very comprehensive display, in which the arrangement was not quite so effective.

Sir Randolf Baker, M.P., Ranston, Blandford (gr., Mr. A. E. Usher), also received a Silver Banksian Medal for an attractive collection.

In class B, which was for open competition, there were no fewer than 11 competitors. The 1st prize, namely, the 75 Guinea Cory Challenge Cup, was won by Messrs. Carter, Page and Co., who made a noteworthy display. The Cactus sorts predominated, and it was difficult to realise that these beautiful blooms had no artificial support. The very best of the many sterling varieties were Amos Perry, Sweet Briar, Richard Box, Coronation, Coral, Mary Purrier, Thos. Wilson and Nisi Prius.

A Silver-gilt Flora Medal was awarded to Messrs. J. Cheal and Sons, Crawley, who exhibited a comprehensive collection, but it was not so imposing as the premier exhibit.

Messrs. Keynes, Williams and Co., Salisbury, were awarded a Silver Flora Medal for an exhibit which included some immense blooms of the Cactus varieties and many beautiful flowers of the decorative type.

Messrs. Hobbies, Ltd., Dereham, who won a Silver-gilt Banksian Medal, made a speciality of the Collerette and Pæony-flowered varieties.

Messrs. W. Arnaar and Co., Lassenhiem, Holland, included America, Lowliness and Painted Lady in the exhibit, which won a Silver Banksian Medal, and a similar honour was awarded to Mr. J. T. West, Brentwood.

Awards of Merit.

Awards of Merit were recommended to novelties as follows:—

Primula vincaeflora (see *Gard. Chron.*, Sept. 20, fig 72).—A plant of this Primula which Professor Bayley Balfour has described as "the most wonderful of all Primulas in cultivation," was sent from the Botanic Garden, Edinburgh, where it is flowering for the first time after being in cultivation there for five years. The plant was a companion one to that figured in our last issue, and its solitary flower was expanded flat and the corolla lobes were broader and fuller and showed the oblique character of the flower more distinctly. The corolla was pale violet, but gradually intensified to a large rich deep violet centre. It was collected by Forrest in 1905 in the Lichiang Mountains of Yunnan, and introduced through Messrs. Bees, Ltd. See p. 198 for a note on cultivation, etc. (Shown by Prof. Bayley Balfour.)

Berberis aggregata.—This is one of Wilson's recent introductions from China, and was shown as a richly-berried, open-spreading bush about 18 inches high. The leaves, dull green above and grey-green below, are in axillary rosettes of about nine. They vary from ovate and entire to oblanceolate, with a few teeth or spiny hairs on the upper half, and are generally about ½ × ¼ inch. The berries are small, nearly globular, and borne in dense close-seated clusters in one of which we counted as many as 21 berries, though they are more generally only half that number. They are a very charming creamy-green colour, suffused with coral, and reminding one of those of B. Wilsonæ. (Shown by the Hon. Vicary Gibbs, gr. Mr. E. Beckett.)

Carnation Fairmount.—A perpetual-flowering variety of American origin, with flowers of that slaty shade which is so much admired by some. It is the bluish-lilac 183-1 of the *Répertoire de Couleurs*, with a few occasional splashes of scarlet. The flowers are large and distinctly, though not strongly, fragrant. (Messrs. Allwood Bros.)

Carnation Salmon King.—A perpetual-flowering variety raised at Bush Hill Park, with bright salmon-rose flowers, practically the colour of Lady Alington. The blooms are not large, but they are full and neat, and strongly scented, and borne with very great freedom. The petal edge is nearly smooth, and the calyx is first class. (Messrs. Stuart Low and Co.)

Chrysanthemum Olive.—This is a good early-flowering border variety, with full petalled flowers of a bright chestnut (the "scarlet" of the Chrysanthemum growers), and bronze reverse. The sprays were shown in their natural character, and bore a great profusion of developing buds in addition to the expanded flowers, which were 3 inches in diameter. (Messrs. W. Wells and Co.)

Rose Moonlight.—This beautiful semi-double hybrid Tea Rose, which was given the Gold Medal of the N.R.S. at their autumn show (see p. 209), was again shown in very lovely form, its creamy

flowers expanded flat in large trusses, showing very finely against the rich clean foliage and purple stems. (Rev. J. H. PEMBERTON, Havering-atte-Bower.)

Aster Beauty of Ronsdorf.—A very fine form of A. Amellus, the best blooms measuring 3 inches in diameter and coloured a warm heliotrope (shade 2 of the bright violet of the *Répertoire de Couleurs*). Height 2 feet, terminating in broad, flat heads of flower. (Messrs. T. S. WARE, LTD.).

Aster Mrs. Frank Penn.—A vigorous variety of A. Novi-Belgii with dark-green foliage, and stiff erect wiry stems ending in thyrse-like panicles of medium sized flowers, showing two rows of ray florets. The Award was won by the colour, which was a bright rose-purple (Bishop's violet, 189-2 of the *Répertoire de Couleurs*). This is darker and richer than Mrs. J. G. Day and similar varieties in cultivation. (Messrs. H. J. JONES, LTD., Lewisham.)

DAHLIAS.

The following Awards to new Dahlias were made by a Joint Committee of the National Dahlia Society and the Floral Committee.

Dahlia Homere, a large exhibition Cactus variety, with twisted quills of a deep crimson-maroon. The purple reverse is just visible at the curling tip. (Messrs. J. BURRELL AND CO., Cambridge.)

D. Rupert, a garden Cactus variety, with flowers 7 to 8 inches in diameter, held stiffly erect on very stout light-green stalks. The inner third of each floret and the small tip are pure yellow, and show finely against the general colouring of the other two-thirds, which is apricot. (Mr. H. SHOESMITH.)

D. Dorothy Hawes.—This is a very finely-formed exhibition Cactus, with long, twisted claw-like petals. The colour is rosy-magenta. It won the Gold Medal of the N.D.S. for the best seedling exhibition Cactus variety at the Crystal Palace on September 9. See p. 194.

D. Ruby, a bright, ruby-red Pompon, of medium size, distinct colour, and very good form.

D. Reginald Cory, a showy, small-flowered decorative variety. The inner two-thirds of each floret is rich scarlet, the outer third being white. The flowers are about 4 inches in diameter, and held on good stalks. A showy garden flower. (These two were shown by Messrs. J. CHEAL AND SONS.)

D. Herzogin von Braunschweig.—A large, pæony-flowered variety, with brilliant salmon-rose or rosy-orange slightly twisted petals in four rows. The flowers expand quite flat, and are held stiffly erect.

D. Mrs. J. G. Vaughan, also a pæony-flowered variety, but the florets are narrower than in the type, and strongly recurved as in the Cactus varieties. The blooms are semi-double, with six rows of florets, which curve in towards the centre and give some grace to the boldness of this type. The colour is a bright primrose-yellow. (These two were shown by Messrs. WARNAAR AND CO., Sassenheim.)

OTHER NOVELTIES.

Gloriosa Carsonii.—Flowers yellow, striped and suffused with chocolate. (Shown by Messrs. KIDLEY AND CO., Wellington, Som.)

Liquidambar formosana monticola, a plant showing beautiful leaf form and colour.

Cotoneaster horizontalis var. perpusilla, a compact-growing form, the branches forking freely and making a mound of glossy foliage a foot high and 3 feet across, richly bespangled with small scarlet berries. (These two shown by the Hon. VICARY GIBBS (gr. Mr. Beckett).

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, J. Wilson Potter, R. G. Thwaites, F. J. Hanbury, A. McBean, T. Armstrong, C. H. Curtis, W. Cobb, J. Charlesworth, W. H. Hatcher, J. Cypher, W. P. Bound, J. E. Shill, H. G. Alexander, A. Dye, W. H. White, S. W. Flory, W. Bolton, R. A. Rolfe, Sir Harry J. Veitch, and Sir Jeremiah Colman, Bart.

The Orchids were arranged in the annexe, which they completely filled, and formed a very fine and interesting show. A number of novelties were entered to go before the committee, but only two succeeded in securing Awards of Merit, although several hybrids shown for the first time will be placed on the Register.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), was awarded a Silver Flora Medal for an effective group, in which the Lælio-Cattleyas were well represented, including varieties of L.-C. Gottiana, L.-C. Bletchleyensis, L.-C. splendens, and L.-C. luminosa, and the very remarkable Cattleya Venus Goodson's variety, an interesting instance of variation; C. Dietrichiana, C. Pittiana, C. Parthenia, and other Cattleyas; Odontoglossum grande, O. Rolfeæ, Odontioda Sanderæ, Sophro-Lælia heatonensis, and various Cypripediums.

E. H. DAVIDSON, Esq., Orchid Dene, Twyford, showed a fine selection of Odontoglossum Rossii crosses, including O. Ceres Davidson's variety, O. Twyford Gem (Rossii rubescens × formosum) and the handsome O. Woodroffeæ, certainly the best. Mr. DAVIDSON also showed Sophro-Cattleya Blackii, a fine orange-scarlet flower; S.-C. Doris, and the charming Cattleya Cybele (Luddemanniana × Gaskelliana alba). (See Awards.)

Messrs. ARMSTRONG AND BROWN, Orchidhurst, Tunbridge Wells, were awarded a Silver Flora Medal for a good group, principally of showy Lælio-Cattleyas and hybrid Cattleyas, some of them flowering for the first time. Among the best were Lælio-Cattleya Marquis de Wavrin, from the batch for which the Award of Merit was received on August 26; the L.-C. Geo. Woodhams, L.-C. eximia; L.-C. The Duchess, with nankeen-yellow sepals and petals; a good selection of Cattleya Iris and C. Adula; two handsome varieties of the rose-and-white C. Armstrongæ. Among the best of the novelties were a grand form of Lælio-Cattleya Orion (L.-C. Haroldiana × C. aurea) with cream-yellow sepals and petals tinged and veined with purple, the lip being very dark velvety maroon, with rayed white lines in the centre, and a pure white column, which contrasts effectively with the very dark lip. Among the species was the rare Oncidium corynephorum splendens. (See Awards.)

Messrs. CHARLESWORTH AND CO., Haywards Heath, were given a Silver Flora Medal for an excellent group of finely-grown specimens, the central figure being Lælio-Cattleya callistoglossa with seven flowers. With it were L.-C. Colmanæ, the very beautiful L.-C. Thyone (L.-C. Ophir × C. aurea) with yellow sepals and petals and a very finely coloured lip, but which failed to secure the Award which some thought it merited. Good Cattleya Adula, C. Iris, a fine deep red Odontioda Brewii, Cattleya Alcemeda with white sepals and petals, some Brasso-Cattleyas, Oncidium incurvum album, the very remarkable Angræcum infundibulare with its large scoop-shaped white lip; A. Chailluanum, Dendrobium Dearei and some good Cypripediums.

Messrs. SANDER AND SONS, St. Albans, secured a Silver Flora Medal for a fine group, in which were noted their new Odontonia MacNabiana (O. Edwardii × M. Bleuana), with charming flowers of reddish-violet and white colour, and closely approaching their O. brugensis; varieties of Cattleya Iris, C. Mantinii nobilior, Lælio-Cattleya Phœnix rose variety; and other Lælio-Cattleyas, some fine blue varieties of Vanda cœrulea, pretty Brasso-Cattleyas, the singular trailing Angræcum Eichlerianum, Sophro-Lælio-Cattleya Medea; a selection of hybrid Cypripediums, a grand specimen of Miltonia Hyeana, Phalænopsis Esmerelda, with several spikes; and an interesting selection of Orchids of botanical interest.

R. G. THWAITES, Esq., Chessington, Streatham (gr. Mr. J. M. Black) was awarded a Silver Banksian Medal for a group of hybrids, principally forms of Cattleya Adula and C. Iris, their beautiful flowers varying much in colour, but always bright. Others noted were two fine forms of Lælio-Cattleya Rubens and the new L.-C. Xantho (L.-C. Ophir × C. Iris), a distinct flower of medium size, with pale, chrome-yellow sepals and petals, and curiously-formed lip with yellow base, the front and tips of the side lobes lilac and the centre orange-red.

Messrs. JAS. CYPHER AND SONS, Cheltenham, were awarded a Silver Banksian Medal for an effective group, in the centre of which was the large white Habenaria Susannæ with Oncidium incurvum album and other graceful species. In front were Miltonia vexillaria Leopoldii, with its dark-masked flowers, Bulbophyllum grandiflorum, Chondrorhyncha Chestertonii, Miltonia spectabilis Moreliana, M. Phalænopsis, some showy Odontoglossum grande, and a representative collection of hybrid Cypripediums, including varieties of Thalia, Venus, Gaston Bultel and triumphans.

Messrs. HASSALL AND CO., Southgate, were awarded a Silver Banksian Medal for a showy group of Cattleyas and Lælio-Cattleyas, the former including some good forms of C. Dowiana aurea, and four remarkably beautiful C. Hardyana, one especially fine in shape and colour, and quite equal to the best of its class. The pretty C. Peetersii (Hardyana × labiata) was also shown, and good forms of C. Iris.

W. R. LEE, Esq., Plumpton Hall, Heywood, Manchester (gr. Mr. Branch) sent Cypripedium Niobe Leeanum, a very fine form with a large pure white dorsal sepal with a broad purple median line and flush of rose-purple from the base.

G. W. BIRD, Esq., The Manor House, West Wickham, Kent, sent a bright rosy-mauve form of Cattleya Freya (Mantinii × Dowiana aurea).

WALTER COBB, Esq., Normanhurst, Rusper (gr. Mr. C. J. Salter), sent a fine specimen of Cypripedium villoso-Rothschildianum.

Mr. E. BRISTOW, gr. to Mrs. Temple, Layswood, Groombridge, showed a very fine specimen of Cypripedium Ashburtoniæ, with forty-two flowers, many of them two on a spike.

Messrs. MANSELL AND HATCHER, Rawdon, Yorks, showed the new Odontioda Rawdonensis (Odontoglossum ardentissimum × Odontioda Charlesworthii). The small plant, flowering for the first time, bore a single bloom of good size and shape, in which O. Pescatorei, inherited from O. ardentissimum, could be distinctly traced; indeed the flower closely followed O. ardentissimum, except in colour. The sepals and petals are equal in width, of a bright cherry red with an orange shade. The lip is of shades of purplish-red with orange-coloured crest.

Lælio-Cattleya Armada (*L.-C. luminosa* × *C. fulvescens*), from Lieut.-Col. Sir GEO. L. HOLFORD, K.C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander). A very beautiful cross with two parts C. Dowiana aurea, one C. Forbesii, and one Lælia tenebrosa, and all can be traced, the C. Forbesii, obtained through C. fulvescens, showing in the veining of the lip. The flowers are of good shape, the sepals and petals cream-white, shaded with nankeen yellow and with fine pale-purple veining on the petals. The lip is broad and openly displayed, crimped at the margin, yellow with broken lines of rose-purple.

Cattleya Cybele (*Luddemanniana* × *Gaskelliana alba*), from E. H. DAVIDSON, Esq., Orchid Dene, Twyford. A very attractive white flower with a clear violet-purple blotch on the front of the lip. The original form flowered with Messrs. Jas. Veitch and Sons, and was described in the *Gardeners' Chronicle*, January 11, 1902, p. 18.

CULTURAL COMMENDATION.

To Messrs. ARMSTRONG AND BROWN, for a grand plant of the rare Oncidium corynephorum splendens, with a branched spike bearing 34 large and beautifully-shaped flowers coloured rose-purple with white margin. The species had previously secured a First-class Certificate.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq., in the chair, Messrs. Jas. Cheal, W. Bates, John Basham, J. Willard, E. Beckett, W. E. Humphreys, A. Grubb, A. R. Allan, W. J. Jeffries, J. Davis, Wm. Pope, F. G. Treseder, A. Bullock, G. Reynolds, P. A. Tuckett, F. C. M. Veitch, John Harrison, and W. Poupart.

Messrs. SUTTON AND SONS, Reading, occupied 300 square feet of staging to great advantage. Here was set out an immense collection of excellent examples of all the well-known vegetables as well as many rarer kinds. Saladings received special attention, and these, as well as the culinary vegetables, did not appear to have received any harm from the recent excess of rain. They were of the valued moderate size, and such as the Peas and Cucumbers bore the heavy bloom which tells of good culture. Amongst the lesser known kinds we noted Blood-Red Onions, Purple Globe Artichokes, Rat-tailed Radishes, Early Dwarf Sugar Corn, Black Beetroots, and perfect roots of Kohl Rabi. (Gold Medal.)

Messrs. DICKSON AND ROBINSON, Manchester, were awarded a Silver Knightian Medal for a fine collection of Premier Onions.

Col. the Rt. Hon. MARK LOCKWOOD, C.V.O., M.P., Bishop's Hall, Romford, Essex (gr. Mr. G. Cradduck), exhibited splendid plants of Aubergines grown in relatively small flower-pots. The varieties were chiefly of the Long Purple, which is so greatly valued for culinary purposes, but other roots, such as Round Purple, Round White, Giant White, Striped and Black were also shown, and all bore many attractive fruits. A card of cultural commendation was awarded to this praiseworthy collection in addition to the Silver Knightian Medal.

The CHURCH ARMY ASSOCIATION sent their customary exhibit of really good vegetables which had been grown in the vicinity of the Hall. Perhaps the finest examples were of crisp succulent Radishes and the Turnip-shaped Beet, but the Cabbages, including Savoys and Kales, were also very good (Silver Banksian Medal).

The MARQUIS OF RIPON was awarded a Silver Banksian Medal for a collection of Apples, of which Red Astrachan, Fearn's Pippin, Duchess Favourite, Worcester Pearmain and Lady Sudeley were perfect examples of dessert fruits.

J. H. PORTER, Esq., Malden, Surrey (gr. Mr. Wilkins) showed magnificent Apples, which fully deserved the Bronze Knightian Medal awarded.

DAVID NIGO, Esq., Thaxted, Surrey, an amateur who receives no assistance in the working of his garden, contributed a collection of fruit and vegetables of more than average merit.

THE COMPETITIVE VEGETABLE CLASSES.

Twelve Distinct Kinds.—There were five competitors in this premier class, and although the general quality was not so high as last year, many of the vegetables were better than might have been expected in an unfavourable season. Throughout the exhibits there was a slight coarseness and watery appearance in the Runner Beans, but Tomatos were uniformly excellent. The 1st prize was won by the Hon. VICARY GIBBS, Aldenham House, Elstree (gr. Mr. E. Beckett). The outstanding items of this fine collection were the clean, well-blanched sticks of Celery, Superb Pink; Leeks, Sutton's Prize-taker; Peas, Sutton's Centenary; and Cucumber, Delicacy. 2nd, Mr. THOS. JONES, Ruabon, who excelled in Tomato, Conqueror; Carrots, Prize-taker; and Exhibition Runner Beans. 3rd, Mr. F. J. BARRETT, Overton, Ellesmere.

Nine Distinct Kinds.—In this class, the object of which was "to illustrate vegetables which are in daily use and possess the qualities most valued for table use by cooks," the action of the judges in withholding the prizes created quite a sensation, and the consensus of general opinion appeared to be against their action. Notices were placed on the two exhibits, and one of these upon the exhibit from W. H. MYERS, Esq., Swanmore House, Bishops Waltham (gr. Mr. G. Ellwood), stated that "the judges considered that the vegetables shown in Class II. do not strictly comply with the conditions set forth in the schedule for this particular class. The magnificence of the produots from the point of view of the art of cultivation is unquestioned, but the items do not illustrate or possess the essential qualities looked for by the cook, with the exception of the Cauliflower and Tomato." The other exhibitor was Lord NORTH, Wroxted Abbey, Banbury (gr. Mr. Jones), and a similar notice was placed on his exhibit.

Six Distinct Kinds.—Of the five exhibits the best was shown by BRODIE HENDERSON, Esq., Little Berkhamsted (gr. Mr. H. Smith), the Gladstone Peas, Mont Blanc Cauliflowers, and Duke of York Tomatos were excellent examples. 2nd, F. BIBBY, Esq., Hardwicke Grange, Shrewsbury (gr. Mr. J. Taylor), who excelled with Onions (Ailsa Craig). Tomatos (Perfection), and Celery (Superb Pink). 3rd, Rt Hon. T. F. HALSEY, Gaddesden Place, Hemel Hempstead (gr. Mr. T. Avery).

Potatos: Twelve Varieties.—Many of the tubers in this class showed in their size and deep eyes the effects of the heavy rains following on a very dry period. The 1st prize was won by the Rev. F. MCMURDIE, Woburn Park, Weybridge (gr. Mr. A. Basile), who had good tubers of Goldfinder, Surprise, Up-to-Date, and Stourbridge Glory. 2nd, Mrs. DENISON, Berkhamsted (gr. Mr. A. J. Gentle).

Potatos: Six Varieties.—In this smaller class Mr. G. THORN, Sprotlands, Ashford, Kent, who included Purple Eye, Express, and King George, won the 1st prize. 2nd, H. W. HENDERSON, Esq., Serge Hill, King's Langley (gr. Mr. F. L. Pike).

Onions; Six Varieties.—There was a splendid competition in this class, most of the bulbs being of large size and very firm. Mrs. JENNER, Wenvoe Castle, Cardiff (gr. Mr. H. Wheeler) won the 1st prize with enormous, firm bulbs of Ailsa Craig, Magnum Bonum, A 1, Golden Ball, Excelsior, and Premier. 2nd, Hon. VICARY GIBBS. 3rd, W. H. MYERS, Esq.

Salads: Nine Distinct Kinds.—The Hon. VICARY GIBBS won the 1st prize with a very daintily-arranged collection, which had an appetising appearance. The Radishes (Sutton's Gem), Cucumbers (Delicacy), and Endive (Improved Batavian) were splendid. 2nd, Mr. THOS. JONES, who showed round, flat baskets of Mustard and Cress, and white, Turnip-rooted Radishes. 3rd, Lord NORTH.

Salads: Six Distinct Varieties. — In the smaller class the 1st prize was awarded to W. H. MYERS, Esq., who showed excellent examples of Cucumbers, Celery, and Beet.

Other Vegetables; Six Distinct Kinds.—Two of the exhibits were very attractive. The Hon. VICARY GIBBS won the 1st prize with a collection which was arranged with the taste and dignity that the exhibits required; Golden Dawn Capsicum, Long Purple Egg Plant, and Purple Kohl Rabi were especially good. 2nd, Lord NORTH, whose chief dishes were Long Purple Aubergine, Salsify, and Stachys tuberifera. 3rd, W. H. MYERS, Esq., who showed excellent Kohl Rabi.

SINGLE DISH CLASSES.

Beans, Scarlet Runners.—These were rather coarse and of pale colour. 1st, Mr. H. KEEP, Aldermaston, Reading; 2nd, BRODIE HENDERSON, Esq., Little Berkhamsted (gr. Mr. H. Smith).

Beans, French Dwarf.—The pods of this type were also of pale colour. 1st, BRODIE HENDERSON, Esq.; 2nd, Mr. THOS. JONES.

Beans, French Climbers.—The exhibits of this type were also of a pale colour, and looked watery. 1st, Mr. J. J. STAWARD, Newport, Fife; 2nd, W. H. MYERS, Esq.

Brussels Sprouts, three plants.—These were of very moderate quality. 1st, Hon. VICARY GIBBS; 2nd, F. J. BARRETT, Esq.

Brussels Sprouts, 50 Buttons.—The Brussels Sprouts were of average quality. 1st, W. H. MYERS, Esq., who showed Sutton's Exhibition; 2nd, Mr. F. J. BARRETT.

Beet, any type.—This vegetable was shown in splendid condition by many exhibitors. 1st, H. W. HENDERSON, Esq.; 2nd, Lord NORTH.

Cauliflower or Broccoli.—The 1st prize heads from the Hon. VICARY GIBBS were excellent. 2nd, FRANK BIBBY, Esq., Hardwicke Grange, Shrewsbury (gr. Mr. J. Taylor).

Savoy Cabbage.—1st, S. GISSING SKELTON, Esq., Sudbury Croft, Harrow (gr. Mr. A. Wilkinson); 2nd, W. H. MYERS, Esq.

Cabbage.—1st, the Hon. VICARY GIBBS; 2nd, the Rt. Hon. T. F. HALSEY, Gaddesden Place, Hemel Hempstead (gr. Mr. T. Avery).

Cucumbers.—The prize-winning fruits were exceptionally good. 1st, Rt. Hon. T. F. HALSEY; 2nd, W. H. MYERS, Esq.

Leeks.—The stems were even larger than those in the Class 2 Collection of Vegetables. 1st, W. H. MYERS, Esq.; 2nd, Hon. VICARY GIBBS.

Marrows.—1st, Hon. VICARY GIBBS; 2nd, Mr. J. J. STAWARD.

Mushrooms.—1st, W. H. MYERS, Esq., who showed very fresh pink-gilled specimens; 2nd, Hon. VICARY GIBBS.

Onions, Round or Globular.—1st, Mrs. JENNER, 2nd, Mrs. TREVOR GOFF, Easingstoke (gr. Mr H. E. Wallis).

Onions, Flat.—1st, Mrs. JENNER; 2nd, W. H. MYERS, Esq.

Parsnips, Long.—1st, Lord NORTH; 2nd, Rev. T. MCMURDIE, who showed smaller and whiter roots.

Parsnips, Short.—The only exhibitor, the Rev. T. MCMURDIE, was awarded the 2nd prize.

Carrots, Long.—1st, the Hon. VICARY GIBBS, who showed perfect roots; 2nd, Rev. T. MCMURDIE.

Carrots, Short.—1st, J. J. BARRETT, Esq.; 2nd, Mrs. DENNISON.

Turnips, Parti-coloured.—1st, Mrs. JENNER, who showed splendid roots of Manchester Market; 2nd, Mr. H. KEEP.

Turnips, White.—These were exceedingly good. 1st, Rt. Hon. T. F. HALSEY; 2nd, Mr. J. J. STAWARD.

Parsnips, Yellow Flesh.—1st, Hon. VICARY GIBBS, with perfectly-shaped roots; 2nd, Major-Gen. F. LLOYD, Aston Hall, Salop (gr. Mr. W. Staward).

Peas.—1st, Hon. VICARY GIBBS; 2nd, F. J. BARRETT, Esq.

Potatos, White.—1st, Mrs. M. KNOX, Holt Hatch, Alton, Hants (gr. Mr. W. West), with Edinburgh Castle; 2nd, Mr. G. THORN.

Potatos, Coloured.—1st, Mr. G. THORN, Ashford, Kent, with Edgecote Purple; 2nd, Rev. T. G. WYATT, St. Wilfred's Parsonage, Haywards Heath (gr. Mr. J. E. Shirley).

Celeriac.—1st, Rev. T. MCMURDIE; 2nd, Lord NORTH.

Celery, White.—1st, the Hon. VICARY GIBBS; 2nd, Mrs. LEWIS DAVIS.

Celery Red.—1st, the Hon. VICARY GIBBS; equal 2nd, S. GISSING SKELTON, Esq., and Mr. H. KEEP.

Kale, Tall.—1st, W. H. HENDERSON, Esq.; 2nd, Hon. VICARY GIBBS.

Kale, Dwarf.—1st, Mr. THOS. JONES; 2nd, Mrs. LEWIS DAVIS, Brynderwin, Hindhead (gr. Mr. W. H. Masters).

Tomatos, Ornamental.—1st, F. BIBBY, Esq.; 2nd, Major-Gen. Sir FRANCIS LLOYD.

Tomatos, Yellow.—1st, Lord FOLEY, Claygate, Surrey (gr. Mr. H. C. Gardner); 2nd, Hon. VICARY GIBBS.

Tomatos, Red.—1st, Lord FOLEY; 2nd, F. BIBBY, Esq.

Any Other Vegetable.—The 1st prize was awarded to the Hon. VICARY GIBBS for excellent heads of Globe Artichokes; 2nd, Rev. T. MCMURDIE, Woburn Park, Weybridge (gr. Mr. A. Basile), who showed firm heads of Red Pickling Cabbage.

The exhibits in this class also included Indian Corn, Salsify, Golden Wax Pod Beans and Lettuces.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

SEPTEMBER 8.—The monthly meeting of the above society was held in the R.H.S. Hall on this date, Mr. J. Harrison Dick in the chair Four new members were elected. The sum of £14 19s. 11d. standing to the credit of a deceased member was passed for payment. One member was granted 5s. per week for life from the Distress Fund. The Committee are taking action to bring the amendments of the National Insurance Act into force, so that members over 50 and 60 years will receive 10s. per week benefit instead of 7s. and 6s. respectively, and members over the age of 65 years will receive medical benefits after January 12, 1914. In the absence of Mr. C. H. Curtis, the secretary (Mr. A. C. Hill) presented Mr. J. Harrison Dick, who is shortly leaving this country for America, with an illuminated address accompanied by a gold fountain pen.

Obituary.

WILLIAM HOWARD.—We regret to record the death, on the 13th inst., of Mr. William Howard, nursery manager for Mr. Anthony Water, Knaphill Nurseries, Woking. Mr. Howard removed to Knaphill Nurseries fifteen years ago from Messrs. James Veitch and Sons' Nursery at Coombe Wood, where he also was manager for nearly thirty years. In both nurseries his business brought him into contact with a larger number of horticulturists, whom he frequently helped with advice and information upon trees and shrubs, his knowledge of these plants and their cultivation being unusually wide. The deceased, who had been in failing health for some months past, leaves a widow, three sons, and a daughter.

GUSTAVE ROTHBERG.—Horticultural education in France has lost a supporter in the person of Monsieur Rothberg, who died recently at Hyères at the age of sixty-six years. He had been the Director of the School of Horticulture in that town ever since its foundation. His son-in-law, Monsieur Blache, is Director of the Horticultural school at Antibes.

ANSWERS TO CORRESPONDENTS.

APPLE : *A. S.* The appearance is known as "glassyapple," and is due to the flesh becoming saturated with water. The cause is unknown.

AUTUMN TINTS : *E. M.* It is a difficult matter to preserve the autumn colouring of the leaves and berries of trees and shrubs. In some few instances the beautiful tint, with only a slight fading, persists for a long time, but too often it quickly passes away, leaving the foliage a dull-brown or a dirty yellow colour. The drying should be done by pressing the leaves between sheets of good quality blotting-paper, and where this method is unsuccessful it would perhaps be worth while to try coating the leaves and berries with a weak solution of gum arabic after they have been pressed for a short period—sufficiently to get rid of the superfluous moisture, but not long enough for the colours to fade. After applying the gum arabic solution it will be necessary to hang the leaves clear from each other.

AUTUMN-FRUITING RASPBERRIES : *Strawberry.* Some varieties of Raspberries have a tendency to bear twice during the same year, once on the old canes, and again during the autumn on the current year's growth, but not often to the extent you describe. You do not give the name of the variety, and we more than suspect it to be one of the perpetual-fruiting sorts, which frequently fail to mature the autumn crop unless the canes are growing in a warm soil or locality. If this is the case, and the weather during October should prove to be fairly dry and warm, the crop may mature. Such varieties as Belle de Fontenay, Queen Alexandra and October Red, although somewhat lacking in flavour, often mature autumn crops of fruit. You are probably aware that the canes of the autumn-fruiting varieties should be shortened to within an inch or two of the ground some time during March or early in April, the crop being produced on shoots of the current year. Your variety may be Belle de Fontenay, for this sort frequently behaves in the manner you describe if the old canes are allowed to remain. Red Superlative is an excellent summer-fruiting variety, yielding a succession of fruit for a long time, and in most soils it is a vigorous grower.

CHRYSANTHEMUM LEAVES : *W. E. H.* The injury to the leaves of your Chrysanthemum is probably due to some check to the roots, such as might be caused by a surfeit of water after a dry period. Some varieties of the Masse type are very apt to lose their foliage in this way, just as the flowers are opening, and for this reason some growers have found it undesirable to cultivate these varieties any longer. We have known cases where a fairly strong application of artificial manure and a good soaking of water afterwards has caused similar trouble. We can only recommend you to keep the plants as healthy as possible by not over-watering them, nor yet allowing the roots to become very dry; feed them only with very weak manure.

CULINARY PEA : *W. M. G.* The specimen resembles the common field or Partridge Pea; it is not generally used for culinary purposes.

CYCAS REVOLUTA AND C. RECLINATA : *C. N. W.* We have made inquiries of one of the largest Japanese Nurseries, and they state that the Japanese method of preserving Cycas leaves is a secret process, which they are careful not to divulge.

FERN FRONDS : *H. M. B.* The appearance is due to unsuitable soil. Sprinkle a thin dusting of coarsely-crushed bluestone on the soil, and allow it to dissolve gradually.

GESNERIA DISEASED : *W. J., Tonbridge.* The plants are attacked by the fungus Botrytis, which has been present in the soil. Water them with a solution of sulphate of potash at the strength of 1 ounce in 4 gallons of water.

GROUND ELDER : *G. C.* Fresh gas lime, if applied at the rate of about 40lb. per square rod, would destroy the Ground Elder, but it would also have a harmful effect on the roots of any trees which may be in the vicinity. A safer method would be to skim off all the surface soil as deeply as the roots penetrate and burn the whole in slow fires.

IVY GROWING ON WALL : *T. H.* Ivy growing on the wall of a house, if it is kept clear of the roof and the gutters which convey the water from the roof, and is trimmed in closely with a hook every spring, tends to keep that wall dry, but if these conditions are not attended to the presence of the Ivy will cause dampness.

NAMES OF FRUITS :—*J. H. B.* Wadhurst Pippin. *J. H. A.* 1, Lane's Prince Albert; 2, Emperor Alexander; 3, Stone's Apple, syn. Loddington Seedling; 4, Golden Noble; 5, Peasgood's Nonesuch; 6, Beauty of Kent; 7, not recognised. *L. S. H.* The Nectarines were in a pulp on arrival. *A. W. D.* 1, James Grieve; 2, Gascoyne's Scarlet; 3, Scarlet Pearmain; 4, Tom Putt; 5, Scarlet Nonpareil. *A. R. S.* Scarlet Golden Pippin.—*Fletcher Bros.* Monkland Pippin.—*G. W.* 1, Peasgood's Nonesuch; 2 and 35, Blenheim Pippin; 3 and 26, Queen Caroline; 4 and 13, Bramley's Seedling; 5, Dumelow's Seedling (Wellington); 6, Newton Wonder; 7, Melon Apple; 8, Lord Burghley; 9 and 10, American Mother; 11, Emperor Alexander; 12, Hambledon deux ans (Green Blenheim); 14, Alfriston; 15 and 18, Warner's King; 16, Belle de Pontoise; 17, Ribston Pippin. (Please read our instructions; only six specimens should be sent with each consignment. The other names will appear next week). *Cherry.* 1, Madame Treyve; 2, Gansel's Bergamot; 3, Williams's Bon Chrêtien; 4, Beurré d'Amanlis; 5, Allen's Everlasting. *A. T. D.* 1, Winter Apple Hawthornden;; 2, Bedfordshire Foundling; 3, Cockle Pippin; 4, Norfolk Stone Apple; 5, Warner's King; 6, Blenheim Pippin; 7, Grenadier; 8, Durondeau.

THE LATE ADOLPHUS H. KENT, B.A.

(See Obituary note in last issue.)

NAMES OF PLANTS : — *F. W. M.* Probably Libonia floribunda, but in the absence of flowers the specimen cannot be determined with certainty. *A. M. Ludlow.* 1, Calceolaria mexicana; 2, Celsia cretica; 3, Nepeta Mussinii; 4, Rudbeckia speciosa.—*W. H.* 1, Gentiana Pneumonanthe; 2, Salvia leucantha.—*A. W. D.* 1, Clematis Vitalba; 2, Jasminum officinale; 3, Cannot name without flower.—*E. B.* 1, Veronica parviflora angustifolia; 2, V. ligustrifolia.—*R. T.* 1, Bulbophyllum auricomum; 2, Bulbophyllum hirtum; 3, Cœlogyne fuscescens; 4, Dendrobium moniliforme; 5, Brassia caudata; 6, Catasetum tabulare.—*J. B.* Cucurbita ficifolia, a gourd. —*Colesborne.* A garden hybrid of Fuchsia macrostemma.—*O. H. S.* 1, Pteris longifolia; 2, Blechnum occidentale; 3, Pteris cretica; 4, Pteris tremula; 5, Adiantum pubescens.—*C. G. A.* Hedychium Gardnerianum.

POTATOS DISEASED : *W. F. W.* Your Potatos are affected with "scab" caused by the specially irritating nature of the soil. It is not infectious, and will not depreciate the eating quality of the tubers. There is another kind of scab caused by a fungous disease.

STRAWBERRIES : *A. B. I.* Much depends upon the purpose for which you want the fruit, and the market facilities. If it is for preserving solely, there is no better variety than Vicomtesse Hericart de Thury (Garibaldi). If for marketing, then a variety would be better, but everything depends on the position of your field, whether very early or late. If earlier than most in the district, plant Kentish Favourite largely and less of Garibaldi, Sir Joseph Paxton (probably not suitable on your shallow soil), Keen's Seedling is reliable in bad seasons, with perhaps Duke of Edinburgh of Moffat, and Givon's Late Prolific. Twenty tons per acre would be none too much of semi-rotted manure, cow for preference. Do not "cut" the grass, but plough it in as deeply as you can with the manure. If it were possible to prepare the ground at once, you could plant now and get part of a crop in 1914. If not planted till spring then not till 1915. Plants are procurable in spring generally cheaper than in autumn, but we should incline to purchase now and line in the plants till spring, if the ground cannot be prepared and planted at once.

TOMATOS UNHEALTHY : *T. W. and Co.* There is no disease present. The lack of colour in the fruit is due to the absence of sulphate of potash in the soil.

TREE ON LAWN : *C. G.* The Chestnut tree of course intercepts the light from your vinery, but as it is desirable that as much of the building as possible be hidden, we would suggest, if the tree is removed, an irregular arrangement of pillars, arches and festoons, of rambler Roses and other climbers, including some Evergreens, such as Pyracanthus, Cydonia, and Jasminum. Any single tree you could plant would not hide from view a building 40 feet in length, but you might plant a specimen of Cedrus deodara 10 or 12 feet high if a single tree is insisted on.

VEGETABLES : *S. J. H.* For one man not more than three-quarters of an acre would be a fair size piece of land on which to grow vegetables. But a great deal depends on the man, the soil, and the facilities he has for his work.

VINE LEAVES : *C. F. H.* No disease is present. The trouble is due to chill, possibly caused by neglect to ventilate sufficiently early in the day, followed by a sudden opening of the ventilators.

VINES : *Muscat.* Autumn is the best time to shift your vine. Any fruit of Black Hamburgh or Black Alicante remaining can be now cut and bottled, and the house, after the vine is planted, can be kept somewhat close and damp for a time. Newly-planted vines should be shaded from bright sunshine.—*W. G. D.* There is no fungous disease present. The roots are decayed, apparently due to the excess of water in the soil.

WALNUT TREE : *W. T. B.* Castigation will not improve the behaviour of your Walnut tree, moreover, its infertility is not the fault of the tree, but of the climatal conditions. Drought throughout the summer, followed by a wet, sunless autumn, and an ungenial spring are not conducive to fruitfulness in any tree. Unless the fruit buds are already formed nothing you can do will help you to obtain fruit next year. And supposing everything is in good order so far, another ungenial spring may upset all calculations.

WILLOW DYING : *Gredington.* No disease can be found on the twigs. There is probably a fungus at the root or low down on the trunk.

Communications Received.—Messrs. John Forbes (Hawick), Ltd.—E. N., Grays—I. B. B.—S. A.—F. C. H Mrs. C. B.—G. R. J.—A. E. C.—W. F.—Oxford—E. C. V., Lucan—G. S.—F. G. A.—W. G. S., Mass., U.S.A.—E. D. T.—Dublin—W. J.—E. T. C., Toronto—R. J. A.—E.—T. E. W.—B. W. and Co.—G. F., Germany—A. G. E.—A. G.—G. B.—H. G. W.—G. J. B.—G. C. G.—Coventry (thanks for 1s. for R.G.O.F. box; name of Apple next week)—F. W. N.—A. G. A., Chardwar—A. E. B.—A. P.—W. N. C.

Photographs by F. Turner.

EASTON LODGE, ESSEX, THE RESIDENCE OF THE COUNTESS OF WARWICK.

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CONTENTS.

ILLUSTRATIONS.

PLANT-COLLECTING IN CHINA BY MR. PURDOM.

DURING recent years the flora of China has given to the gardens of Europe and America many useful species hitherto unknown to horticulture. The provinces of Szechuan and Yunnan, investigated by Messrs. Wilson and Forrest, have proved to be the richest in novelties.

The season 1911 I spent in Western Kansu and Tibetan border country, collecting plants under the direction of Professor Sargent and Sir Harry Veitch.

The people inhabiting this region consist for the greater part of forty-eight clans under the rule of a Prince who lives in Chone, on the north bank of the river—a curious anomaly, a Tibetan Prince living in Chinese territory. Ten miles north of Chone lies Taochow New City, the seat of the Chinese frontier officer. Chone is an ideal base for a traveller, as it affords ample opportunity of meeting herdsmen and hunters from many clans, thereby facilitating trips into the mountain fastnesses of the mighty Peling Range, a continuation of the Tsinling Range in Shensi.

I made several excursions into this wonderful country, and became more and more impressed by the haunting charm of the mountain land. An interesting bridge, cantilever style, peculiar to the Tibetans (fig. 82) spans the Tow River, one-and-a-half miles below Chone, and on proceeding thence in a southerly direction a lovely valley, which leads to Chapa Monastery, opens out to view. Here and there small villages are dotted about in sheltered nooks, attracting attention at once by reason of the many prayer-flags which flutter in the breeze and bear the formula "Om mani Padme hum."

"loess" hills, in Chinese territory. In the foreground will be noticed a tributary of the Tow, on the banks of which are stranded the poles of timber felled from the slopes of the mountains leading to the Peling Range and floated down this stream singly to the main river, there to be rafted for distribution so far north as Lanchow. At the foot of the grassy slopes in the dark belt of conifers are mills for grinding the barley which, when parched, forms the staple food of the Tibetans, its native name being "tsamba." Above the belt

Fig. 82.—BRIDGE OVER TOW RIVER.

[*Photographs by W. Purdom.*

Fig. 83.—CLOUD EFFECT ACROSS PELING RANGE.

On the outskirts of the villages herds of cattle graze peacefully, and now and again the voice of the lark, the only bird in these parts with a musical note, breaks the silence.

Fig. 84 gives an excellent idea of the typical border scenery, all the more striking when one approaches it from the appears a village, and behind towers one of the peaks of the minor ranges of the Peling region. The northern slopes show thick forests, while the southern aspects are devoid of trees.

The valley closes gradually and culminates in deep ravines, of which fig. 85 gives a characteristic example. Here the

pastoral scene gives way to a landscape of wild grandeur. The streams flow in clefts hundreds of feet deep, as may be judged from the figures of the hunters in the river bed. A journey of ten miles through the rocky water-course terminates in a steep ascent, rising to an altitude of 14,500 feet above sea level, from which position a view south such as is shown in fig. 83 may be obtained. The Italian proverb says, "See Naples and die"; but a traveller arriving at this spot wishes not to die, but to live there for ever. Ridge after ridge stretches away to the horizon, capped in many instances by eternal snows, while the clouds brooding over these giant summits lend splendour to a sublime picture.

This immense range forms a natural barrier, which can only be crossed in three places, one being the famous "stonegate." Viewed from the mountains in Chinese territory forty miles away, this gap appears as a narrow wedge cut out of the range. Though it appears so narrow in the distance the cleft is actually ten miles wide.

Over this pass reside the six turbulent Tepo tribes, of great importance, because they are virtually the guardians of this important pass and allow no intruders who might wish to reach the sacred city of Lhasa. Any foreigner wishing to visit these tribes "at home" can only do so by becoming personally friendly with their chiefs and gaining their trust. They come under the Chone jurisdiction, and are rougher and hardier than the average borderman.

(*Photograph by W. Purdom.*

FIG. 84.—TIBETAN VILLAGE NEAR CHAPA MONASTERY.

The only people met with in these wild and solitary surroundings are a few hunters with occasional pilgrims passing through to the Chone Lamasery. Heavy goods are carried on yak, much surer-footed animals than mules or ponies, and better suited for travelling in high altitudes.

The flora of the western part of this district proved very similar to that of Northern Szechuan, though, owing to its geographical position, many of the species may prove hardier. Kansu proper was very disappointing, as it is mainly cleared of vegetation; but away in the west, over the border, round Minchow, Chone and Taochow, the country was much better wooded. The slopes of the ravines here show species of Larix, Abies and Picea, in company with a very striking form of Betula, with rosy-red bark. No idea can be formed of the fine effect this Birch produces, unless it has been seen growing in its own habitat. When the tree thickens the bark cracks and peels off in large sheets, leaving a fine, smooth stem, which is red. The Border folk use the bark for making hats, often sold in Western China, and for wrapping up butter. If planted with White Birch it would form a fine contrast. It is a pleasure to note that many hundreds of seedlings are now established at the Coombe Wood Nursery.

Large batches of Meconopsis integrifolia, M. punicea and M. racemosa flowered profusely on the lower slopes, and six species of Primula were also noted, including Primula tangutica and P. purpurea. On the higher ground, above 13,000 feet, Meconopsis rudis, with its lovely dark-blue flowers, made a fine display. In clefts of the rocks a pretty little yellow Primula, only four inches high, flowered together with Isopyrum grandiflorum. Incarvillea compactum, with its large red flowers, was also very conspicuous, and three species of Iris were recorded from this region. The undergrowth consisted mainly of Berberis, Spiræa, Lonicera and Potentilla Veitchii. Lonicera (No. 700) grew in quantity, forming bushes some six to ten feet high. It bears blue-black edible fruit, from which excellent jelly can be made. A species of Stellaria (No. 705), a foot high, grew and flowered well in firm yellow soil in the valleys; while in damp, boggy ground several forms of Senecio thrived. No. 770 has very large leaves, with yellow flowers, and appeared a fine plant for the bog garden. The above-mentioned species are but a few of the more important plants collected in this district.

Perhaps one of the most interesting discoveries made was Pæonia Moutan in a wild state. It was seen near Lotani, south of Minchow, growing luxuriantly. The Tree Pæony has been in cultivation for many years, but its existence in a wild state has been a matter of contention, so the find was a welcome one. The Chinese regard it as one of their most sacred flowers; and the fact that it is often seen on temple walls, on household pictures and in their books shows their reverence and fondness for it. It was also found in Shensi, but rarely, and is not abundant there. The natives use the root for medicine, and the probability is that it will become extinct in that province. Owing to its scarcity only small quantities of seed could be obtained. This is regrettable, as Professor Sargent wished to strengthen the existing hybrids of Pæony by introducing new life from the wild species.

Another journey undertaken from Chone was north-westward to the grass country, to enter which it is necessary to pass through the Tao Chow old city, a town situated about four miles north of the River Tow, some fifteen miles north-west of Chone.

Leaving the red sandstone hills behind, the trail ran into country of very different formation. Rocky ravines gave place to undulating grassy land; and herds of cattle, tended by a nomadic population whose homes are low, black tents, became features of the landscape. Here and there in this district a few houses, with a small lamasery, were seen huddled together in a sheltered valley, guarded by those ferocious animals, the Tibetan mastiffs. This rolling type of country is said to stretch away west to Paoan and Kweite near the Yellow River. The absence of trees and shrubs leaves the country exposed to winds, and owing to the absence of wood fuel the people resort to dried animal dung for fires.

Showy herbaceous plants are also scarce on this grassy plateau, although there were quite a number of species of Senecio. One species (No. 710) is quite distinct. It has pale yellow flowers resembling those of Hamamelis, and bids fair to become a useful subject.

My original intention was to visit the famous lamasery at Labrang, where it is said that three thousand priests reside, but owing to official interference this route had to be changed to one in a southerly direction which came out on the higher reaches of the Tow River. The scenery through which the river flows at this point is magnificent, the grass country now giving way to thickly wooded rocks and gorges, while in the winding bends of the river pretty villages appear, each with its rustic cantilever bridge. The natives use log rafts for going down stream as far as Chone or Taochow, as the river current from this point is swift and the journey is made in a comparatively short time.

The whole of this border trip towards Tibet was unique. The country is superb, of great geographical interest, and the climate bracing. The season is short—June, July and August being the best months. Although, as has been said, the region was not so prolific of new varieties as more southerly provinces, it is hoped that those obtained, when worked up, will prove in due time of benefit to horticulture. *W. Purdom.*

[Photograph by W. Purdom.

Fig. 85.—RAVINE LEADING TO PELING RANGE.

NEW OR NOTEWORTHY PLANTS.

PRIMULA* BOWLESII, FARRER.

I notice that the diagnosis of this new hybrid has already appeared in the latest and most monumental of the R.H.S. journals—that which enshrines and crystallises for the convenience of all members everything known up to date about the whole, huge race of Primula. Unfortunately, in order to include P. Bowlesii, haste was necessary, and "howlers" so horrible appear in print as to cast the gravest doubts on my Latinity. In self-defence, therefore, lest the third and fourth forms rise up in judgment on me, I must now vindicate my syntax by correcting the published diagnosis. (See footnote.)

The rest of the diagnosis may, I think, pass as it stands, and the whole, being interpreted, thus paints P. × Bowlesii, in case any earnest collector, devoid of Latin, should happen upon it again among its parents: "In habit the plant is nearer to P. pedemontana, but the leaves are longer, more densely set with glands less rufous than those of P. pedemontana, abruptly or gradually petiolate, and more or less toothed towards their end. The scape is taller, wholly set with colourless glands, and twice (or more) the length of the leaves at flowering-time; it carries a one-sided umbel, with usually fewer flowers than in either parent. The pedicels are rather long, densely glandular. The calyx lobes short, incurved, often purplish, nearer to those of P. viscosa, yet possessing the characteristic wrinkles of P. pedemontana. The flowers are purple-rose, intermediate, usually wider than those of P. viscosa, but with Viscosa's tube, dark-purple externally. The throat is narrower, very scantily endowed with farina.

"Easily distinguishable among its parents—from P. pedemontana by its taller scape, one-sided, few-flowered umbel, and leaves more glandular on their surface; from P. viscosa by its smaller stature, wider blossoms, and the presence in varying degree of more or less rufous glands on leaves and pedicels."

Finally, may I just correct in passing a slip in the admirable symphony of European Primula in the *Journal?* This attributes P. carniolica, Jacq. to the "Maritime and Cottian Alps." P. carniolica, Jacq. is confined entirely to the Idrian district a little north of Trieste, on the far side of Italy from the Cottian Alps.

And here, also, if I may be allowed yet further to digress, I should also like to add a word in defence of my well-beloved Campanula alpina, which has recently been libelled in the *Chronicle* as a biennial. This is, indeed, not so, nor is this most precious and exquisite Campanula even monocarpous, but perfectly capable of persisting and flowering in cultivation for several years in succession. All depends on the vigour of the root, for this, being a tap, terminates in one rosette, or more, of leaves, which can either be glossy and lucent, or else hoary and cobwebbed with hair. The flower-spike then comes up at the side, and, if the central rosettes and the root be insufficient to bear the strain, it is quite possible indeed for C. alpina to die of overwork. On the other hand, this is by no means inevitable or even usual, and my own experience would lead me to consider C. alpina as being a far more safe and trustworthy perennial than C. barbata. But the writer of the article is right in praising it for one of the most lovely of its kind. Why is so charming and easy-natured a

* P. × Bowlesii (P. pedemontana, Thomas × P. viscosa, All.). Stirps hybrida, inter parentes intermedia. Habitus potius P. pedemontanæ, folia tamen glandulis densius vestita, longiora, ac rufo colore parcius prædita, in petiolum sensim vel subito attenuata, et ad apices ± dentata. Scapus longior quam in P. pedemontana, omnino glandulis ecoloratis sertus (sertum in R.H.S.) ad anthesin duplo vel plus duplo folia superans, umbellam secundiorem gerens, sæpe parcius floribus præditus (præditis in R.H.S.) quam parentes. K. T.A.

plant so little known and rarely seen? I was long unable to procure it till Fate unexpectedly gave it into my hands on the Styrian limestones. In that moment it was the queen of its race; but it has had many successors in rotation. For every Alpine Campanula is unrivalled and unrivallable when you see it—Morettiana, cenisia, Raineri, Zoysii, excisa, and the rare, gorgeous and solemn Elatines. *Reginald Farrer.*

AMERICAN NOTES.

THE POKEWEED AS A VEGETABLE.

On page 159 there appeared a note from *The Field* regarding Pokeweed (Phytolacca) as a vegetable. The writer of the note is quite correct in saying that the use of the young shoots, boiled like Spinach or Asparagus, is familiar in America, but I think its use is entirely as wild "greens." I have never heard of its being cultivated for this purpose; indeed, it is such a common weed, especially in earth thrown out in cutting roadside ditches, that its ornamental value is quite overlooked. The stalks and leaves appear to be rich in potash; they are bland in flavour, a faint acidity being due, I believe, to malic acid, but berries and roots contain active medicinal properties. According to the U.S. Dispensatory, they are emetic, cathartic and slightly narcotic. The Dispensatory reports a case where death occurred from eating a double handful of the berries. It is a tincture of the root, however, that is employed medicinally, both internally and in an ointment. I do not know whether it is much used in human medicine, but American veterinarians find fluid extract of Pokeroot very useful in reducing inflammation of the udder in milch cows; hence the common name of Garget-root.

I am told that young shoots of the common Milkweed (Asclepias Cornutii) are superior to Pokeweed, when boiled like Asparagus, and this plant is very commonly used by country people in America for early greens. The earliest plant to supply wild greens is the Marsh Marigold, or Cowslip, as it is called (Caltha palustris), and in my locality the Italian and Polish women would extirpate it entirely if it were not for its habit of growing in impassable bogs. Sometimes serious and even fatal cases of poisoning occur, from mixing false Hellebore (Veratrum viride) with the Caltha, as its leaves push through about the same time in early spring. *Emily Taplin Royle, Maywood, New Jersey.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA VENUS GOODSON'S VARIETY.

The two extremes of this fine hybrid between Cattleya Iris and C. Dowiana aurea, which have flowered in the collection of H. S. Goodson, Esq., Fairlawn, West Hill, Putney (gr. Mr. G. E. Day), provide a most interesting instance of the wide variation in form and colour to be found in hybrid Orchids from the same seed capsule.

At the Royal Horticultural Society, September 29, 1908, Mr. Goodson received a first-class certificate for the original form, which the report in the *Gardeners' Chronicle*, October 3, 1908, p 254, states was of the shape of C. Iris (bicolor × Dowiana), having the short side lobes to the lip, the elongated isthmus, and expanded front lobe inherited from C. bicolor, the sepals and petals being golden-yellow, with a bronzy tinge, and the lip ruby-red. The adherence to C. Iris was commented on as being unexpected, seeing that C. Dowiana was twice used in its production. C. Venus Goodson's variety, now in bloom at Fairlawn, takes the expected course, as no trace of C. bicolor can be seen in the form of the labellum, which is shaped like that of C. Dowiana, but shorter. The sepals and petals are primrose-yellow, with pale purple lines following the veining, and a narrow yellow margin. The broad labellum is of fine substance, of an intense violet-crimson colour shading to dark claret-purple towards the centre, with some golden lines from the base, and a small patch of yellow lines on each side of the tube. Both of these varieties are charming, but two more dissimilar flowers could scarcely be imagined.

CATTLEYA HARDYANA MUESSER'S VARIETY.

A flower of a superb form of this favourite natural hybrid is sent by M. Arthur Muesser, Woluwe St. Lambert, Brussels, who himself collected it with Cattleya Dowiana aurea and C. Warscewiczii. The flower is of the largest and is most beautiful in colour. It measures 7 inches across, the undulated, slightly fringed petals being 3 inches wide. The prevailing colour of the sepals and petals is bright rosy-mauve, but between the closely arranged veining, spots and streaks of blush-white appear. The labellum is 3 inches broad, the tube, margin of the side lobes, and front being violet-purple with a ruby-red shade merging to light lilac. The yellow of the disc is arranged as in the best forms of C. Warscewiczii, but is extended on each side into a cream-white border.

EXPORTATION OF PLANTS.

Issue of Certificates required in connection with the exportation of plants to Foreign Countries and the Colonies.

We have received the following communication from the Board of Agriculture and Fisheries:—

"With a view to assist nurserymen in England and Wales to develop their export trade, the Board of Agriculture and Fisheries are prepared to issue the certificates required by the Governments of the countries and colonies to which plants are to be exported, under the following conditions:—

"1. In cases in which consignments of plants or bulbs are only admitted on production of a certificate by the Board, or by one of their inspectors, that the contents have been examined and declared to be healthy or free from certain specified pests, application should be made to the Board a few days before the consignment is to be dispatched. If it is desired that the plants should be sent by parcel post they should be sent ready packed in a box, with the lid not nailed down, to the Secretary, Board of Agriculture and Fisheries, Craven House, Northumberland Avenue, London, W.C., marked on the outside 'Plants (or bulbs) for export.' A prepaid adhesive label addressed to the consignee should be enclosed, and the Customs declaration form required by the Postal Regulations (Post Office Guide, p. 772) should be filled up and affixed to the box. The box will be dispatched by the Board and a receipt of posting obtained.

"The necessary sum must also be enclosed if it is desired that the parcel should be insured, but it must be understood that the Board cannot, in any case, accept any responsibility for any loss or damage which may arise during the examination or transit of the goods.

"No charge will be made for the examination of a consignment which is contained in one box and weighs when packed not more than 11lbs. For the examination of any consignment exceeding that weight, whether packed in two or more boxes, the following charge will be made:—Packages not exceeding 56lb. in weight, 2s. 6d. Packages weighing between 56lb. and 1cwt., 5s. Packages weighing over 1cwt. cannot be examined at the Board's office, and a special fee will be charged for examining them. If the inspector is required for any reason to travel more than 20 miles to the place where the consignment is to be examined a fee of £2 2s. will be charged. The fee must in every case be paid before the certificate can be issued.

"2. The Board have made special arrangements to meet the requirements of the Regulations issued by the Government of the United States of America under the Plant Quarantine Act of 1912. These Regulations require, among other things, that nursery stock shipped between October 1 and May 31 shall be inspected on or after October 1, and that such stock, if shipped during the growing season, shall be examined at the time of packing. The inspection is required to be carried out under the direction of a duly authorised official of the Board, and the plants must be accompanied by a certificate of that official as to their freedom from injurious plant diseases and insect pests.

"An original certificate must accompany the invoice of each consignment, and a signed copy must be attached to each 'container.' Exporters when applying for the certificate should therefore state how many copies will be required by them.

"Growers who propose to export plants to the United States should inform the Board of their intention as early in the year as possible. Preliminary inspections will be made from time to time during the summer months and a final examination will be made as early as possible in October.

"Applicants must furnish the Board with a written undertaking that no plants will be shipped under their certificate except those actually grown on the premises referred to in the certificate.

"After the final examination has been made, and if the nursery is found to be free from injurious plant disease and insect pests, the Board will be prepared to issue such certificates and copies as may be required up to May 31 in the following year.

"The fee charged by the Board for these certificates will in most cases be £2 2s. a year for each nursery, for which sum an unlimited number of certificates and copies can be obtained. In certain cases a larger fee will be charged, while in cases where two or more nurseries in the same occupation can conveniently be examined in conjunction, the Board will be prepared to consider applications for a reduced fee.

"In every case the fee must be paid before a certificate can be issued.

"No liability attaches to the Board or to any of their officers in connection with these certificates.

"The Board reserve the right of refusing to consider applications for inspection unless they are received before November 1, 1913.

"Any stock shipped between May 31 and October 1 will be examined under the conditions explained in § 1 of this memorandum.

"N.B.—Nursery stock cannot be admitted into the United States unless a permit for the entry has been obtained from the Department of Agriculture, Washington. Shippers on this side, therefore, would be well advised to see that the necessary permit has been obtained before the goods are shipped. Entry will not be allowed, moreover, unless the case, box, or other container or covering is plainly and correctly marked to show the number of the permit, the general nature and quantity of the contents, the district or locality and country where grown, the name and address of the exporter, and the name and address of the consignee.

"3. The Board are prepared to issue Phylloxera certificates, when such certificates are required by the Government of the importing country, in the case of stock exported from nurseries which have been examined by their inspectors. The fee for such examination will be £2 2s. per annum, but a separate fee will not be charged in this connection if the nursery has been inspected in accordance with the arrangement outlined in § 2.

"4. In cases in which a certificate of the Board is required stating that no disease of a certain kind has been reported from the neighbourhood in which the plants were grown, a declaration signed (and in some cases sworn) by the grower must be sent, stating that the plants (in most cases Potatos) were grown on a particular farm, and naming the parish and county in which such premises are situate, together with a declaration that the disease in respect of which the certificate is issued has not occurred on those premises.

"The application should be received by the Board *not less than three days before the consignment is to be dispatched.* No charge is made for this certificate.

"In cases in which the certificates required do not fall within any of the foregoing categories nurserymen who wish to export plants should apply to the Board for further particulars."

DESTRUCTIVE INSECTS AND PESTS
SCHEDULED BY THE BOARD OF AGRICULTURE AND FISHERIES.

XV.—THE COLORADO BEETLE.*.

As the trivial name implies, the Colorado Beetle (Doryphora decemlineata, Say) is a native of the United States, where it is popularly known as the "Potato Bug." This pest has set foot in England two or three times, and in view of its voracity, its rapidity of propagation, and the great importance of the Potato crop, it would be lamentable if it were to become established in this country. The possibility of its reaching England was foreseen in the seventies of last century, and the Colorado Beetle Order of 1877 required immediate notification of its presence to the police, a penalty not exceeding £10 being inflicted on those who did not comply with the terms of the Order, which also made it an offence to keep or sell any living specimens of the beetle in any stage of its life. The *Gardeners' Chronicle* has contained many references to the Colorado Beetle and the damage of which it is capable—*e.g.*, first in 1874, when an article was also published from the pen of Prof. Riley; in 1875, 1876, 1877, in which years Prof. Riley again contributed notes, while Andrew Murray also contributed a long article, and probably a leading article in 1877; in 1881, when the infliction of a fine on a Devonshire man who was proved to have some of the live beetles in his possession was recorded; and again, after the appearance of the pest at Tilbury Docks, on September 7, 1901. Since this last date the beetle has not occurred at liberty in England, though it appears to have been imported from America three or four years ago by a lady who was unaware of the regulations, and had brought the beetles for a friend. Happily the beetles were in captivity and did not escape to infest Potatos. The matter, however, was thoroughly sifted by the Board of Agriculture and Fisheries. At the present time the pest is scheduled with the other insect and fungous pests described in previous issues.

The description and life-history may be given briefly. The beetles (see fig. 86) are ochreous yellow in colour, and bear five dark lines along each wing case—the ten lines giving rise to the specific name *decemlineata*. They are nearly half an inch in length and one-third of an inch broad. The eggs are yellow to orange in colour, rather long-oval in shape, and attached to the under surface of Potato foliage. The larvæ are thick in the middle, soft-bodied, six-legged, half an inch long when full grown, orange to brick-red in colour, with two rows of black spots on each side, and with black feet and head. They somewhat resemble the larvæ of Lady-birds, which are, however, not of such a repulsive character. Chittenden says, "They are slimy, disgusting-looking creatures, soft in texture, and from their peculiar coloration and appearance would not be readily handled by anyone without gloves." The pupa is also reddish or orange in colour, with black markings.

The following passage from Leaflet No. 71 of the Board of Agriculture and Fisheries describes the life-history:—"The females lay their eggs in clusters of 9 to 40 or more on the under surface of the leaves, attaching them by one end. The eggs may hatch in less than a week, but, if conditions are unfavourable, hatching may be delayed beyond that period. Chittenden says that the larvæ take from 16 days to three weeks to attain maturity. When full-fed the larva leaves the plant and passes into the soil, where pupation takes place in a cell. The pupation stage in the most favourable conditions may be over in a week. Thus, where the environment is very favourable, the whole life-cycle can be completed in a month. Two generations are recorded as occurring in some parts of the United States in the course of a year, and in other parts three generations. When the weather begins to turn cold in the autumn the beetles bury themselves in the earth for hibernation."

As the females are reputed to lay 500 to 1,000 eggs or more, and the life-history is so short, the two or three generations result in exceedingly rapid growth in numbers, and this frequently tends to very severe damage to the Potato crop. In a paper read before the Royal Colonial Institute on June 13, Mr. James Buckland stated that a single pair of Colorado Beetles would, without check, increase in one season to 60,000,000. Quoting from the *Gardeners' Chronicle* of the time, we find an American writer saying in *Hardwicke's Science Gossip* in 1874 that "A man must witness the myriad legions of this insect and the ravages of its never-tiring larvæ in order to form an idea of the terrible danger with which Europe is threatened." The damage done consists in the devouring of Potato haulm by both the beetles and larvæ, which are stated by Chittenden to be destructive in nearly equal proportions. In the United States this pest has "not only caused the entire loss of crops, but sometimes destroyed the Potato yield of whole counties and of large portions of some States," raising the price of Potatos in 1873 in St. Louis to 8s. 4d. per bushel wholesale.

The Colorado Beetle attacks many plants other than Potatos—*e.g.*, Bittersweet, Thistles, Hedge Mustard, Mullein, Oats, Tomato, Henbane, Poppies, Petunias and Tobacco.

In America this beetle has a large number of natural enemies—birds, toads, and many species of predatory insects.

Fig. 86.—THE COLORADO BEETLE (NATURAL SIZE).

* The previous articles appeared on September 27, October 12, November 2, and December 7, 1912, and on February 1, March 1, March 15, April 26, May 3, May 24, June 7, August 16, September 6, and September 13, 1913.

In order to combat the pest weeds which serve to feed the beetles should be destroyed; insectivorous birds should be encouraged; the insects may be shaken off the plants into vessels containing paraffin; and, best of all, the Potato crop should be sprayed with a poison such as lead arsenate or other arsenical spray. The conclusion come to, as the result of experiments reported by Popenoe in 1909, was that "it is suggested that at least three thorough applications of Paris green, or arsenate of lead, with Bordeaux mixture, be made, the first applied about the time that the first eggs begin to hatch, and the later applications at intervals of about three weeks. By this method the beetles should be easily controlled, and the injury therefrom almost entirely obviated." Thorough and deep cultivation will be certain to destroy many of the hibernating beetles. *H. C. Long.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Government Seed-Testing.—In regard to this question of seed control there appears to be much beating about the bush. Isn't the real issue at stake purely agricultural? There never has been until quite recently, as far as I am aware, an attempt to make it apply to horticulture. To be candid, it passes comprehension what the R.H.S. has to do with a matter so entirely foreign to it. Where is the Royal Agricultural Society? The primary object of a Seed Control Station has nothing whatever to do with garden seeds; nor was it ever intended it should sit in judgment upon the trueness to kind and variety of agricultural root seeds. The object, purely and simply, was to exercise control over the sale of the Grasses and Clovers and a few other agricultural seeds, which from several causes (some of them minuteness, similitude, bulk in which handled) lend themselves readily to an adulteration not only impossible to detect except by the few scientifically equipped—certainly not by the average farmer—but which may result in the inoculation of the land with virulent and ineradicable weeds, or which may fall short of a full and proper crop, and against which more or less disastrous (at least unprofitable and unjust) results the farmer has very remote chances of redress, if any at all. Further, I fail to see that the wholesale seed trade alone has as much to do with it as it would have the public believe, for the firms they sell to generally can, and do, take good care of themselves. Above all others, it has to do with—and I dare to say only with—the retailer of farm seeds and the user of them—the farmer. And, inexplicably, both appear to have been almost entirely ignored in the formal deliberations upon the evil—an evil which, after all, is, in this country at any rate, more imaginary than real. It must be pretty well known by this that every seedsman of any standing has long had his own laboratory, which has done everything necessary for him. The foreign stations have not done a whit more than confirm his results. I admit, all the same, that it would be better both for the seller and consumer that the authority should be an independent one and Government controlled, if that control be exercised by practical seedsmen. If there is to be a Seed Control Station it should exist to protect the farmer against the unscrupulous and incapable seed retailer, and the seed retailer with scruples and sound experience against that farmer, an ever-increasing number, who, contrary to all canons of business, has somehow or other got it into his head that the best seeds can be bought for the least money—in short, to protect the farmer against himself, as an eminent seedsman once laconically put it. Instead of so much beating the air, begging the question, would it not be more to the point to invite every reputable seed firm, northern as well as southern, to meet and discuss the matter, each to put into writing the outline of any suggestions it has to make that such might be laid before the powers that be, and, if needs be, by representatives that that meeting might itself choose as being best fitted for this duty? *"Nachbar."*

——Will you permit us to say that we have read your article upon the question of a seed-testing station with interest, somewhat tempered by surprise. We cannot follow the objections which appear to be entertained to the establishment of a seed-testing station in this country as proposed by the Seed Trade Association through the deputation which met the President of the Board of Agriculture. On the contrary, our experience, extending over half a century, during which period we have had the great advantage of a seed-testing department on our own premises, which we have regarded as a vital part of our establishment, has made it easy for us to understand why the question has been raised in favour of provision being made by a central body for the use of those who have not had the advantages which a seed-testing station on their own premises affords. To show the importance we attach to this part of the seed business, we may say that we invite all who are interested in agriculture and horticulture to pay a visit to our establishment in order that we may demonstrate to them the various testing processes through which all our seeds pass before being distributed, and the greatest interest is always aroused among our numerous visitors in this particular department. We are surprised at the reasons advanced against a seed-testing station, but especially by the alternative which appears to be suggested. The main reason against the proposal, which appears to gain your own endorsement, is the supposition that fraudulently disposed seed dealers would be thereby assisted. This is not easy to follow when it is remembered that every purchaser would be thus provided with the very check against such persons (if any there be) before paying for his goods. The most extraordinary suggestion is that of the Parliamentary Committee of the Royal Horticultural Society, viz., that the seed trade of this country might be so far controlled by some central authority as to justify and indeed necessitate the "appointment of a corps of inspectors armed with the right of entry into all seed warehouses, etc." We observe that a correspondent (see p. 206) appears to support your conclusions, but in doing so raises points of great interest, which, however, are not affected by either a seed-testing station or an army of inspectors. It may not have been brought to your notice that this very proposal was embodied in a Bill, called the Agricultural Purposes Bill, brought before the House of Lords not long since. It was laughed out of court by every responsible seedsman under whose attention it was brought; at any rate, if there were any in favour they held their peace. It is true it formed only a minor section of a Bill for other purposes, and was apparently introduced as an after-thought, but such a proposal bore on the face of it ample evidence that the promoters had no knowledge of seeds and the seed industry; yet, forsooth, we now find it suggested as a practical alternative to a seed-testing station by such an august body as the Parliamentary Committee of the Royal Horticultural Society, without any explanation how it would be a better check upon dishonourable dealers, if any such there be, than a seed-testing station to which the buyer and the seller alike could send samples before and after purchase. Furthermore, how an artificial standard could be so devised as to be applicable to all seeds in all seasons remains to be explained. Your own suggestion is a very interesting one, and, on the face of it, has advantages, but the education brought about by the development of agricultural institutions and centres of research to which you refer has in other countries created a demand for seed-testing stations, and not a demand to dispense with them. Perhaps we may be permitted to say that, on our part, we have been steadily pursuing the policy for many years of educating all purchasers to satisfy themselves that the seeds they buy have been tested in every sense of the term. We do not require an army of Government inspectors to enter our establishment to teach us our business, but, on the contrary, if they ever come into existence as the result of the advice tendered by the Parliamentary Committee referred to, we are rather prepared to demonstrate to them the most up-to-date methods of conducting seed tests which some responsible seedsmen in this country are already utilising. We sincerely trust that the Board of Agriculture will not act upon the suggestion which has been made to them of adopting the extraordinary proposal made in the Agricultural Purposes Bill of putting the country to the enormous expense of appointing useless inspectors for the purpose of endeavouring to control the seed business of this country, which, in its most vital features, as your correspondent points out very forcibly, would be absolutely unaffected by whatever course is adopted. We would also add that should the promoters of that ill-starred Bill "For Agricultural Purposes" be encouraged by the action of the Parliamentary Committee to revive the clause calling for the Government inspectors, and the Bill be passed, it is not difficult to foresee that it will give rise to annoyances and confusion in the seed trade in this country, before which any slight drawbacks that might be incidental to a seed-testing station would pale into insignificance, and the irony of the situation will be that the ill-advised advocacy of seedsmen themselves will be responsible for the encouragement given it in your columns. *James Carter and Co.*

[Since writing the foregoing our attention has been drawn to the contribution in your issue last week from the pen of "*Englishman.*" He appears to be unconscious of the fact that he has made a very strong case *against* the proposition of the Parliamentary Committee of the Royal Horticultural Society, instead of one in its favour, which seems to have been his intention. A seed testing station which would simply make trials of samples voluntarily sent for the purpose of buyers or sellers, and not attempt to interfere in the manner proposed by the appointment of a corps of inspectors, would not be affected in the slightest degree by the facts so graphically brought out by "*Englishman*"; whereas the alternative proposal of the Parliamentary Committee involved the very objections to which his letter calls attention. Permit us to suggest that you should invite a reply from the Parliamentary Committee to the objections raised by "*Englishman.*" It would prove very interesting. *J. C. and Co.*]

Perpetual-Flowering Carnations Out-of-Doors.—It is interesting to learn from many quarters of the great success of the perpetual-flowering Carnation grown in open borders during the past summer, particularly so as it has been a dry season, generally speaking, whereas the previous summer they also proved a success, revelling in the moist climatic conditions which prevailed during the season. So that the perpetual-flowering Carnation has been severely tested during the past two seasons, proving equally successful under the varying conditions. Of course the advantage of growing the perpetual-flowering Carnation out-of-doors over the border Carnation is that you obtain a perpetual supply of bloom. Also the flowers themselves have erect stems, displaying their natural beauty, and, generally speaking, they last longer when cut. Another interesting development is that some gardeners are cultivating them precisely the same as the border Carnations, layering them in the summer, and allowing them to winter in the open. The surprising result is that they should prove to be hardier than many of the border varieties. Perhaps next season we may see them grown in beds at Wisley. *Montagu C. Allwood.*

The Season and Its Effects on Nursery Stock.—The summer of 1913 will be remembered as a season of drought without sunshine, week after week of dry weather being accompanied by cloudy skies and cool—sometimes cold—winds. The spring, on the whole, was a very favourable one, frequent rains and normal temperatures. The conditions were suitable for planting operations in April and May, a busy season in nurseries, where a great deal of planting has to be done. The soil and subsoil were thoroughly saturated by the heavy spring rains, and plants of all kinds were enabled to start into growth before they were affected by the subsequent drought. In this district (Mid-Surrey) we had nearly three months' continual dry weather, lasting from the end of May to nearly the end of August. During that time we

had only a few light showers, but regular hoeings, together with the absence of hot sunshine, enabled all kinds of stock to withstand the drought splendidly. It is very noticeable this year how early all kinds of evergreen trees and shrubs have ripened their growth. Compared with 1912, most plants have matured a full month earlier. Hollies completed their growth early in September, the leaves on the young shoots being hard enough to prick the hand when squeezed, and I have known them to be quite soft the second week in October. Rhododendrons made stout, if somewhat short, wood, and are covered with some of the largest and finest buds I have ever seen. Conifers generally have ripened well; in fact, all evergreens are well advanced this autumn. A few subjects, such as Cotoneaster angustifolia, Sequoia gigantea, and S. sempervirens, etc., always grow late, whatever the season may be, and cannot be considered when one is speaking in general terms of evergreens. Deciduous trees and shrubs are much as usual, climatic conditions making but little difference in the fall of the leaf from year to year. On the whole, the year has been a favourable one for nursery stock generally. The damage that might have been caused by the summer drought was largely prevented by the heavy spring rains, which soaked the subsoil thoroughly and formed a reserve of moisture which helped everything through the following dry period. A short, firm growth, combined with a healthy, dark-green foliage, is a sure sign that the year, on the whole, has been a good one. *J. C., Woking.*

Althæa ficifolia.—A few days before August 23, when Mr. Fitzherbert's notice and illustration of Althæa ficifolia appeared in the *Gardeners' Chronicle*, my attention was accidentally drawn to a patch of this yellow-coloured variety, growing in the small, front garden of a cottage called "The Priest's House," in close proximity to the churchyard east of St. Mary's, Horsham, Parish Church. Being clothed, as its tall and slender stems were, with flowers of pale yellow or primrose colour, and being the first plant of the species that had come under my observation, I made a mental note of the circumstance, and was agreeably surprised with the cognate revelations of Mr. Fitzherbert. The cottager's wife informed me that her plants had been growing there for several years, having been raised from a few seeds obtained from a garden in Surrey. Also that the Fig-tree-like leaves had never suffered from any disease, though there were plants of the florists' varieties in close proximity more or less affected. Althæa ficifolia is a native of Siberia, whilst the "florists'" varieties of Hollyhock are natives of China, and possess a more succulent habit, thus probably rendering them the more prone to disease. *William Gardiner, Horsham, Sussex.*

Insect Puzzles.—Here, as elsewhere this season, we have had considerable trouble from wasps, the nests having been particularly strong and numerous. The weather last season was very wet and sunless, and what few nests we found here were all suspended either in a thick part of a hedge or else from the underside of a thick Spruce branch. This season, on the contrary, has been very dry, and all nests have been in the ground, either in the banks or on the flat. This raises an interesting point. Has the queen wasp in the spring an instinctive knowledge of the weather that will prevail in the coming summer, or is it merely a coincidence? It may be urged that last year any nest built in banks or on the flat would be destroyed before their inmates became numerous, but that does not account for the fact that no suspended nests were seen this summer. Also we have noticed here that the hives of bees on their return from the heather are unusually well stored in the brood box, and that, in spite of the good heather flow, breeding was practically done, and instead the bars are almost completely filled with honey. Does this portend a hard winter? Perhaps some reader can throw some light on these matters. *F. J. S.*

A Simple Border Pathway.—As treading on a border is undesirable, and especially in damp weather, it has occurred to me to set a brick on the surface at yard distances, flatwise and at right angles to the border, so as to form stepping-stones. This enables me to collect ripening Tomatos, for example, grown on a long wall, and thus only tread on the minimum of surface, or just where each brick serves as a stepping-stone. Formerly the surface soil in front of the Tomatos became like a beaten path with passing and repassing. *E. D. T.*

Plum Tree's Second Crop (see pp. 207, 224).—There is nothing unusual in Victoria Plum bearing a second crop of fruit the same season. Near where I write, in a market garden, hundreds of trees of this Plum not only bore a second crop of fruits, but they were doing that with a partial crop of first fruits still hanging. *South Hants.*

The Awards of Horticultural Societies.—The awards of the Royal Horticultural Society, which formed the basis of some criticism from *F.R.H.S.* in your issue of September 20, p. 207, are not the only awards which may be criticised, as I have observed at local exhibitions. There can be no doubt that the lavish manner in which gold and other medals, first-class certificates, etc., are given detracts greatly from their value to those who are justly entitled to them. The Royal Horticultural Society exercises a good deal of discrimination in these matters, and as a general rule, at least, the awards are beyond criticism. But I have this season seen in other quarters some glaring instances of want of care shown by different societies. Trade exhibits which could not be put on the same plane received similar awards, and certificates appear to have been granted to new plants with a freedom which deprived the certificates of the greater part of their value, at least in the eyes of those who know, although they might be deceptive to the general public. Where, for example, a gold medal is the highest award only a few exhibits of really outstanding merit ought to be honoured by its bestowal. A first-class certificate should, as indeed its name suggests, go only to some plant which is in the highest class, either as a novelty or as a marked advance upon anything in cultivation. *Another F.R.H.S.*

Propagating Carnations.—Your able contributor who writes the weekly notes on "Plants Under Glass" advises in the issue for September 20, p. 203, before throwing away the old stock of Carnations to put in a batch of cuttings. We plunge the old plants in a frame and layer every growth that is suitable. The frame is kept close for ten days or so, by which time the shoots are all well rooted. I then sever the layers, and leave them for a day before potting in 60-sized pots. When the pots are half filled with roots we pinch the shoots, and they break well at every leaf. The great fault with autumn-struck cuttings is that they break badly after pinching, and I find that those struck either in autumn or spring compare very unfavourably with layers both in health and vigour. *Harry L. Jones, Lodwig.*

Orchid Hybrids (see p. 192).—Permit me to say that for a long time past I have thought that the R.H.S. should constitute itself into an authority for naming all Orchid hybrids, and that no Orchid should have an established name unless it has the hall-mark of the R.H.S. given to it—*i.e.*, their authority for that name. In other words, it should make itself into a kind of clearing house, or, to employ another simile, a kind of the same authority that St. Andrews is to golf, and let every grower send the flowers up for naming, and a small sum to cover the expenses that may be connected with the same. Some central authority is absolutely necessary unless dire confusion is to prevail in the future. *Richd. Ashworth, Ashlands, Newchurch.*

A Rectification.—In a notice of Mr. F. Manson Bailey's catalogue of Queensland plants, *Gard. Chron.*, July 19, 1913, p. 47, I very confidently stated: "The plate named Delabrea (Delarbrea) Michieana appears to be an association of leaves of the true plant with the beautiful blue fruit of an Elæocarpus." Mr. Bailey, who is in his eighty-seventh year, writes an interesting letter, and good-naturedly informs me that I have fallen into an error. This beautiful fruit really belongs to the araliaceous tree, Delarbræa Michieana, "which is very common in Queensland, and is used by the 'Bower birds' in their playgrounds." I am very much obliged to Mr. Bailey for correcting the error, and especially for the kind manner in which he has done it. I have ascertained that no specimen of this remarkable tree exists in the Kew Herbarium, and I have no doubt that Mr. Bailey will soon make good the deficiency. *W. B. H.*

Admission of the Public to Private Grounds.—Your comments, p. 205, on the practice of admitting the public to private grounds are much to the point, and it is a pity that the practice is not more common. During the last twenty-five years Mr. Myers has favourably entertained all applications to view the gardens, grounds, and park at Swanmore, without once restricting the visitors in any way. In the whole of that time I have not seen a single instance of wilful damage in these gardens. The applications have not come from people of one section of religion or politics, but have embraced all. *E. Molyneux, Swanmore Park.*

SCOTLAND.

FLOWER SHOW PRIZE MONEY.

The difficulty some small horticultural societies find in securing sufficient funds for expenses and prize money is greatly accentuated in country districts. In these the money received at the doors is often very little owing to adverse weather, and a few lean years in succession are disastrous. Some of the societies in the north have a system of paying prize money, which appears to operate well enough, though it calls for a high spirit on the part of the exhibitors. A meeting is held after the show, when the treasurer submits a statement of the income and expenditure, apart from the prize money. The latter is then paid in proportion to the balance, setting aside, if possible, a small amount for reserve. In one northern society the prize money was paid this season at the rate of 1s. for a 1st prize and 9d. for a 2nd prize. These are not princely sums, but the system appears to satisfy the exhibitors, as the show has been carried on for many years.

A SUCCESSFUL SHOW.

We understand that the preliminary financial statement of the treasurer of the new Dumfries and District Horticultural Society, which held its first show at the end of August, shows a credit balance of about £80. It is understood that it is the intention of the committee to increase the prize money in the leading classes, and to encourage exhibits from a greater distance by offering prizes of greater value.

RECEIPTS AT THE EDINBURGH SHOW.

The receipts at the autumn show of the Royal Caledonian Horticultural Society amounted to about £390, this being an increase of about £38 over those of the corresponding show last year. The attendance at the show appeared better than usual, and this is borne out by the returns given above.

GLASGOW PUBLIC BOWLING GREENS.

The Glasgow Parks Department of the City Council has had during the past season no fewer than 31 public bowling greens under its charge, and there are five additional greens in course of construction.

GLASGOW PARKS' SUPERINTENDENT.

Through a blunder in one of the local newspapers recently, a rumour acquired considerable currency that Mr. James Whitton was retiring from the office of Superintendent of the Parks of the City of Glasgow. There was no truth in the report, which originated from the fact that it is the Superintendent of the City Galleries who is retiring. *Corres.*

FOREIGN CORRESPONDENCE.

HODGSONIA HETEROCLITA.

Referring to a note in your issue of December 21, 1912 (p. 473), in which you state that this plant has never flowered at Kew, and that it may be found figured in Hooker's illustrations of the Malayan plants, may I be permitted to say that the plant is also figured in *Flore des Serres*, tome 12, plates 1,262 and 1,263? It must, therefore, in any case have flowered somewhere in Europe. *M. Buysman, Botanic Garden, near Lawang, East Java.*

AUSTRALASIA.

A HYBRID ACACIA.

In the year 1910 there appeared paragraphs in Australian newspapers that three new hybrid Acacias had been raised at the celebrated nursery of M. Ludwig Winter at Bordighera. I wrote to that gentleman for further particulars, but received no reply.

I do not know whether these hybrids were deliberately produced or whether they originated as an accident of the nursery. At all events, hybrids are exceedingly rare in this the native country of so many of the Acacias.

Subsequently Dr. Cuthbert Hall drew attention to some hybrids between Acacia Baileyana and A. decurrens var. normalis. He had not flowered them at that time. In 1911 my attention was drawn to a tree in the garden of H. L. White, of Belltrees, Scone, which was deemed to be a hybrid. It had flowered during that year, but there was not sufficient material for me to express a decided opinion. Since then Mr. White has furnished me with a full suite of specimens of the Wattles concerned. The tree is growing alongside one of Acacia decurrens var. dealbata, the Silver Wattle, which is, therefore, assumed to be the seed parent. Alongside the Silver Wattle is a Cootamundra Wattle (Acacia Baileyana), believed to be the male parent.

The hybrid produces an abundance of flowers and pods, and possesses characters obviously intermediate between those of its parents. It is very floriferous, more or less glaucous, with the branchlets reddish. The panicles of the flowers are condensed, and it appears to be a decided acquisition to the garden.

The original specimens for permanent reference are filed in the National Herbarium here.

At the monthly meeting of the Horticultural Society of New South Wales, held on May 13, I exhibited specimens, fully described them, and announced that I had named the Acacia H. L. White. *J. H. Maiden, Director of Botanic Gardens, Sydney, and Government Botanist.*

VEGETABLES.

POTATO THE CHAPMAN.

This fine Potato of somewhat recent introduction bids fair to become very popular. It has a strong constitution, is an excellent cropper, and the plants are very free from disease. It is a main crop or late variety. The tubers are of pebble shape, with eyes on the surface. The skin is netted, and white in colour; and the excellent cooking qualities of the tuber place it in the front rank of the best Potatos in commerce. It is a fine exhibition variety and an excellent keeper. It should be planted in rows 3 feet apart, giving 18 inches between the sets. This treatment will be rewarded by a large crop of fine tubers. *J. Hawkes, Osterley Gardens, Isleworth, W.*

The Week's Work.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Early-Flowering Chrysanthemums.—Plants that have not been protected with lights and are still full of bud and bloom may be lifted and placed in a cold Peach-house or vinery. A good plan is to obtain some old bulb-boxes and lift the plants directly into them, which will save handling them twice, thus breaking the ball; place them in the house and then cover the roots with manure from a spent Mushroom bed and give them a good watering. The flowers will prove very valuable for cutting purposes, and in parts of the country where early-flowering Chrysanthemums will not stand the winter out-of-doors, a good stock of cuttings will be assured for the following spring. Care must be taken to keep each variety separate. In southern districts it may be desirable to defer the lifting for a fortnight.

Gladiolus Blushing Bride, Colvilei alba, Ne Plus Ultra and Peach Blossom.—Corms of these should now be potted into 6 or 7 inch pots, placing them, say, six or eight to a 6 inch pot and well covering them with soil. The compost should consist of rich loam with leaf-mould, coarse sand and decayed cow-manure. When potted, place them in a frame or upon a shelf in a house where frost will not injure them, and as the growths are observed commence to water them with care. Do not try to force them, but grow them gently in an intermediate temperature. When the shoots are advanced, stake them as advised for Freesias, with old Birch-broom twigs.

Dielytra spectabilis.—Clumps of the old plant known as the "Chinese Lantern" taken from the ground at this period and potted into 7 or 8 inch pots in old potting soil with a little peat, loam, and cow manure added will prove valuable in the greenhouse or conservatory in the latter end of January and early February. After potting them, place them in ashes and treat them as bulbs, removing them to a shelf in a cool house or frame when the growth has commenced, and afterwards placing them in a temperature of 58° to 60° in batches as required. If the plants are placed in too much heat the flower-spikes are apt to shrivel; but if brought on in a gentle warmth, the flowers will develop a rich colour, and the sprays retain their flowers for a long period.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Melons.—Plants with fruits approaching the ripening stage should be grown in a temperature at night of 70°, keeping the atmosphere somewhat dry and exposing the fruits fully to the sunlight. It is advisable not to water the roots now, as the moisture might cause the fruits to split. If the crop appears likely to suffer from drought, mulch the surface with short manure, as it is necessary for the foliage to remain fresh and healthy until the fruits are matured. Fresh air may be admitted from the top ventilators, more or less, according to the weather. Only where there is a suitable house should the growing of Melons in winter be attempted. Such plants should be grown in bottom heat and they require a night temperature of 70° Make the most of the sun's heat by closing the house early in the afternoon when the temperature has risen. The plants should be cropped lightly and the watering must be done with great care, as an excess of moisture may cause canker in the stem. Syringe the paths and bare spaces in the house to promote atmospheric moisture, but when the weather is dull or wet this may not be necessary. At the stage when the fruits are swelling a little artificial manure may be spread over the surface of the bed and the soil afterwards watered. When the fruits are ripening the lateral growths should be stopped and the fruits regulated so that as much sunlight as possible may reach them.

Cucumbers.—Plants for cropping in winter should be grown in a house where the atmospheric temperature is 65 or 70°. Bottom heat in some form or another is necessary and a layer of drainage materials, not less than 6 inches deep, should be provided, as it is important that surplus moisture pass away quickly. Set the plants in only a small heap of soil, composed of one-half of light, turfy loam and one-half well-decayed manure, mixed with a quantity of coarse sand. Plants raised from seed sown in August should be well established by the middle of the present month. Do not grow them in an excessively close, moist atmosphere, and let the temperature at night be 65°, with a rise of 5° or so in mild weather. When there is a danger of the temperature falling below 65° it is better to cover the glass with some protective material than to use much fire heat. For the present the plants may receive liberal ventilation during the early part of the day, but the house should be closed whilst the sun is shining, so as to make the most of the natural warmth. The foliage must not be too dense and the lateral growths should be stopped. Take care not to allow more fruits to develop than will be required by the establishment, as overcropping is harmful. As the days get shorter the amount of moisture both at the roots and in the atmosphere should be reduced.

Strawberries in Pots.—Strawberry runners were not so strong as usual when they were potted in their fruiting pots, owing to the dry summer. But as it is most desirable that the crowns should be well developed and thoroughly ripened, the plants should be exposed fully to the sunshine, standing the pots on trellis work or boards, a little distance from the ground. Stir the soil in the pots and then sprinkle the surface with a little artificial manure. The watering should be done in the mornings, using manure water on occasions. Stand the pots well apart, so that the foliage is not crowded, remove any runners that may form, and destroy all weeds. If rains threaten, bring the plants under cover; they may be placed in their winter quarters in a cool house.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Lælia.—The dwarf-growing Lælia pumila and its varieties, Gatton Park, Colmanii, Lowii, albens, and the pure white alba are all useful plants at this season, especially where choice blooms for buttonholes are in request. Until a few weeks ago the plants have been grown in the cool house. They should now be hung near to the roof-glass in a house having an intermediate temperature, where sunlight will assist the flowers to open and favour the development of new growths. If allowed to remain in a cool house when the nights are cold and damp, the flowers may become spotted and useless, and the young growths and leaves damaged. The plants grow best in a very thin layer of Osmunda-fibre and require a considerable amount of water all through their growing season. White scale insects are a great pest of these Orchids and must be diligently sought after, as the insects multiply rapidly. Plants of Lælia harpophylla now starting into growth should be removed forthwith to the Cattleya house. Moisture should be plentifully supplied to the roots whilst the plants are growing actively, but on the completion of growth less water should be given or the new growths may become black. The dwarf-growing Lælia monophylla is now at rest; the roots should be kept just moist only. This plant thrives best in a cool, shady part of the intermediate house the whole year round.

Oncidium.—The Brazilian Oncidiums in the cool house, including O. Forbesii, O. curtum and O. varicosum, are producing flower-spikes and should be supplied plentifully with water,

especially those that are fastened to rafts or blocks of wood. The roots of these epiphytic Orchids should be sprayed frequently with water. Plants that are strong and well rooted may be allowed to carry all their blooms, but in the case of small and weakly specimens it is advantageous to remove the spikes when the latter are only a few inches high. Splendid spikes of bloom may be obtained in a few months from freshly-imported stock, but if the spikes are allowed to remain for a long time the plants will gradually deteriorate, notwithstanding that the utmost care is expended on their cultivation. After the flowering is over the plants will require but little water, for if an excess is afforded the roots will decay quickly. Plants of Oncidium concolor that have completed their growth will not require nearly so much water as when they are in active growth, but they must not be kept so dry as to cause the pseudo-bulbs to shrivel. Oncidium Kramerianum and O. Papilio, known as the butterfly Orchids, are natives of very warm countries, and should therefore be grown in a light position in the Cattleya house. The plants will thrive either in pots, pans, or baskets, provided they are potted in a shallow compost of Osmunda-fibre. In the growing season these plants require an abundance of water at the roots and they must not be kept excessively dry during their resting period. Where numbers of plants of both species are cultivated, flowers may be had during the greater part of the year; the flower-stems continue to send out flowers for a very long period, for as each flower dies another bud takes its place. Those who desire to retain their plants in good health would do well to remove the spikes after they have produced three or four blossoms. Cultivate the plants in as small receptacles as will conveniently accommodate them. The best time for repotting is a few weeks after growth commences.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Autumn-Fruiting Raspberries.—The fine weather has suited this crop, the berries being of exceptional flavour on account of the sunshine. In many districts wasps are attacking the ripe berries, but they may be prevented by placing tiffany over the canes, supporting the material on light stakes. Birds also are troublesome, but if means are taken to prevent the wasps and birds from doing injury and spare lights are placed over the canes during times of rain, a supply of clean, bright fruits will be available for a week or ten days to come.

Strawberries.—Go over the beds with a view to removing late runners, severing them with a knife. If the beds have been treated as I have advised in a previous calendar and the materials of the mulch forked into the ground, there should be few, if any, weeds present. It will be advantageous to disturb the soil on the surface by hoeing or light forking. Make an examination of the new plantations, with a view to making firm again any plants that have become loose in the ground, or removing some of the soil from those that have their crowns smothered. Loosen the soil on the surface so that the moisture may pass through freely, and apply a light mulch of decayed farmyard manure, but take care that the crowns are fully exposed.

Wall Trees.—Most kinds of wall trees will soon be in a suitable condition for replanting, and advantage should be taken of the fine weather to do any necessary transplanting or rearranging. It is best to grow the different kinds of trees by themselves, for although a mixture of fruit trees may succeed on the same wall, they are seldom satisfactory when grown together, and usually present an uncared-for appearance. The warmer walls, including those facing due south, should be devoted to such subjects as the Peach, Nectarine, Apricot, or Fig. Dessert Cherries may be grown on walls having a west or south-west aspect, and, if the choicer sorts are selected, they will furnish excellent fruits for the dessert table. The Pear is not so particular as to aspect, and may be grown on most walls; by planting Pears in different situations the season of the more valuable dessert varieties may be considerably prolonged. Plums do equally well on walls facing either south or south-east, whilst in warm districts some of the later varieties may be grown on walls facing due north, although such positions are usually devoted to Morello Cherries.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Wintering Bedding Plants.—The storing of old bedding plants is a matter which calls for careful consideration, especially where accommodation under glass is limited. If suitable houses cannot be devoted entirely to these plants, such subjects as Heliotropes, standard Pelargoniums, standards of Veronica Andersonii, Streptosolen Jamesonii, Agapanthus, and Brugmansia may be wintered in fruit houses from which the crops have been gathered. Plants which were knocked out of their pots at planting time experience a considerable check when they are dug up and repotted in the autumn; any that are potted should, if possible, be placed in a structure where they can be kept close and shaded for a few days before they are removed to their winter quarters. Hydrangea hortensis may remain out-of-doors for some time to come, as the exposure will favour the thorough ripening of the wood. The plants may afterwards be stored in a frost-proof shed where they may remain for the winter. Fuchsias and Cannas may be afforded a similar treatment. Myrtles are not safe from frost outside, except in gardens in the more southerly parts of the country. Sweet Verbenas (Aloysia citriodora) should be afforded some kind of shelter; large specimens of this plant at Lockinge are wintered in a barn. Tuberous-rooted Begonias should be lifted and dried gradually by placing them thinly in a cold frame. Later they should be placed in boxes, labelled and stored for the winter. Echeveria secunda glauca may be packed closely together in a cold frame; the lights must be covered with mats when severe frosts occur. Lobelia cardinalis may be placed closely together in boxes, covering the roots with leaf-soil. Winter them in a cold frame, covering the lights with mats during times of much frost. Old stools of Pelargoniums may be cut back and potted singly in 5-inch pots, or they may be placed closely together in boxes and potted up in the spring. In spring bedding plants it must be remembered that whilst it is important to save sufficient of the old plants, it is also desirable not to be encumbered with more specimens than are really necessary.

Sweet Peas.—If it is intended to make a sowing of Sweet Peas this autumn the work should be done without further delay. In some districts it is not advisable to sow in the autumn, as many of the plants perish during the winter, but if flowers are required very early, autumn sowing is undoubtedly the best. Assuming that the ground was prepared as advised in a previous calendar, shallow trenches should now be made in which to sow the seed, which must be set thickly to allow for failures. Cover the seeds with fine soil from the potting shed, and when all is finished give the surface a liberal dusting with soot. Guard against mice by setting traps along the rows, and when the seedlings are through arrange strands of black cotton over the rows as a precaution against birds.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cucumbers.—Plants now fruiting should be given a little more fire heat as the season advances in order to promote a healthy atmosphere; a temperature of 75° at night during mild weather will suit them well. The plants may be freely thinned, and the shoots stopped and regulated so that the trellis may be furnished with a moderate number of short-jointed growths. Top-dress the bed with a compost of loam and leaf-mould in equal parts as often as the young roots show themselves through the surface. Cucumber plants put out early in August should now be well up the trellis; they require frequent stopping and thinning, and should not be allowed to crop earlier than is necessary, nor more abundantly than is actually required to maintain the supply, for if this is done the plants will be unable to bear well throughout the winter. Successional plantations made in September should be allowed to grow slowly, so that strong plants may be produced which are able to stand the winter and produce a supply through January and February. These plants should not be allowed to carry fruits before the commencement of the New Year. A temperature of 70° is sufficient in mild weather, and it may be allowed to drop 5° if the weather is cold. The atmosphere of the house should be kept moist by syringing the walls and beds; the foliage may be lightly syringed on bright days, but not in dull weather.

Tomatos.—Plants intended for winter fruiting should now be well established, and setting fruits freely. Afford them plenty of ventilation, and remove any side shoots as they appear. Top-dress the plants with a compost of fine loam and a sprinkling of bone dust. Give water with extreme care during dull weather, but do not allow the roots to become very dry. Successional plants should be potted into 8-in. pots, and placed in a well-ventilated structure quite near to the roof glass. Allow sufficient space between the plants for light and air to pass freely amongst them; water with care until they are well established. These plants should afford supplies in January.

Carrots.—Early-sown Carrots should be lifted on some dry day as soon as possible, and stored in a cool shed until required for use. Late-sown Carrots may be left in the ground for some time longer; at Frogmore the great part of this crop is sown in June, and allowed to remain in the ground until November, or later, if the weather is mild. Last season some of the latest-sown Carrots were allowed to remain in the ground through the winter, and although the colour suffered depreciation, they proved useful for flavouring in the late spring when old Carrots are scarce.

Seakale.—All decaying foliage should be removed from plants intended for early forcing, in order to expose the crowns to the weather. Stir the soil between the rows to keep the ground free from weeds.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Palatine, one of the best varieties of Cabbage Lettuces for outdoor work, and grown largely a few years ago, has not met with a good demand in the markets. Heads were exhibited by Messrs. James Veitch and Sons at one of the R.H.S. meetings in May, 1909, when the variety was much admired by visitors. Some growers are giving it another trial. I recommend the variety as an excellent Lettuce, especially for heavy land: it hearts well, and does not run to seed so readily as the Passion variety. It has been grown for generations for the Paris market, where Lettuces with tinted leaves are not prejudged. The sowing should not be made before October 20, as this Lettuce is a vigorous grower.

Old Manure Beds.—We have commenced marketing the Carrots sown in July, pulling only the best roots, so as to give more room to the smaller ones; moreover, the leaves would decay if they grow too thick. Remove all the outside leaves of Celeriac, together with side shoots; run a long knife-blade around the main root to sever all fibrous ones, as these are detrimental to the sale of this crop. Celery grown on these beds should be marketed by now, and the ground cleared of all refuse and weeds. Remove the top strip to a width of 6 feet, and cart the material to the reserve heap; the remainder may be forked over to the bottom to favour the decay of the whole mass. It should be broken up roughly, and that on the outside edges thrown towards the centre of the heap.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, OCTOBER 7—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. E. A. Bunyard on "The History and Development of the Strawberry"). Scottish Hort. Assoc. meet. Nat. Amateur Gard. Assoc. meet.

THURSDAY, OCTOBER 9—
British Gard. Assoc. (London Branch) (Lecture by Mr. G. P. Berry, at Carr's Restaurant, at 8 p.m., on "Some Causes of Soil Fertility"). Leeds Fl. Sh. (N.E.H.S.) (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 52.2°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, October* 1 (6 p.m.); Max. 65°; Min. 55°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, October* 2 (10 a.m.): Bar. 29.7°; Temp., 64°. *Weather*—Fine.
PROVINCES.—*Wednesday, October* 1, Max. 60° Lincoln; Min. 54° Shields.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY—
Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, TUESDAY, AND WEDNESDAY—
Clearance Sale of the whole of the Nursery Stock at Garaway's Nursery, Keynsham, near Bristol, by Protheroe and Morris, at 12.

MONDAY—
Sale of the Freehold Estate, Garaway's Nursery, Keynsham, near Bristol, at Wingrove Hotel, Keynsham, by Protheroe and Morris, at 7.30 p.m., in four lots.

TUESDAY AND WEDNESDAY—
Clearance Sale of Nursery Stock at Shortlands Nursery, Guildford Road, Ash, by order of Mr. H. Sleet, by Protheroe and Morris, at 12.

WEDNESDAY—
Bulbs in lots to suit the trade; also Palms, at 67 and 68, Cheapside, E.C., by Protheroe and Morris.

THURSDAY—
Clearance Sale of Glass Erections, Greenhouse and other plants, at Grosvenor Park Nurseries and Wingfield Road Nursery, Walthamstow, by Protheroe and Morris, at 12.30.

MONDAY, WEDNESDAY, AND THURSDAY—
Bulbs, Lilies, etc., at Stevens' Rooms, King Street, Covent Garden, W.C.

Three Centuries of French Gardening.

To the student of the history of horticulture in its many ramifications it may be questioned if anything more interesting has ever been got together than the Exposition Rétrospective de l'Art des Jardins en France, now open at the Musée des Art décoratifs, Rue de Rivoli, Paris. As the exhibition will remain open during the present month (October) those who are visiting the French capital during the next few weeks should not fail to take advantage of an opportunity which is hardly likely to occur again for many years. Many of the chief French museums have been laid under contribution, a large number of private collectors have generously lent exhibits, and the committee, which included such well-known authorities as the Duc de Clermont-Tonnerre, president of the Société des Amateurs de Jardins; M. Georges Cain, of the Musée Carnavalet; the Duc de Luynes, the Duc de Noailles, and M. Maurice de Vilmorin, have spared no pains to make the exhibition a success.

The exhibition consists in the main of pictures, engravings, printed books, original and other plans, tapestries, sculpture, snuff-boxes, fans and medals all bearing on gardening in one or another aspect. It will be seen, therefore, that the exhibition is of an exceedingly comprehensive character, and it is this character which gives it so special a charm of novelty and variety. Its range includes the 16th, 17th, and 18th centuries, thus comprehending the most interesting periods of gardening in France.

The purpose of the exhibition is to celebrate the tercentenary of André Le Nôtre, the first great French landscape gardener. Le Nôtre, who was born in 1613, belonged to a race of gardeners, one of whom, Pierre Le Nôtre, a "jardinier-marchand de fruits," was in 1572 entrusted with the keeping of the garden and parks of the Queen-Mother Catherine de Medicis. Before he was 25 years of age André Le Nôtre had succeeded his father in the charge of the Tuileries gardens. For over half a century he enjoyed European fame as a landscape gardener, his great works being at Versailles, the Château de Clagny given by Louis XIV. to Madame de Montespan, St. Cloud, Meudon, the Tuileries, Chantilly, Sceaux, and other places in France, and Greenwich and St. James's Park in London. An excellent three-quarter length portrait of him, seated at a balcony, through which is seen a landscape, painted by Claude Lefèvre, is lent by the museum at Orleans.

Le Nôtre does not figure very prominently in this exhibition. There are a few original and engraved plans, such, for instance, as that of the gardens and park at Pinon for the Vicomte de Courval, a signed water-colour drawing, and five similar drawings of plans for different parts of the gardens at Dampierre. There is, indeed, little to indicate the great part he played in the horticultural world of the 17th century. Most of the plans and "projets" which form such an interesting feature of the exhibition are by unknown designers; they date from 1650, and many of them are of such an elaborate character that they are clearly the work of men of no mean accomplishments. Especially interesting, also, are the various engravings of 17th and 18th century gardens; one of the earliest is after Callot, the "parterre du jardin de Nancy," 1627; two "parterres de broderie" of the Hôtel de Marsan and the Hôtel de Louvois are engraved after Le Nôtre's designs; a view of the château and park of Marli are after another great garden architect, Pierre Le Pautre, whilst other engravings—some printed in colours — are of the château, gardens, and cascades of Liancourt after N. de Poilly (1626-90), the Orangery at Fontainebleau after the same artist, and views of Fontainebleau, the Tuileries, Vincennes, St. Cloud, Chantilly, and other celebrated places, after artists both known and unknown. Two autograph letters written by Colbert, one in January, 1671, and the other five years later, reveal the human side of this great man's character, for amid his numerous and engrossing state activities he found time to write letters about Tuberoses, Hyacinths, Jonquils, and Narcissi.

The *fête champêtre*, which occupied so large a share in the manifestation of French art during the earlier part of the 18th century, forms a very important "document" in the history of French gardening during the reign of Louis XV. Watteau and his crowd of followers and imitators may be taken as idealising the gardens of their day, and so, perhaps for that reason, this group of artists does not occupy much space in this exhibition. What we lose in picturesqueness from their absence we gain in the actualities of such artists as Brouard, by whom there are views of the Passy château of the Marquis de Boulainvilliers; Jean Cotelle, who painted a series of pictures of the Trianon, of which two of the fourteen original drawings are lent by M. Heine; and J. D. Dugourc, by whom, among many other drawings, there is one of the house of M. Montigny at Montmartre, 1784, when that somewhat squalid and disreputable quarter was a vast expanse of market gardens and flourishing farms. Many other pictures are of gardens and parks, most of which are the "settings" of portraits or fancy subjects; and these include examples of such eminent artists as Fragonard, L. G. Moreau the elder, J. M. Moreau the younger, J. B. Oudry, and, above all, the prince of French garden artists, Robert Hubert (1733-1808), by whom there are eight pictures in oils and other mediums. By Charles Le Brun (1619-1690) there is a long series of "projets" for fountains at Versailles, mostly wash-drawings lent from the artistic treasures at the Louvre and from the Versailles Museum. Among the several artists who made a speciality of flower painting, special mention may be made of the two pictures lent from the Louvre, by J. B. Monnoyer (1634-99), one of the first French artists who specialised in this mode.

It is especially interesting to note the evident attention which was paid to English gardens by the French at a time when almost everything English was regarded as barbaric. There is, for instance, an oil painting of a "Réunion dans un parc anglais," by L. G. Moreau, who is known to have lived for a time in London. There are also pictures of an assembly in an English park, dating from the third quarter of the 18th century, by an unknown artist, and two "projets" for English gardens by Le Rouge of about the same period, as well as a view of the Chinese kiosk in the "jardin anglais" at Rambouillet by an artist unknown. The numerous printed books also contain evidences to the same effect, for copies of Campbell's "Vitruvius Britannicus," 1731, with plans of the most celebrated English gardens, had found their way across the Channel: Le Rouge had published his "Recueil de jardins anglo-chinois," 1776-86, in three oblong folio volumes; and another exhibit consists of

a volume of "vues de châteaux et jardins anglais en France," so that however much, as a nation, we may have been despised by the French before the outbreak of the Revolution, they at least were not above utilising some of our knowledge in the art of making gardens.

Royal Horticultural Society.—A meeting of the committees will be held on Tuesday, October 7, in the Vincent Square Hall, Westminster. At 3 o'clock in the Lecture Room a lecture on "The History and Development of the Strawberry" will be delivered by Mr. E. A. Bunyard.

Appointments at Aberdeen.—At a meeting of the Governors of the Aberdeen and North of Scotland College of Agriculture on September 25, Mr. Greenhow was appointed horticultural lecturer to the College, and Mr. P. Leslie, M.A., was appointed lecturer on forestry.

Fruit Conference in Ireland.—In connection with the forthcoming fruit and flower show of the Royal Horticultural Society of Ireland, which is to be held in the Royal Dublin Society's premises at Ballsbridge on the 22nd and 23rd inst., it is proposed to hold on the opening day of the show a conference of those interested in the Irish fruit-growing industry. The conference, we are informed, will be addressed by well-known fruit-growers and others having expert knowledge of the subject.

The Veitchian Seedling Orchids.—In connection with the purchase of these Orchids by Messrs. Flory and Black, announced last week, we are now informed that Mr. T. W. Briscoe, who has had charge of the collection for eight and a half years, finds it necessary to seek another situation. Mr. Briscoe had four years' good experience at Kew before going to Langley, and we hope that he will soon find a suitable post.

Leeds Flower Show: Alteration of Dates.—We are informed by the Secretary of the North of England Horticultural Society that the dates of the Leeds Flower Show (N.E.H.S.) have been altered from October 16 and 17 to October 9 and 10. The exhibition will be held in the Corn Exchange, Leeds.

Potato Inspection in East Lothian.—On the invitation of Mr. T. A. Scarlett, Edinburgh, upwards of 70 gentlemen travelled to Aberlady on Saturday last to inspect growing crops of Potatos. After devoting the entire forenoon to walking over the fields and seeing portions of the crop of different varieties raised, the party was entertained at luncheon. Speeches were delivered by Mr. Scarlett, Major Hope, M.P., Mr. Wood (representing the Scottish Board of Agriculture), Mr. Cuthbertson (of Messrs. Dobbie and Co.), and Mr. Guild (of Aberlady). Major Hope, in the course of his address, said with reference to the black wart disease that he thought it would never be effectively dealt with until the Government had made up its mind to compensate the grower for the loss of any crop which was condemned by the Board of Agriculture inspectors. Mr. Wood said so far black wart in Scotland was a trifling matter. Mr. Cuthbertson said that it was of sufficient importance to cause practically all foreign markets to be closed to British Potatos, which was particularly unfortunate, especially in the case of America, now that Potatos were placed on the free list in that country.

Chestnut Bark Disease.—The canker disease of the Sweet Chestnut (Castanea sativa), which is common in certain districts in France, is attributed to the attack of a fungus Diplodina castaneæ, and, in his account of this malady (*Diseases of Cultivated Plants and Trees*, p. 429), Massee asks "Is the American Chestnut disease distinct from the present one?" An exhaustive investigation by Mr. Clinton, published in the 36th Report of the Connecticut Agricultural Experiment Station (1912), appears to supply a negative answer to this question. The Chestnut Bark disease, which is the cause of very considerable losses in America, is attributed by Mr. Clinton to the fungus Endothia parasitic. The fungus attacks the bark of young trees, forms canker spots which increase in size, destroy the bark and cambium, and thus ring and kill the tree. It is a wound parasite, and affected trees may be recognised not only by the canker in the bark, but also by the dead leaves of certain branches of the tree. The fungus attacks all species of Castanea, including both Castanea sativa and C. crenata, the Japanese Chestnut, which latter species was formerly supposed to be immune.

Honour for Belgian Horticulturists.—M. Emile Duchesne, Orchidist, of Watermael, Belgium, has been promoted to the rank of Officier du Mérite Agricole de France; and M. Georges Lanthoine, his partner, has been appointed Chevalier of the same order. MM. Duchesne and Lanthoine are well known in England, and their numerous friends will be glad to learn of the honours bestowed upon them.

The Plant and Its Environment.—It is an old and well-worn question whether the environment of a plant—for example the climate to which it is subjected—plays an active part in modifying the form of the plant or whether the environment acts only by a process of elimination, exterminating certain individuals and leaving a free field to those which it favours. Some naturalists regard climate as an anvil on which the plant is hammered and rehammered till its plastic body at last takes on a proper and enduring form. Others liken the effect of climate to that of a sieve of a given mesh. The sieve does nothing to alter individual form; its sole effect is to arrest or to pass the several individuals. Discussion of these alternatives is almost as endless as it is useless, and anyone who wishes to raise again this well-worn subject must bring forward new evidence. This M. Philippe de Vilmorin does in an interesting contribution on the fixity of races of Wheat (4th Conference of Genetics, Paris, 1911). M. de Vilmorin had the good fortune to discover a collection of Wheats made by his grandfather, and representing the types cultivated commonly from 1837 to 1855. A comparison of these types with their descendants now in cultivation shows that the types have remained constant. The old progenitors and their descendants agree in general aspect of ear, colour of leaf, height, and even in such characters as disease resistance and earliness, which might be supposed to be specially susceptible to climatic modification.

Rust of Wheat.—Mycologists have sought long and without avail the source of the spring infection of Wheat. As surely as spring comes rusts make their appearance. At a loss to account otherwise for the phenomenon Eriksson suggested the now famous, although not generally accepted, hypothesis of "mycoplasm." On this hypothesis the rust fungus which invades Wheat enters into an intimate union with the protoplasm of the latter; passes into the seedling, and only reveals its presence when separating from the Wheat protoplasm in the spring it forms an ordinary mycelium. Recent observations by Beauverie (*C. R. Ac. Sc.*, Paris, CLVI.) suggest a simpler origin of the spring infection of wheat by the rust Puccinia glumarum. According to these observations uredospores and teleutospores may be discovered frequently in the fold or furrow and Wheat grains. Moreover, mycelia produced from the spores may penetrate into the pericarp, and on rare occasions into the endosperm of the fruit. The parasitised grains are capable of germination, and it may prove that the embryos become infected by the mycelium of the fruit.

New Process of Obtaining Alcohol.—The preparation of alcohol from wood or from plant refuse has long been a dream of the manufacturer. Hitherto no progress has been made because of the great resistance of cellulose to all attempts to break it down into a fermentable material; the use of even the strongest acids gave only a partially simplified product, and the application of heat to facilitate the process caused the products to be charred and decomposed. At last, however, a step forward has been taken which bids fair to bring the matter within the region of practical politics. Ordinary strong spirits of salts—the hydrochloric acid of the chemist—which attacks cellulose but slowly, contains at most some 38 per cent. of the acid, the rest being water. To obtain a still stronger acid the commercial article must be saturated with the dried hydrogen chloride gas at a temperature near the freezing point. In this way it is possible to obtain acids containing 42 per cent. This acid is far more potent than the weaker acid, it actually dissolves cellulose, be it in the form of bibulous paper or cotton wool, within a few seconds, and in the course of some hours at the ordinary temperature converts it almost completely into dextrose. Professor Willstaetter, the discoverer, has patented the process. It remains to find out how to separate the acid and use it over again in order to have an inexhaustible source of cheap fermentable dextrose at our disposal.

North of England Horticultural Society.—We are informed that the Rev. J. B. Hall having resigned the secretaryship of this Society, all communications should in future be addressed to Mr. J. C. Jackson, 26, Bond Street, Leeds.

GARDEN ABUTILONS.

(*See Coloured Plate and figs. 87, 88, 89.*)

Abutilon insigne is a beautiful greenhouse shrub which may be seen at its best in the conservatory at Kew, where it is treated as a climber, the main shoots being trained up pillars or along rafters, from which the smaller flowering shoots hang with decorative effect. It was introduced into gardens more than fifty years ago by M. Linden, and appears to have been grown then as a stove shrub. According to the *Botanical Magazine* (t. 4840, 1855) it possessed the advantage of "bearing its lovely flowers when the plant is not more than one or two feet high, and these flowers continue some time in perfection, appearing in January." Under greenhouse treatment, as at Kew, for example, it is in flower practically all the year round, a quality which, taken together with the elegance and attractive coloration of its flowers, should win for the plant general favour for conservatory decoration. The leaves on stout shoots are often 8 or 9 inches in diameter; they are lobed, coarsely serrated, hairy and green in colour. The flowers are bell-shaped, 2 inches across the mouth, and their colour is white, with a heavy shading and veining with dark crimson. The plant is readily multiplied by means of cuttings, and it is as easy to cultivate as any member of the genus.

There are something like 70 species of Abutilon known, and they are all either tropical or sub-tropical. Only a few of them have become popular as garden plants, namely A. Darwinii, A. megapotamicum, A. Sellovianum, A. striatum, and A. vitifolium. But we have in addition to these a race of hybrids of considerable horticultural value. The origin

of these hybrids does not appear to have been recorded. The only account of them known to me is given in Burbidge's *Propagation and Improvement of Cultivated Plants*, a work which is a veritable mine of information about garden plants of all kinds. It is there stated that several beautiful hybrid or seminal forms of Abutilon had been raised in Continental gardens, one of the best of these being the pure white Boule de Neige, still a favourite among cultivated Abutilons, as it flowers freely all summer in the open and in winter under glass. Two of these hybrids are said to have been raised from A. venosum and A. striatum, another cross made on the Continent being A. striatum with A. indicum, formerly known as Sida albida. These hybrids were exhibited at Ghent in 1855, and were awarded a special prize. More recently M. Lemoine has raised and distributed a large number of hybrid or seedling Abutilons under such names as Eureka, Fra Diavolo, Gulliver, Jour de Fête, Ménélik, Triomphe and others. These are all sturdy-growing shrubs which flower freely, and are decidedly decorative. A hybrid raised by the late Mr. B. S. Williams, the Holloway nurseryman, and named A. rosæflorum (see fig. 87), was put into commerce in 1878. Its parents were A. Darwinii and Boule de Neige, and in habit, foliage and flowers it is a happy blend of its parents. A. Darwinii is a large branching shrub with lobed velvety-green leaves about 6 inches across and axillary clusters of bell-shaped drooping orange-red flowers veined with crimson. It is a native of Brazil. It is probable that this species has played an important part in the production of hybrid garden Abutilons. The genus is one that evidently hybridises freely, and it might easily be turned to still greater account in gardens by crossing more of the species, such as that figured in the Coloured Plate, for example.

Another beautiful garden shrub which might also be used as a breeder is the Chilian A. vitifolium. This species is hardy in the warmer parts of this country, such as South Devon and Cornwall, and the South of Ireland, but it has an uncertain constitution, dying suddenly for no apparent reason. Still, it is a first-class garden plant where the conditions of soil and climate are to its liking. It grows to the height of 10 or more feet, and when in bloom it is a beautiful object, the flowers being in large clusters, saucer-shaped, 4 inches across, and either pale mauve or pure white. It ripens seeds freely in cultivation. A figure of a fine plant of this Abutilon, growing in a garden in Cork, was published in the *Gardeners' Chronicle* in 1894, and is reproduced here (fig. 89). It was stated by the late Mr. W. E. Gumbleton that in his garden a plant of A. vitifolium was quite uninjured by 29° of frost experienced in January, 1894. At Kew it is found advisable to grow the species under the shelter of a wall. *W. W.*

Fig. 87.—Abutilon rosæflorum.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

September 29.—*Present*: Mr. E. A. Bowles, M.A. (in the chair), Prof. I. B. Balfour, Messrs. J. W. Odell, G. Wilson, W. Hales, R. Hooper Pearson, A. R. Rolfe, F. J. Chittenden (hon. sec.), and Rev. J. Jacob, visitor.

Mites on lime tree.—Mr. A. D. Michael reported that the mites on the Lime sent from Bristol to the last meeting were the Lime-tree form of the common Tetranychus telarius, sometimes separated under the name T. tiliarum, but really not distinct. It seems unpleasantly abundant and most destructive.

Narcissus bulbs diseased.—The bulbs sent by the Rev. J. Jacob to the last meeting were referred to Kew, and it is reported that the trouble, which consists of an internal rotting starting apparently from the base and proceeding gradually throughout the mass, is due primarily to the fungus Fusarium bulbigenum, Cke. and Mass. Eelworms, mites, etc., are secondary. Numerous Narcissus bulbs attacked by this fungus have been received recently, and a detailed account is in preparation. Some discussion took place regarding the bulbs, which presented some curious features. There were strange outgrowths from the base presenting somewhat the appearance of roots covered with root hairs and about $\frac{3}{8}$ to $\frac{1}{2}$ an inch in length. Examination proved them to consist of

masses of eelworms, some of which were active, and mixed with them a few eggs. Some varieties were attacked, while others growing side by side with them were immune. It was thought that the attack begun while the bulbs were still in the ground, and was so little advanced when they were lifted that it was unnoticed then. There seemed no doubt from Mr. Jacob's description that the damage extended rapidly as the season of storage advanced.

responded in number and position to the outgrowths (two being suppressed), the filaments being adherent to the walls of the corolla and to the centre of the outgrowths. The anthers were basifixed at the apex of the outgrowths. In place of the normal six glands were five unequal structures, bifid, and thus resembling staminodes. The ovary was normal.

Mr. Odell showed other abnormal forms of Gloxinia for comparison.

a branch of Solanum crispum, measuring about 3½ inches in diameter, cut from a plant growing outdoors at Claygate.

Crocus pulchellus fasciated.—Mr. E. A. Bowles showed Crocus pulchellus with two groups of perianth pieces, one containing six, the other seven parts, arising from the top of a common tube. The stamens were normal in number.

Primula vincæflora (see *Gardeners' Chronicle*,

Fig. 88.—Abutilon vitifolium : flowers lavender-blue, anthers yellow.

(See p. 240.)

Abnormal Gloxinias.—Mr. Odell reported that he had examined the abnormal Gloxinias sent to the last meeting by Mrs. Myles Kennedy, and found that the erect flower had four petaloid outgrowths originating from the base of the corolla and adnate for two-thirds of the length of the tube, terminating with a free apex. The outgrowths were similar in structure and colour to the corolla, and reversed as they are in some semi-double Primulas, the spotted surfaces of the outgrowths being turned to the inner surface of the corolla. The stamens cor-

Aristolochia sempervirens fruiting. — Mr. Bowles showed, on behalf of Canon Ellacombe, some fruits of this Aristolochia from Bitton. There seems no previous record of its fruiting in this country.

Sempervivum arboreum.—Mr. Langworthy sent from his garden at Claygate an inflorescence of this Portuguese Sempervivum, with small leaf rosettes at the apex of each of the branches of the inflorescence, which had almost dried up.

Solanum crispum.—He also sent a section of

September 20, 1913, fig. 72).—A Botanical Certificate was unanimously recommended to this beautiful species, shown by Prof. I. Bayley Balfour from the Botanic Garden at Edinburgh. It was introduced by Forrest, who collected the seed in Yunnan. Its solitary, oblique flowers are 1½ inch to 2 inches in diameter, of a rich purplish violet, and have the anterior stamens bent back, bringing the anthers near together. Three other species, of which P. Elwesii is in cultivation but has not yet flowered, share this character with P. vincæflora, and form a unique and

very beautiful group in this family. The seed from which the present plant was raised was collected in 1911.

Glassiness in Apples.—Specimens showing this peculiar appearance of semi-transparency were shown. The trouble, which is apparently of physiological origin, is very prevalent this year, and no cure is known.

Sweet Williams diseased. — Specimens badly attacked by Puccinia arenariæ came from Lip-hook. This fungus attacks Lychnis dioica and several other wild plants, and no doubt spreads from these to cultivated Sweet Williams. The attacked plants should be burned, and the remainder sprayed with a rose-red solution of potassium permanganate.

Fig. 89.—Abutilon vitifolium in Ard Cairn Gardens, Cork. (Height 30 ft., diameter 25 ft.)

(See p. 240.)

UNION OF HORTICULTURAL MUTUAL IMPROVEMENT SOCIETIES.

September 26.—The Annual Conference of Delegates from affiliated Societies and Societies enrolled in the Union of Horticultural Mutual Improvement Societies was held under the auspices of the Royal Horticultural Society on Friday, the 26th ult., in the Vincent Square Hall, Westminster.

The Rev. W. Wilks, M.A., presided, and on behalf of the Council of the R.H.S. he extended a hearty welcome to the delegates. Several additional lectures, said Mr. Wilks, have been printed, and will be available for circulation amongst the societies. The parent society has purchased a new lantern, which is available for the use of affiliated societies on payment of the carriage only.

Acting upon a suggestion from the R.H.S., the Chairman informed the meeting, the Board of Agriculture have under consideration the allotment of part of the Government grant to horticulture towards the provision of lecturers to visit the various affiliated societies, and to provide books on gardening subjects for circulation amongst the members.

Mr. Wilks reminded his audience that the cup offered for a collection of hardy flowers at the Summer Show had not yet been competed for, and that the Council will offer it again next summer.

The Chairman next explained the two examinations in horticulture which have been arranged in conjunction with the Board of Agriculture under the scheme for a National Diploma in Horticulture.

Printed leaflets were given to each delegate dealing with difficulties which often crop up at exhibitions through not drawing up the schedule properly. In 1911 a paper was read at the Conference illustrating the many errors which had then come to the notice of the R.H.S., and this second paper dealt with cases that had since come before the Council.

A second leaflet dealing with judging at provincial shows was distributed.

At last year's Conference Mr. P. C. H. Jay, hon. secretary of the St. Barnabas (Sutton) and District Society, alluded to the formation of a seed and garden requisite club amongst the members of his association. He stated that about one hundred members had made their purchases through the club, gaining considerable discount from their collective purchases.

A representative of the Hale End Horticultural Society opened a discussion on the question of the encouragement of the new exhibitor. The experience at Hale End has been that the novice appears weak-hearted in striving for open honours when he has succeeded in gaining his first awards. No other solution to the difficulty could be found than by instilling into the minds of all exhibitors that failures should induce them to make greater efforts to progress in the future.

From Mrs. H. FitzStephen O'Sullivan came an appeal for help and advice in making better use of the gardens in London squares. She correctly stated that the many small enclosures only benefited the few, whereas they ought to be a source of beauty and enlightenment to everyone. The appeal met with the sympathy of the meeting, but it was apparent that the remedy rested with the residents surrounding the enclosures. This lady also advised horticulturists to co-operate in obtaining a service of motor lorries to convey their produce to the markets, but this was considered to be outside the sphere of the Conference.

Copies of the coloured certificates for distribution amongst horticultural societies were on view. Slides of the Wisley gardens illustrating photographs in colour were exhibited on the screen, and the Chairman announced these are for circulation amongst affiliated societies upon application.

NATIONAL CHRYSANTHEMUM.

September 29.—The Executive Committee of the above Society met on this date at Carr's Restaurant, Strand, Mr. Thos. Bevan presiding.

The annual dinner was fixed for November 27 at the Holborn Restaurant, when Sir Albert Rollit has consented to take the chair. A conference will be held on December 10 in the Essex Hall. Mr. Norman Davis will read a paper on "The Evolution and Development of the Outdoor Chrysanthemum," and Mr. Bevan will give a second paper on "Chrysanthemums for Outdoor Decoration."

At the lectures limelight illustrations will be shown. The judges and stewards for the October and November Shows were appointed, and it was resolved that the prize money awarded at each should be paid to the winners immediately after each show.

Mr. Harman Payne gave details of the Chrysanthemum Show and Congress to be held in Ghent next month, at which the N.C.S. will be represented. Mr. Bevan gave an account of his visit to the International Horticultural Congress held at Ghent last month.

Twenty-five new fellows and members were elected.

NORTHERN COUNTIES.

Fruit Show and Congress at Kendal.

September 24 and 25.—The fourth annual congress and fruit show of the four Northern counties, held in conjunction with the North of England Horticultural Society, which arranged a Potato Conference and Exhibition, and the Westmorland and Cumberland Beekeepers' Association, took place on these dates at Kendal. A deputation from the Royal Horticultural Society attended and made awards of R.H.S. Medals and Cups. The exhibition was not so extensive as the one held at Hexham two years ago, but it was noteworthy for several very excellent exhibits, including one of choice dessert fruits from the gardens of Lady Nunburnholme, Warter Priory, York (gr. Mr. F. Jordan). This splendid exhibit was adjudged the finest feature in the show, and was awarded a special Silver Cup offered for the best group and also the Gold Medal of the Royal Horticultural Society. [A report in greater detail will appear next week.]

Exhibition of British-Grown Fruits.

September 25 and 26.

THE annual fruit show, which was held on the above dates in the R.H.S. Hall, was successful in spite of the unfavourable crops. The excellence of many of the exhibits shows that no matter how poor the crops may be as a whole, this does not prevent growers from making a splendid exhibition. As compared with last year's show the Apples lacked colour, but many of these fruits were of perfect form, and all were clean and free from disease. Pears generally were not quite so good, but in Class 37 the "Norfolk" Pears were magnificent examples. The action of the Society in holding the show at a comparatively early date has been the subject of some discussion, and at the judges' luncheon Mr. A. H. Pearson, in the course of an admirable speech, remarked that it had been the policy of the Council to alter the date of this show every third year, putting it a fortnight earlier or later, so that varieties which are in season before and after the customary time of the show might be represented in turn.

DIVISION I.

Collection of Hothouse Fruits.

(open to gardeners and amateurs only.)

Nine Dishes of Ripe Dessert Fruit.—The three competitors in this class were all masters of the art of growing and exhibiting high class fruit, and their exhibits were of the high quality expected from them. The 1st prize, a Silver Cup and £5, was won by the Duke of Newcastle, Clumber, Worksop (gr. Mr. S. Barker), with an admirable display. If one item may be mentioned as being of superlative excellence it would be the Madresfield Court Grapes, as these Grapes came as near to perfection as we ever expect to see them. The other items, Muscat of Alexandria, Emerald Gem Melon, Barrington and Nectarine Peaches, Durondeau and Pitmaston Pears and Cox's Orange Pippin and King of Tompkins County Apples also excited great admiration; Lady Henry Somerset, Eastnor Castle, Ledbury (gr. Mr. G. Mullins), won the 2nd prize; in this exhibit were immense bunches of Black Hamburgh Grapes, which, like those of Muscat of Alexandria, would have been splendid a week later The dishes of Pears (Marguerite Marillat) and of Peaches (Nectarine Peach) were especially good; 3rd, the Earl of Harrington, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre), who had excellent bunches of Madresfield Court Grapes, Princess of Wales Peaches, and Ribston Pippin Apples.

Six Dishes of Ripe Dessert Fruit.—There were five exhibits in this smaller class, and although they all did not show the high standard of the premier class the leading collections were worthy of high praise. Lord Hillingdon, The Wilderness, Sevenoaks (gr. Mr. J. Skelton), won the 1st prize of a Silver Cup and £3, and in his noteworthy collection the Muscat Hamburgh Grapes compelled the greatest admiration, a variety which suffers unaccountable neglect amongst Grape growers. The companion bunches of Muscat of Alexandria Grapes were of first-rate size and quality, but these paled before the Black Muscats, which were excellent. The fruit of Lady Palmerston Peaches were the finest in the show, and the other dishes, of Negro Largo Fig, Cox's Orange Pippin Apples, and a seedling Melon (an oval, yellow-skinned, lightly netted fruit) were all worthy of the exhibitor; 2nd, Lord Belper, Kingston Hall, Derby (gr. Mr. W. H. Cooke). The Gros Colmar Grapes, Hero Melon, Sea Eagle Peaches, and Louise Bonne of Jersey Pears were the outstanding fruits in this attractive exhibit; 3rd, C. A. Cain, Esq., J.P., Welwyn (gr. Mr. T. Pateman).

Grapes.

Six Distinct Varieties.—The conditions were that two bunches of each variety were to be shown, and that at least two varieties were to be white. The Duke of Newcastle, who arranged an imposing display of splendid grapes in an arc formation, was a runaway first. The centre was occupied by two magnificent bunches of Gros Guillaume, 14 inches long and 10½ inches across the shoulders. The other varieties were Madresfield Court, Black Hamburgh, Gros Colmar, Muscat of Alexandria, and Buckland Sweetwater, and of these, the white varieties, the two last-named, were probably the finest of a grand collection. Such bunches of Buckland Sweetwater at the end of September have probably never before been seen. 2nd, the Earl of Harrington, whose exhibit was daintily decorated with trails of Selaginella. The white Grapes (Muscat of Alexandria and Golden Queen) were splendid in point of size, but another fortnight on the rods would have given the finish which was required to make them first-class. Black Hamburgh and Gros Maroc were exceptionally good; 3rd, C. Bayer, Esq., Tewkesbury Lodge, Forest Hill (gr. Mr. E. C Wickens), who had excellent bunches of Appley Towers.

There were no entries in the class for four varieties selected from a published list. In the following classes two bunches of each variety were shown.

two bunches of each variety.

Black Hamburgh.—There were five exhibitors, and Lord Hillingdon won the 1st prize with short, very broad bunches of deep colour and apparently of great weight; 2nd, Lady Henry Somerset; 3rd, The Duke of Newcastle.

Mrs. Pince.—There were only two exhibits in this class, and the 1st prize was awarded to H. St. Maur, Esq., Newton Abbot (gr. Mr. G. Richardson), who showed typical bunches of good quality; 2nd, Lady Somerset.

Black Alicante.—Many of the seven exhibits in this class were of large and unduly broad bunches. In one instance the exhibit more nearly approximated a jumble of berries than a bunch of Grapes. The 1st prize was won by Lady Henry Somerset, who showed magnificent examples; 2nd. The Marquis of Salisbury, Hatfield (gr. Mr. H. Prime), with smaller but superbly finished bunches; 3rd. Mrs. W. G. Raphael, Castle Hill, Englefield Green (gr. Mr. H. H. Brown).

Madresfield Court.—With the possible exception of the Muscats of Alexandria this was the best single Grape class in the show. The Madresfield Court Grapes which won the 1st prize for the Duke of Newcastle were of the same wonderful quality as those in his 1st prize collection in Class 1; 2nd, The Earl of Harrington, who showed smaller, but beautiful bunches; 3rd, Lord Hillingdon, who also had a praiseworthy exhibit.

Prince of Wales.—These Grapes were very poorly finished. This is a notoriously difficult variety, and the two exhibitors were able to grow large bunches with big berries, but they were "foxy." 1st prize, Sir Walpole Greenwell, Bt., Marden Park, Caterham (gr. Mr. W. Lintott); 2nd, H. H. Konig, Esq., Blindley Heath (gr. Mr. H. J. Alderman).

Any Other Black Grape. — Gros Maroc proved to be a popular variety with the exhibitors; there were many bunches on show, and these were of more than ordinary quality. The 1st prize was won by Lady Henry Somerset, with perfect specimens; 2nd, Col. Hon. C. Harbord, Gunton Park, Norwich (gr. Mr W. Allan), with smaller bunches, but of equally high finish; 3rd, The Marquis of Salisbury.

Muscat of Alexandria.—Of the eleven exhibits of this variety most were of the rich amber-coloured berries which tell of good culture and first-class flavour. The 1st prize bunches shown by Sir Edwin Durning Lawrence, Bt., King's Ride, Ascot (gr. Mr. W. Lane), were splendid; 2nd, Col. Hon. C. Harbord; 3rd, G. Miller, Esq., Newberries, Radlett, Herts (gr. Mr. J. Kidd).

Any Other White Grape.—There were only three exhibits in this class, and the 1st prize was won by the Duke of Wellington, K.G., Strathfieldsaye (gr. Mr. A. G. Nichols), for immense bunches of Calabrian Raisin with good finish; 2nd, C. A. Cain, Esq., who showed Lady Hutt; 3rd, H. W. Henderson, Esq., King's Langley (gr. Mr. F. L. Pike), for Foster's Seedling.

Collection of Hardy Fruits.

In Class 13, which was also for competition amongst amateurs, there was a much greater variety than was the case in the nurserymen's classes. Thirty dishes, of which not more than 12 were to be of Apples or 8 of Pears, were displayed on a space not exceeding 12 by 3 feet. The 1st prize, consisting of a Silver Cup and £2, was won by Major Powell Cotton, Birchington (gr. Mr. J. Comford), who arranged a splendid collection of high quality fruits in an exceedingly attractive manner. Besides beautiful Apples, such as Cox's Orange Pippin, Cox's Pomona, and Gascoyne's Scarlet Seedling, and luscious-looking Pears, there were Lady Palmerston and Sea Eagle Peaches, which compared very favourably with the fruits grown under glass; Brown Turkey and Reculver Figs and Shropshire Prunes; 2nd, Sir Marcus Samuel, Maidstone (gr. Mr. W. H. Bacon), who, in addition to first-rate Apples and Pears, showed dishes of very good Mulberries, Figs, Prunes, Filberts, and St. Joseph Strawberries.

DIVISION II.

Nurserymen's Classes.

displays of hardy fruits.

The three following classes provided for collections of fruit grown entirely out-of-doors. The premier class, which occupied the ends of the tables on the right hand side of the middle gangway, made a very imposing display, but we missed the high colour which made the Apples so attractive last year. With a few and almost trifling exceptions the eleven great trade displays were composed solely of Apples and Pears, the latter being in the minority. A stranger to our climate visiting this annual show of British-grown fruit, where the principal firms meet in rivalry, would infer that there are only two kinds of fruit, and these nearly related, which may be successfully grown in the autumn in the British Isles. Or, at any rate, only two which are worth the while of the nurseryman. Apples and Pears, and such Apples and Pears, amongst the hardy fruit are our great autumn "standbys," but, as a visit to any first-class private garden would show, our soil and climate produce excellent Medlars, Mulberries, Plums, Quinces, Filberts, and Walnuts with as great regularity as it does Apples and Pears, and, besides these, on occasion we have ripe crops of Grapes, Autumn Strawberries, Autumn Raspberries and Figs. Probably the reason for the absence from the trade collections of these fruits is that nearly all of them fruit on established and mature trees, whereas the magnificent Apples and the Pears which we saw were gathered from young trees; that is, the ordinary stock which the nurseryman grows for sale, and it would not pay him to cater for exhibition purposes solely.

Thirty Feet by Six Feet of Tabling.—A Gold Medal was awarded to Messrs. H. Cannell and Son, Eynsford, Kent, for the brightest and most attractive of all the five collections shown in this class. There were 209 varieties of Apples displayed in this splendid exhibit, and of these the cooking sorts were the better. Those with the highest colour were Ben's Red, Rival, Pitowka, Coronation, Okera, Gravenstein, Hereford Pearmain, Crimson Spike, Worcester Pearmain, and Emperor Alexander. These vivid fruits were in sharp contrast to those of Antonowka (a white-skinned variety from Russia), and the lemon-coloured fruits of Lord Suffield. Rambourg d'Winniza, a Tasmanian variety somewhat similar in appearance to Tower of Glamis, which is said to be a splendid cooking Apple, heavy cropping, and very free from disease, was also shown in good condition. The finest of the Pears were Marguerite Marillat, Doyenné du Comice, and Louise Bonne of

Jersey. The several dishes of Plums included Coe's Golden Drop, Wyedale and Belle de Septembre, and there was also a good dish of Medlars. A Silver-gilt Hogg Medal was awarded to Messrs. George Bunyard and Co., Ltd., Maidstone. This exhibit was noteworthy for the number of Apples of splendid shape and clean appearance, but it did not possess the bright and attractive colour of the 1st prize exhibit. At the same time such varieties as Gascoyne's Seedling, Col. Vaughan and Ben's Red were very brilliant, and Bielo Borodowka, Rev. W. Wilks, and Golden Spire amongst the yellow-skinned sorts bore good colour. The less attractive, but equally valuable, Apples included Hambledon Deux Ans, Lord Derby, Autumn Pearmain, and Edward VII. The best of the Pears were Pitmaston Duchess, Conference, Doyenné Bussoch, Fertility, Beurré Jean van Geert, Fondante Guerre, and Lloyd's Late Stewing; the 3rd prize, a Silver-gilt Knightian Medal, was won by Messrs. J. Cheal and Sons, Crawley, whose collection was numerically smaller and composed almost solely of Apples, but these were of high quality. At the end of the stand there were some nicely-coloured fruits—Duchess of Gloucester, Carlisle Castle, Ben's Red and the like. A basket of the new Crawley Beauty Apple illustrated its size and firmness; 4th prize (Silver-gilt Banksian Medal), The King's Acre Nursery Company, Hereford: 5th (Silver Knightian Medal), Messrs. W. Seabrook and Sons.

Twenty Feet by Six Feet of Tabling.—The 1st prize of a Silver-gilt Medal was won by Mr. R. C. Notcutt, Woodbridge, who relied almost solely on Apples. This, like the 1st prize collection in the larger class, was surprisingly attractive in such an unfavourable year. The baskets of Bismarck, Cox's Pomona, Sturmer Pippin, Royal Reinette and James Grieve were superb. The deeper-coloured varieties included Duchess's Favourite, Gascoyne's Scarlet, Crimson Quoining, and Worcester Pearmain. The Pears included Catillac, Durondeau, Vicar of Winkfield, Jersey Gratioli, and Dr. Jules Guyot; 2nd, Messrs. Laxton Bros., Bedford, whose exhibit was the best arranged in the whole division. Their Apples, as illustrated by Beauty of Bedford, Beauty of Bath, and Lady Sudeley were especially noteworthy. Pears were exceptionally good, notably such varieties as Fertility, Princess, Durondeau, Marie Louise d'Uccle, Seckle, Marie Benoist, Louise Bonne of Jersey, and Pitmaston Duchess; 3rd, Messrs. Spooner and Sons, Hounslow, whose best fruits were of Chas. Ross, Midden Green, and Hounslow Wonder Apples.

Twelve Feet by Six Feet of Tabling.—The 1st prize was won by the Barnham Nurseries, Ltd., Barnham, Sussex. In common with the other collections, Apples predominated, and were of very good quality. There was rather more colour on the fruits than was general throughout the show, and they were also of perfect shape and useful size; 2nd, Messrs. Paul and Sons, The Old Nurseries, Cheshunt, who included fruiting plants of Strawberry Merveille de Bon Secours, and many shoots of the Parsley-leaved Blackberry; 3rd, Mr. G. W. Miller, Wisbech.

Orchard House Fruit and Trees.

Along the side wall of the hall the three collections of "Orchard House Fruit and Trees," each occupying a stage measuring 24 feet by 6 feet, made a fitting background to the long rows of baskets of gathered fruit. Grapes were excluded from this class, and the trees were chiefly of Apples, with a fair sprinkling of Pears and Plums and an occasional small Fig tree in the foreground. As usual, very bright colour was provided by baskets of Apples, which were interspersed with other fruits temptingly laid out along the front of these imposing displays.

The 1st prize of a Gold Medal was won by Messrs. T. Rivers and Son, Sawbridgeworth, whose shapely bushes of such Plums as Nonesuch, President and Coe's Golden Drop, and Apples Cox's Pomona, Gascoyne's Seedling and other varieties were examples of great cultural skill, but the fruits on them did not show the brilliant colour associated with orchard house culture. This lack was partly atoned for by the large and splendidly coloured collections of Peasgood's Nonesuch, Washington and Gascoyne's Seedling, more fully ripe, which were laid out in baskets. The large Pears Marguerite Marillat, Souvenir du Congrès, and Conference were splendidly tinted.

In the collection from Messrs. G. Bunyard and Co., which was awarded the Silver-gilt "Hogg" Medal, the Apple bushes did not carry so much foliage, but they bore goodly crops of first grade fruits, and the little Pear trees were also well cropped. Amongst the front row of baskets there were magnificent fruits of Pears—Uvedale's St. Germain, Pitmaston Duchess, Marguerite Marillat, and St. Luke; 3rd, The King's Acre Nurseries, Ltd., whose central feature was a trained Peach, Golden Eagle. The bushes of Apples Gloria Mundi, Worcester Pearmain and Cox's Pomona were splendid.

DIVISION III.

Market Growers' Classes.

Apples: *Twenty Baskets of Cooking and Dessert Varieties, Distinct.* — Unfortunately there was only one exhibitor in this class, and this was staged by Messrs. Gaskain and Whiting, Faversham (manager, Mr. C. Newman). It included baskets of fruits of Charles Ross, Cox's Orange Pippin, Peasgood's Nonesuch, Stone's Apple (Loddington) and Warner's King in an exhibit which worthily received the 1st prize of a Silver Cup.

Apples: *Twelve Baskets of Cooking and Dessert Varieties, Distinct.* — The twelve baskets which won the 1st prize, the Silver-gilt Medal of the Fruiterers' Company, for Col. Honeyball, Teynham, Kent (manager, Mr. G. C. Packman), were of equally good quality to the foregoing; in fact, the basket of Stone's Apple showed even better quality. The other "cookers," such as Mère de Ménage, Warner's King and Peasgood's Nonesuch were also noteworthy, as were Chas. Ross, Cox's Orange Pippin and Worcester Pearmain amongst the dessert varieties; 2nd, The Swanley Horticultural College, Kent; in this slightly uneven collection Peasgood's Nonesuch, James Grieve, and Ribston Pippin were the outstanding varieties; 3rd, Mr. H. Lumley Webb, Ham Green, Upchurch, Sittingbourne.

There was no exhibit of six baskets of Pears.

DIVISION IV.

Gardeners' and Amateurs' Classes.

The following classes, which were for fruit grown entirely in the open-air, were for competition amongst gardeners and amateurs only.

Apples: *Twenty-four Dishes, Sixteen Cooking and Eight Dessert.*—There were five exhibitors, and the 1st prize was won by Lieut.-Col. A. C. Forton, Hunton, Middlesex (gr. Mr. J. Whittle), with a splendid collection which included such sorts as Rival, Wealthy, Christmas Pearmain, Belle Pontoise, Gascoyne's Scarlet Seedling, and Peasgood's Nonesuch; 2nd, Sir Marcus Samuel, Bart., whose exhibit was particularly strong in the dessert varieties; 3rd, C. A. Cain, Esq.

Apples: *Eighteen Dishes, Twelve Cooking and Six Dessert.*—This class also attracted five exhibitors and the competition was exceedingly good. The 1st prize was won by H. S. Kleinwort, Esq., Wierton Place, Maidstone (gr. Mr. J. B. Mercer). The dessert varieties were very well coloured and just large enough, and the cooking sorts were all that could be desired; 2nd, Major Powell Cotton, Quex Park, Thanet (gr. Mr. J. Cornford), who was better represented in the dessert than the cooking sorts; 3rd, T. Charlesworth, Esq., Nutfield Court, Nutfield (gr. Mr. T. Herbert).

Apples: *Twelve Dishes, Eight Cooking and Four Dessert.*—Lady Henry Somerset won the chief prize with an exhibit of all-round excellence; 2nd, G. Miller, Esq.; 3rd, Mrs. Trevor Goff, Shenfield Hall, Basingstoke (gr. Mr. E. Wallis).

Apples: *Six Dishes of Cooking.*—This class was well contested, and the 1st prize was won by Col. Borton, who showed a remarkably even collection; 2nd, Sir Marcus Samuel, in whose collection several of the fruits showed the marks of the nets; 3rd, Lady Henry Somerset.

Apples: *Six Dishes of Dessert.*—As in Class 23, Lady Henry Somerset won the 1st prize with an almost perfect collection, the size and colour being splendid; 2nd, Sir Marcus Samuel, who showed excellent Worcester Pearmain, Rival and Charles Ross.

Pears.

Pears: *Eighteen Dishes of Dessert.*—Despite a bad year for Pears, the exhibits in this class were worthy of the show. The 1st prize was won by Sir Marcus Samuel, whose best dishes were Marguerite Marillat, Souvenir du Congrès, and Fondant de Thirriott; 2nd, Col. Borton, who included Williams's Bon Chrétien, Beurré Bachelier, and Beurré Fouqueray; 3rd, C. A. Cain, Esq.

Twelve Dishes of Dessert.—The competition here was not so good; there were only two exhibitors, and the 1st (Sir M. Samuel) was so much better that only the 3rd prize was awarded to G. Miller, Esq.

Nine Dishes of Dessert.—Lord Hillingdon was the only exhibitor and was awarded the 1st prize for a creditable collection which included excellent fruits of Triomphe de Vienne and Pitmaston Duchess.

Six Dishes of Dessert.—There was little to choose between the 1st and 2nd prize collections, but Col. Borton's exhibit won the premier position; 2nd, H. G. Kleinwort, Esq.

Three Dishes of Stewing.—Major Powell Cotton, the only exhibitor, was awarded the 1st prize for splendid dishes of Uvedale's St. Germain, Catillac and Gilogil.

Plums, etc.

Three Dishes, Distinct.—C. H. Berners, Esq., Woolverstone Park, Ipswich (gr. Mr. W. Messenger), won the 1st prize with exceedingly good dishes of Coe's Golden Drop, Monarch and President; 2nd, Mrs. Bankes, Kingston Lacey, Wimborne (gr. Mr. J. Hill).

Damsons or Bullaces: *Three Dishes.*—J. G. Williams, Esq., Pendley Manor, Tring (gr. Mr. F. G. Gerrish), was awarded the 1st prize for firm and fresh fruits.

Morello Cherries: *Fifty Fruits.*—The two exhibits, from Lady Henry Somerset and F. R. Rodd, Esq., Launceston (gr. Mr. F. H. Bellinger), were unusually good and were awarded the prizes in the order named.

DIVISION V.

Special County Classes.

For the purpose of these classes the British Isles were divided into eleven territorial divisions of varying sizes. In each division six dishes of Apples (four cooking and two dessert) and six of Pears in distinct varieties were to be shown. These county classes were the most disappointing feature of the show; the competition was so poor that in all the eleven classes there were only twenty-nine exhibits of Apples and twenty-one of Pears, and it would seem that, admirable as was the inception of this form of competition, it has no attractions for the general exhibitor. The best-contested class was Class 36, in which there were seven exhibits of Apples and five of Pears. As usual, the Channel Islands were not represented, and Scotland sent only two exhibits of Apples.

Kent: *Apples.*—1st, G. H. Landon, Esq., Wye (gr. Mr. J. Bond), who showed good samples of King of the Pippins and James Grieve; 2nd, Captain Reid, The Elms, Yalding (gr. Mr. J. Coleman). *Pears.*—1st, Captain Reid, who had splendid dishes of Durondeau and of Conference; 2nd, G. H. Landon, Esq.

Surrey, Sussex, Hants, Dorset, Somerset, Devon and Cornwall: *Apples.*—1st, J. A. Stidston, Esq., Bishopsteign, Devon, whose splendid exhibit included magnificent examples of Rougemont and Chas. Ross; 2nd, C. H. Combe, Esq. *Pears.*—J. Wingfield Digby, Esq., Sherborne Castle, Sherborne (gr. Mr. T. Turton); 2nd, Mrs. Bankes, Kingston Lacey, Wimborne (gr. Mr. J. Hill).

Wilts, Gloucester, Oxford, Bucks, Berks, Beds, Herts, and Middlesex.—This was the best-contested class, and of the seven exhibits of *Apples* the best was from C. Gurney, Esq., Henlow Grange, Biggleswade, Beds (gr. Mr. A. Carlisle), which included splendid examples of Peasgood's Nonesuch and Cox's Orange Pippin; 2nd, the Earl of Suffolk, Charlton Park, Malmesbury (gr. Mr. J. Finch). *Pears.*—Mr. Gurney also won this 1st prize; he showed such varieties as Cliff's Favourite and Doyenné Bussoch; 2nd, J. B. Fortescue, Esq., Dropmore, Bucks (gr. Mr. C. Page).

Essex, Suffolk, Norfolk, Cambridge, Hunts, and Rutland: *Apples.*—There were five exhibitors, and the best came from G. H. Mould, Esq., Papworth St. Everard, Cambridge, who showed Ribston and Allington Pippins in excellent condition; 2nd, Sir M. Turner, Bedfords, Romford, Essex (gr. Mr. A. Humphrey). *Pears.*—These were decidedly the finest in the show. The 1st prize was won by Lieut.-Colonel J. Petre, Westwick, Norwich (gr. Mr. G. Davidson), who had magnificent fruits of Souvenir du Congrès, Pitmaston Duchess, Marguerite Marillat, Triomphe de Vienne, etc; 2nd, Colonel Hon. C. Harbord, who was unfortunate in meeting such a superlative collection, for, apart from Lieut.-Col. Petre's, there were no others equal to his in the show.

Lincoln, Northampton, Warwick, Leicester, Notts, Derby, Staffs, Shropshire, and Cheshire: *Apples.*—From these nine counties there was only one exhibit, and that from F. Bibby, Esq., Shrewsbury (gr. Mr. J. Taylor), was awarded the 1st prize; the fruits of Bismarck and Wealthy were excellent. *Pears.*—Mr. Bibby, also won this 1st prize; 2nd, the Marquis of Northampton, Castle Ashby (gr. Mr. A. R. Searle).

Worcester, Hereford, Monmouth, Glamorgan, Carmarthen, and Pembroke: *Apples.*—The 1st prize collection from F. P. Norbury, Esq., The Norrest, Malvern, was splendid; 2nd, Mr. C. Crooks, Impney Hall Gardens, Droitwich. *Pears.*—Mr. C. Crooks was the only exhibitor and was awarded the 1st prize; his dishes of Clapp's Favourite and of Conference were exceptionally good.

The Other Counties of Wales.—Mr. T. Jones, Bryn, Penylan, Ruabon, was the only exhibitor in this class, and he deservedly received both 1st prizes; his Apples included splendid Worcester Pearmain and Bismarck, and the best of the Pears was Doyenné du Comice.

The Six Northern Counties of England and the Isle of Man.—Here also there was only one competitor, and the Earl of Londesborough, Market Weighton (gr. Mr. J. E. McPherson), was awarded the 1st prize for admirable collections, which included Souvenir du Congrès, Buerré Bachelier Pears, and Cox's Orange Pippin and Ecklinville Apples of excellent quality.

Scotland: *Apples.*—Mr. J. J. Staward, St. Fort Gardens, Newport, Fife, won the 1st prize with wonderfully fine Apples of such varieties as Duchess of Oldenburg, Lady Sudeley, and Worcester Pearmain; 2nd, C. L. Gordon, Esq., Threave House, Castle Douglas (gr. Mr. J. Duff). There were no Pears in this class.

Ireland: *Apples.*—The Irish fruits were of excellent quality and the Earl of Bessborough, Piltown, Kilkenny (gr. Mr. T. E. Tomalin), who won the 1st prize, had such as Lady Sudeley, Worcester Pearmain, and Tyler's Kernel in splendid condition; 2nd, P. C. Broad, Esq., Conna, County Cork. *Pears.*—J. Congreve, Esq., Mount Congreve, Waterford (gr. Mr. D. Smartt), was the only exhibitor, but fully deserved the 1st prize awarded to a collection which included fine fruits of such varieties as Conference and Doyenné Bussoch.

Affiliated Societies' Cup Competition.

The three competing societies arranged a very attractive display in the annexe. The competition required six dishes of dessert, six of cooking Apples, and six of dessert Pears; distinct varieties and six fruits in each dish. The conditions are that the Cup may be won only once in three years by any one Society, but the winner may compete for any other prizes offered in this class. The best collection was from the Ipswich and District Gardeners' and Amateurs' Association, and as this Society was debarred from holding the Challenge Cup, a Standard Cup was awarded to it. Many of the Apples were splendidly coloured, but had rather a shiny appearance. A 2nd prize of a Silver-gilt Banksian Medal was awarded to the Colchester and District Gardeners' Association, which also arranged a very attractive collection. The Affiliated Societies' Cup was awarded to the East Anglian Horticultural Club for a moderate contribution.

*** *Particulars of the Single Dish Classes are held over until next week.*

MARKETS.

COVENT GARDEN, October 1.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—Eds.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia (Mimosa) per bunch	1 0	—
Arums, per doz.	2 0-	3 0
Asters, white, per doz. bunches	1 3-	2 6
— coloured	1 6-	3 0
— single coloured, per dozen	1 6-	2 6
Camellias, per doz.	2 0-	2 6
Carnations, per dozen blooms, best American varieties	1 3-	1 6
— smaller, per doz. bunches	9 0-	12 0
— Carola (crimson), extra large	2 0-	2 6
— Malmaison, per doz. blooms:		
— — pink	6 0-	8 0
Chrysanthemum:		
— Almirante Bronze, per doz. blooms	1 0-	1 6
— Countess, per doz. blooms	1 6-	2 6
— Cranford Pink	1 3-	2 0
— Cranford Yellow, per doz. blooms	2 0-	2 6
— Débutante, per doz blooms	1 6-	2 6
— Delores, per doz. blooms	1 0-	1 6
— Mercedes, per doz. blooms	1 6-	2 6
— Mrs. Beech, per doz. blooms	0 9-	1 0
— Harvest Home, per doz. blooms	0 8-	0 10
— bunch, white and coloured	3 0-	5 0
Cornflower, blue, per dozen bunches	1 6-	1 9
Eucharis, per doz.	1 6-	2 0
Gardenias, per box of 15 and 18 blooms	1 6-	2 0
Gypsophila:		
— — (flore pleno)	6 0-	8 0
Lapageria alba, per doz. blooms	2 0-	2 6
Lilium auratum, per bunch	2 0-	2 6
— longiflorum, per doz., long	1 3-	1 6
— — short	1 0-	1 3
— lancifolium album, long	1 0-	1 6
— — short	1 3-	1 6
— rubrum, per doz., long	0 9-	1 0
— — short	0 9-	1 0
Lily-of-the-Valley, per dozen bunches:		
— extra special	15 0-	18 0
— special	12 0-	14 0
— ordinary	9 0-	10 0
Marguerite, yellow, per doz. bun.	1 3-	1 6
Michaelmas Daisies, in variety, per doz. bunches	4 0-	6 0
Mignonette, per doz. bunches	2 6-	3 0
Orchids, Cattleya, per doz.	15 0-	18 0
— Cattleya Harrisonii	6 0-	8 0
— Cypripedium	2 6-	3 0
— Odontoglossum crispum	3 0-	4 0
Pancratiums, per doz.	2 6-	3 0
Pelargoniums, per doz. bunches, white	3 0-	4 0
double scarlet	4 0-	6 0
Physalis, per doz. bunches	6 0-	8 0
Roses: Catherine Mermet	0 9-	1 3
— Frau Karl Druschki	0 9-	1 6
— Kaiserin Augusta Victoria	1 0-	2 0
— Lady Hillingdon	1 0-	1 3
— Liberty	1 0-	2 0
— Madame A. Chatenay	1 0-	2 0
— Maryland	0 9-	1 6
— Melody	1 0-	1 6
— Mrs. John Laing	1 0-	2 0
— Mrs. R. G. Sharman Crawford	1 3-	2 0
— Niphetos	0 9-	1 3
— Perles de Jardin	0 9-	1 3
— President Carnot	1 6-	2 0
— Prince de Bulgaria	1 6-	2 0
— Richmond	1 0-	2 0
— Sunburst	1 6-	2 6
— Sunrise	1 0-	1 3
Scabiosa, mauve, per doz. bnchs.	3 0	-4 0
Spiræa, per doz. bunches	6 0-	8 0
Statice, mauve, p. doz. bunches	2 6-	3 0
— white, per doz. bunches	2 0-	2 6
— yellow, per doz. bunches	2 0-	2 6
Stephanotis, per spray of 72	2 0-	2 6
Stock, double white, per doz. bunches	3 0-	4 0
Tuberoses, per gross	4 0-	5 0
Violets, English, per dozen bunches	1 0-	1 6
— Princess of Wales per doz. bunches	3 0-	4 0
White Heather, per doz. bunches	4 0-	5 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, per doz. bunches	4 0-	5 0
Agrostis (Fairy Grass, per doz. bunches	2 0-	4 0
Asparagus plumosus, long trails, per half-dozen	1 6-	2 0
— medium, doz. bunches	12 0-	18 0
— Sprengeri	6 0-	12 0
Carnation foliage, doz. bunches	—	
Croton foliage, vrs., doz. bunc.	12 0-	15 0
Cycas leaves, artificial, per doz.	3 0-	12 0
Eulalia japonica, per bunch	1 0-	1 6
Honesty, per doz. bunches	10 0-	12 0
Moss, gross bunches	6 0	—
Myrtle, doz. bnchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0-	1 3

Remarks.—Owing to several days of unusually fine weather a large amount of cut blooms has been placed on the market from all quarters. In most cases the prices are lower than last week, especially for Asters, Carnations, Chrysanthemums, Liliums, and Roses. Roses in boxes have been almost valueless, and the blooms have been sold to street traders for very small sums. Violets also withered in transit, and many bunches of these flowers were unfit for sale: during very hot weather the petals of Violets curl up. Carnations withstood the hot conditions better, and hard, well-grown blooms fetched high prices. Bunch Chrysanthemums are selling more freely, but their prices are lower. The blooms, except in the case of one or two varieties, are on the soft side, and the buyers are somewhat shy to purchase. Gladiolus Brenchleyensis, Gypsophila and Sweet Sultans are practically finished, and Asters are gradually decreasing in quantity. A change to colder weather, which may be expected shortly, will add many more of the inferior grades to the list.

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, dozen	6 0-	7 0
Araucaria excelsa, per dozen	18 0-	21 0
Asparagus plumosus nanus, per dozen	10 0-	12 0
— Sprengeri	6 0-	8 0
Aspidistra, per doz., green	21 0-	30 0
— variegated	30 0-	60 0
Asters, 48's per dozen	3 0-	4 0
Cacti, various, per tray of 15's	4 0	—
— various, per tray of 12's	5 0	—
Cocos Weddeliana, per dozen, 60's	6 0-	12 0
— larger, each	2 6-	10 6
Croton, per dozen	18 0-	30 0
Cyclamen, 48's, per dozen	12 0	—
Cyperus alternifolius, per doz.	5 0-	6 0
— laxus, per doz.	4 0-	5 0
Chrysanthemums:— 48's, per doz.	5 0-	10 0
Dracæna, green per dozen	10 0-	12 0
Erica gracilis, per dozen	10 0-	15 0
— nivalis, per doz.	12 0-	18 0
— small, in thumbs, per dozen	4 0-	6 0
Ferns, in thumbs, per 100	8 0-	12 0
Ferns, in small and large 60's	12 0-	20 0
— in 48's, per doz.	5 0-	6 0
— choicer sorts, per dozen	8 0-	12 0
— in 32's, per doz.	10 0-	18 0
Geonoma gracilis 60's per dozen	6 0-	8 0
— larger, each	2 6-	7 6
Kentia Belmoreana, per dozen	5 0-	8 0
— Fosteriana, 60's, per dozen	4 0-	8 0
— — larger, per dozen	18 0-	36 0
Kochia tricophylla, 48's	5 0-	6 0
— 32's	9 0-	10 0
Latania borbonica, per dozen	12 0-	30 0
Lilium lancifolium rubrum, per dz.	12 0-	18 0
— lancifolium album	15 0-	18 0
— longiflorum, per dozen	12 0-	18 0
Lily-of-the-Valley	18 0-	21 0
— 48's, per dozen	21 0-	30 0
Marguerites, in 48's per doz., white	5 0-	6 0
Pandanus Veitchii, per dozen	36 0-	48 0
Phœnix rupicola, each	2 6-	21 0
Solanums, 48's per dozen	10 0-	12 0
Spiræa japonica, per dozen pots	6 0-	8 0
— pink	10 0-	12 0

Remarks.—Trade remains practically unaltered, Ericas being still the leading line, and larger quantities of these plants are being placed on the market. Prices are lower for specimens in forty-eight pots, but small pots (Thumbs) remain firm, the supply being scarcely sufficient for the demand. There exists no special demand for Chrysanthemums, Cyclamen, Solanum, Bouvardias, or White and Pink Spiræas. The Fern and Palm trade shows no improvement.

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	2 0-	2 6
Asparagus, Paris green	4 0-	4 6
— Sprue	0 10-	1 0
Aubergines, dozen	2 6-	—
Beans, Guernsey, lb.	0 2-0	2½
— Scarlet Runners, per bushel	4 0-	5 0
Beetroot, per bushel	2 6	—
Cabbages, per tally	4 0-	6 0
Carrots, (English), bags	3 0-	4 0
Cauliflowers, per dozen	1 6-	2 0
Celeriac, French, per dozen	4 0-	4 6
Celery, per doz.	5 0-	8 0
Corn (Maize) per dozen	0 9-	1 6
Cucumbers, per flat	4 0-	5 6
Endive, French, per dozen	2 0-	2 6
Garlic, per strike	3 0-	4 0
Horseradish, 12 bundles	10 0-	12 0
Leeks, per dozen	2 6-	3 0
Lettuce, English, Cos, per score	0 6-	1 0
— English, round, per score	0 6-	0 9
Marrows, per tally	10 0-	14 0
Mint, per dozen bunches	2 6-	3 0
Mushrooms, cultivated, per lb.	10-	1 0
— Broilers	0 6-	0 8
— field, peck	1 6-	2 0
Mustard and Cress, per dozen punnets	1 0-	1 3
Onions, picklers, per ½ bushel	2 0-	2 6
— Dutch, bags	3 6-	4 0
— Spanish, cases	5 0-	6 0
Parsley, per dozen bunches	2 6-	3 0
Radishes (French), per dozen	1 6-	2 0
Sage, per dozen	2 0	—
Sprouts, ½ bushel	2 6-	3 0
Tomatos, English, per dozen lbs.	2 6-	3 0
— seconds, per dozen lbs.	0 9-	1 6
— Guernsey, per dozen lbs.	2 3-	2 6
— Dutch, doz. lbs.	2 0-	2 6
Thyme, per dozen bunches	2 0-	6 0
Turnips (English), per bag	4 0-	5 0
Watercress, per doz.	0 4-	0 6

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, English Dessert, ½ bushel	3 0-	5 0
— cooking, per bushel	3 0-	4 6
Bananas, bunch:		
— Doubles	8 6-	11 0
— No. 1	7 0-	8 0
— Extra	9 0-	10 0
— Giant	12 0-	14 0
— loose, per doz.	0 6-	1 6
— Red coloured, per dozen	1 0-	1 6
— Jamaica, p. ton	£18	
— Jamaica ordinary, per box (9 doz.)	6 0	—
Blackberries, per peck	1 6-	2 0
Cranberries, Cape Cod, per case	14 6	—
Figs, green	1 0-	3 0
— Italian box	0 9-	1 6
Grape Fruit, case: — 96's, — 80's, — 64's, — 54's	20 0-	22 0
Grapes, English Black Hamburgh, per lb.	0 4-	1 0
— Black Alicante	0 6-	1 0
— second quality, black	0 4-	0 6
— Canon Hall Muscat	1 6-	6 0

Fruit: Average Wholesale Prices (cont.)

	s. d.	s. d.
Grapes *continued*:—		
— Belgian, Black Alicante ..	0 8-	1 0
—Belgian Gros Colmar ..	0 10-	1 3
— Dutch, Alicante, per lb.	0 6-	0 7
— Dutch, Gros Colmar ..	1 0-	1 3
— Gros Colmar ..	0 10-	1 6
— Muscat of Alexandria ..	0 6-	4 0
Lemons, Messina, per case ..	20 0-	22 0
— Murcia, p. case	16 0-	18 6
— Naples, per case	18 0-	25 0
Limes, per case ..	4 6-	5 0
Melons, English, each	1 6-	3 0
— French Cantaloupe, each ..	2 6-	5 0
— Guernsey ..	1 6-	3 0
— Spanish case ..	13 0-	14 0
Nuts, Almonds, bag	52 6	—
— Barcelona, bag	35 6-	36 0
— Brazils, cwt. ..	90 0-	100 0
— Chestnuts, ½bgs.	8 6	—
— Cob, per lb. ..	0 10-	1 0
— Cocoanuts, 100	18 0-	23 0
— Spanish, sack ..	40 0-	42 6
Nuts *continued*:—		
— Walnuts, Continental per lb.	0 7-	0 9
— English, per lb.	0 9-	0 10
Oranges, Denia, per case	26 0-	45 0
— Jamaica ..	12 0-	14 0
— Murcia	16 0-	23 0
— Naples	14 0-	15 0
— Natal Navels	25 0-	28 0
— Naartyrs, p. box	3 0	—
Peaches, English, per dozen ..	6 0-	18 0
— Belgian	4 0-	15 0
Pears, William's, per ½ bushel ..	5 0-	7 6
— Californian, box	11 6-	12 0
— English, ½ bush.	3 0-	5 0
— America barre	26 0-	28
Pineapples, St. Michael ..	3 0-	6 0
Plums, Californian, per case ..	8 6-	10 0
— German, Zwetschen, per ½ sieve	3 0-	4 0
— Damsons, per ½ bushel	8 0-	10 0
Pomegranates, per case	3 6-	4 6
Sloes, per peck ..	2 0-	2 6

Remarks.—There is a good supply of English culinary Apples, chiefly of the varieties Warner's King, Lord Derby, Lane's Prince Albert, and Allington Pippin. Dessert varieties also are plentiful, Cox's Orange Pippin and Chas. Ross being most in demand. Californian Apples are a full supply, and there are also Apples in barrels from Nova Scotia, these being the first consignment for the season. English dessert Pears are scarce, and good samples are in demand. Californian Pears are selling freely. Supplies of English Plums are finished, and those of Damsons are shortening. English and Continental Black Grapes are in excess of the demand. Best samples of Canon Hall Muscats are scarce. Blackberries are a heavy supply. Peaches (English) are practically finished for the season, but large numbers are arriving from Wenatchee. Trade in Melons (English and Continental), is good. Cobnuts are a moderate supply, and English Walnuts are scarce. Italian Chestnuts are to hand this week. Tomatos are a full supply. Asparagus, both Paris Green and Sprue, is now obtainable. The vegetable trade is quiet, with only medium supplies.—*Edgar H. Rides, Covent Garden, October 2, 1913.*

Potatos.

	s. d.	s. d.
Bedford, per cwt.	3 6-	3 9
Blacklands	3 0-	3 3
British Queen ..	3 6-	4 0
Evergood	3 0-	3 3
Kent, per cwt. ..	3 9-	4 0
King Edward ..	3 3-	3 9
Up-to-date	3 6-	4 0

Remarks.—Trade is exceedingly slow: consignments are about the same in amount as last week. Prices remain constant.—*Edward J. Newborn, Covent Garden and St. Pancras, October 2, 1913.*

Answers to Correspondents.

Beech Diseased: *W. L. G.* The Beech Coccus is often confined to the trunk and main branches of the tree, when it can be eradicated by scrubbing the bark with a strong insecticide. In other cases scrubbing may not be practicable, and you must then resort to spraying. The following treatment is recommended by the Board of Agriculture:—(1) The trees should be sprayed, when in the dormant condition, with the following emulsion-soda wash, as used at the Woburn Fruit Farm: Paraffin, 2 gallons; soft soap, 1½ lb.; caustic soda (98 per cent.), 6 lb.; water, 28 gallons. In order to prepare the wash the soft soap should be dissolved in a gallon of boiling water; the paraffin should then be added, and the mixture churned thoroughly until a cream-like mass results. The thoroughness of the churning is important. The 6 lbs. of caustic soda should next be dissolved in the remaining 27 gallons of water, and then poured into the paraffin emulsion. The whole should be well mixed and used immediately. Experimental work at Woburn, however, indicates that there are advantages in using a wash composed of: Sulphate of iron, ½ lb.: lime, ½lb.; paraffin (solar distillate), 5 pints; caustic soda (98 per cent.), 2 lb.; and water to make 10 gallons. This may be prepared for use by proceeding as follows: (*a*) Dissolve the sulphate of iron in about nine gallons of water: (*b*) shake the lime in a little water, and then add a little more water to make into a "milk"; (*c*) run (*b*) into (*a*) through a piece of coarse sacking to remove grit; (*d*) pour the paraffin into the mixture (*c*) and churn the whole thoroughly: (*e*) add the caustic soda in powdered form just before using, and stir thoroughly. In using either of these mixtures the face and hands must be protected, as the mixtures are caustic in character. One advantage of the caustic soda is that it helps to clear the tree of such growths as lichens and algæ.

Cyclamen: *S. G. N.* The root is infested with eelworm. The soil should be sterilised by heating, and diseased plants should be burned.

Employment in U.S.A.: *H. W.* The American law forbids engagements for gardeners or other employees to be made with persons who are not actually in the States at the time of contract. It would therefore be of no use for you to advertise, even in the American papers. The only thing you can do is to emigrate there and take your chance of obtaining a situation. We understand that there is usually no trouble for a competent gardener to secure employment in the United States (see *Gard. Chron.*, July 14, 1913, page 408).

Grapes: *C. R.* Please send some berries for examination.

Insects: *Sussex.* The insects are Millepedes, which live in decaying vegetable matter and in ground or manure containing a large proportion of such matter. They are very destructive to vegetables, and especially root crops. In plant-houses the insects may be trapped by placing pieces of mangold in their haunts.—*J. E. H.* The name of the beetle is Ocypus olens, known commonly as the Devil's Coachhorse. It does no harm in the garden, but, on the contrary, from its inveterate insect-eating habits is beneficial.

Insects on Palms: *A. G.* The insects attacking the Palm roots are known as the Root-feeding Mealy-Bug (Ripersia terrestris). Growing plants that are attacked with this insect should be removed from the pots, and the exposed roots and soil sprayed with carbon bisulphide, using a glass spraying apparatus. It will be best to scald the pot and have it in readiness for replacing the plant immediately after spraying. It will be found that this treatment will not kill the eggs, so the process must be repeated. Shade the plants from sunshine for a week after treatment.

Melon Plants: *Mid-Sussex.* Melon canker (Mycosphærella citrullina) has attacked your Melons. Remove and burn all the diseased plants, and spray the others with the Bordeaux mixture.

Mildew on Roses, etc.: *J. E. H.* Dust the leaves with flowers of sulphur, or spray them with potassium sulphide—half an ounce to one gallon of water.

Montbretia Diseased: *Co. Meath.* The corms are injured by the fungus Fusarium bulbigenum. The soil where diseased plants have grown will be infected also, and should be treated with quicklime.

Names of Fruits: *G. W.* 19, Hawthornden; 20 and 34, Mère de Ménage; 21, Potts's Seedling; 22, Blenheim Pippin; 23, Dutch Codlin; 24, Bedfordshire Foundling; 25, Ross' Nonpareil; 27, Annie Elizabeth; 28, Grenadier; 29, Chelmsford Wonder; 30; Not recognised; 31, Lane's Prince Albert; 32, Forfar; 33, King of the Pippins; 36, Not recognised. *U. N. C.* 1, Lady Sudeley; 2, Potts's Seedling; 3, Blenheim Pippin; 4, Cullen; 5, Warner's King; 6, Peasgood's Nonesuch; 7, Kerry Pippin; 8, Winter Hawthornden.—*E. F. T.* 1, Scarlet Leadington; 2, Vineuse; 3, Round Winter Nonesuch.—*A. E. B.* Worcester Pearmain, Cellini.—*Ivybank.* Red Astrachan.—*Surrenden.* Woodcock.

Names of Plants: *F. A. L.* Browallia viscosa. —*A. J. A., Chardwar.* Caryopteris Mastacanthus. — *X. Y. Z.* Apparently a form of Clematis Jackmanii. — *A. P.* Cratægus Crus-galli (Cockspur Thorn). — *F. W. N.* 1, Cupressus Lawsoniana; 2, Retinospora pisifera; 3, Cupressus sempervirens; 4, Retinispora plumosa; 5, Polygonum affine (P. Brunonis); 6, Caryopteris mastacanthus; 7, Beyond recognition; 8, Hieraceum aurantiacum; 9, Eleagnus glabra variegatum; 10, Spiræa (Sorbaria) Lindleyana; 11, Pilea muscosa; 12, Specimen withered; 13, Abutilon megapotamicum (vexillarum) variegatum.—*E. N.* 2, Cratægus coccinea; 3, Cupressus Lawsoniana intertexta; 4, Cotoneaster affinis; 5, Juniperus virginiana; 6, Cupressus Lawsoniana glauca.—*C. H. T.* 1, Funkia japonica variegata; 2, Santolina incana; 3, Choisya ternata; 4, Weigela hortensis; 5, Retinospora pisifera aurea; 6, Ceanothus dentatus; Fern diseases next week.—*E. J.* Veronica Andersonii, garden-raised form.—*R. L. F.* Veronica lycopodioides.—*H. T.* 1, Oncidium pubes; 2, Oncidium prætextum; 3, Brassia caudata.—*W. A. T.* 1, Campanula Trachelium; 2, Fuchsia fulgens; 3, Fuchsia corymbiflora; 4, Nephrolepis rufescens; 5, Adiantum cuneatum variety; 6, Pteris semipinnata; 7, Dicksonia punctilobula.—*X. Y. Z.* Polygonum sachalinense.—*J. Comber.* Hoheria populnea. —*A. C. H.* Polygonum cuspidatum; 2, Antigonon leptopus; 3, Leonotis Leonurus.—*D. and W. Croll.* Begonia Lloydii, of the tuberous race with pendulous habit.—*J. W. G.* Salvia bicolor.

Peach Princess of Wales: *J. J. B.* The Peaches are injured by Gloeosporium læticolor. Spray them twice during the winter at intervals of a month with the Bordeaux mixture.

Pears for a South Wall: *Oxford.* The varieties Doyenné du Comice, Beurré Hardy, and Durondeau will be suitable for your purpose. There are many other varieties that ripen in October and November, but these three will be the best under the conditions you describe.

Roses on a South Wall: *Dublin.* In planting Roses against a south wall, as you propose to do, it is a very good plan to place some of the varieties usually termed of dwarf habit in between the true climbers, but it is well to select Roses of fairly vigorous growth for the purpose. In your climate several of the more vigorous Teas should do well in this position. In the space you mention (50 feet run of wall space) probably eight climbing varieties would be rather too many, and six or seven at most would perhaps be better. The six you mention—Maréchal Niel, Lamarque, L'Ideal, Billard et Barré, François Crousse, and Mme. Hector Leuillot—are probably good Roses for climbers in your district. Others worth consideration are Climbing Lady Ashtown, Climbing Mrs. W. J. Grant, H.T.'s, and Papillon T. The kind of Teas to plant in between these would be such sorts as Mme. Antoine Mari, Marie van Houtte, Comtesse Festetics Hamilton, Corallina, Paula, Lady Roberts, Mrs. Foley Hobbs, and Mme. Lambard—all of which are good, free-growing varieties. Comtesse de Nadaillac and Mme. de Watteville are of little garden value, though they make beautiful flowers for exhibition for those who can grow them for this purpose. There is a climbing form of Mme. de Watteville which might be worth your consideration, but it does not succeed in all parts after the first year or two. If you plant your climbers 6 or 7 feet apart, you will be able to put a couple of the dwarfs in between each at 4 or 5 feet; only one would be used between each climber. It will be well if you adopt this plan to let your dwarfs grow rather freely, with comparatively little pruning after the first year, taking care, however, to remove as much old wood as possible every year, so as to encourage the plants continually to put up fresh growth.

Communications Received.—F. A. A.—F. W. T. —E. S.—H. W.—W. B.—A. C. H.—J. R. W.—Dr. R.—F. S.—R. W.—E. C. N., Stowmarket—E. E.—Lucan—T. J.—J. H. J.—C. E. F.—F. S. G.—T. J. R.—C. H. S.—D. W.—H. R.—T H. C.—Miss B. B.—Gardener, Herts—Pry—T. W. B.—A. H.—J. R. J.—J. C. J.—T S. W., Ltd.—R. T. and Co.—R. T.—H S. T.—D. and L., Watermael.

ABUTILON INSIGNE (Nat. Order Malvaceæ)

A WINTER-FLOWERING GREENHOUSE PLANT FROM COLOMBIA.

THE
Gardeners' Chronicle
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ILLUSTRATIONS.

THE MARKET FRUIT GARDEN.

SEPTEMBER, until near its end, was a tantalising month for fruit-growers who were striving to get their plantations clean for the winter. At my own place rain fell on thirteen out of the first twenty-two days, although on three the quantity was too small to be measurable. The total for the month was just two inches. After the twenty-third we had glorious weather, the sun having shone from its rising to its setting on each of the seven days. Horse and hand hoeing were then thoroughly effective. It was time that they should be, as the work was being done for the third time this season in some cases and for the fourth time in others.

What tiresome work this hoeing is! It has to be carried on from the beginning of the spring until the end of October, whenever the weather does not stop it for a time, and it costs much more than any other description of work in fruit plantations. However, the employer has reason to be thankful that he can get men to pursue the monotonous work day after day; for hoeing in a fruit plantation is about as uninteresting work as any done on the land, though perhaps digging is a little more laborious. There is some art in hoeing in a crop of roots or Potatos; but in an orchard it is nothing but scrape, scrape, scrape, or, when the ground is hard, chop, chop, chop! Fortunately, even in the most monotonous manual work the time seems to pass quickly.

Value of Digging.

Any weeds which spring up after the present time may be left to be turned in by digging where that operation is still practised. It appears that digging is less extensively carried on in fruit plantations than it used to be, and that some growers, indeed, have given it up. A high authority on fruit growing who paid me a visit recently surprised me by saying that he did not approve of digging in orchards. Something diverted attention from the subject for a minute or two, and I forgot to ask his reason for the opinion expressed. Perhaps he referred to digging with a spade, which would cut rootlets. But what fruit-growers mean by digging is the shallow turning over of the land with a fork, a Hop-spud being commonly used for the work at least, in the Hop-growing counties. Presumably almost every grower would have this work done when a good dressing of farmyard manure has been spread over an orchard. Apart from this point, however, there are at least two good reasons for digging. In the first place, the land is drier for the winter after digging than if left in a loose state after hoeing: and, secondly, digging turns on to the surface great numbers of the pupæ of various pests of fruit trees which hibernate in the soil, so that they are devoured more or less by birds. The efficiency of the operation in this connection depends upon two considerations, as to which I must confess that I am uncertain. First, there is the question as to the respective depths at which the various pupæ bury themselves; and, second, there is the further question as to whether those that are turned on to the surface in digging are able to wriggle themselves into the soil again out of the reach of poultry or wild birds. I have written "at least two good reasons"; but it may be assumed that there is a third equally important argument in favour of digging fruit plantations—namely, that the land is exposed by the operation to the beneficial action of frost.

A Second Crop of Plums.

One of the curious features of the present season is the production of a second crop of Plums on varieties which bore hardly any first crop. This appears to be general all over the country, though more extensive in some districts than in others. In my case, the second cropping has occurred to an extent worth notice only with Victoria and Monarch, although a few fruits have been gathered from Pond's Seedling. It is said that this second fruiting is a bad augury for next year's crop; but it seems to me that the Plums have been too few to have caused any strain upon the vigour of the trees, particularly upon those which had hardly any crop at the proper time. The fruits did not attain their proper size, and when not picked off they dropped off the trees before they were ripe.

The Cleanest Apple.

Among the varieties of Apples grown by me there is not one to compare with Lane's Prince Albert for freedom from scab or any other blemish. Even the very small fruits, of which there are many this season on the heavily laden trees, are nearly all perfect in shape and texture of skin. The variety is a feeble grower and may be planted more thickly than most other varieties. When thus planted there are few if any which excel it in yield, while almost every fruit that it bears is marketable. The fruit is sweet enough to eat raw, and the small Apples are mostly sold in pennyworths when they get into the hands of retail fruiterers.

"Glassiness" in Apples.

"Glassiness" is the name given to the translucent condition of the substance of large patches to be seen on a good many Apples of some varieties this year. It shows externally, and when the affected portion of the fruit is cut the flesh is seen to be yellowish and translucent instead of white and opaque. The defect is not a fungous disease, but is physiological, like bitter pit, caused by some unknown influence which ruptures the cells of the Apple. With me both imperfections have been most common on Charles Ross, a variety strikingly free from blemishes in previous seasons, but this year badly affected with bitter pit and fruit rot (or bitter rot), as well as with "glassiness." All three are occasionally or abundantly in evidence on several other varieties. Fruit rot (Gloeosporium fructigenum) is a fungous disease. It resembles bitter pit in appearance, but shows in patches instead of spots.

Brown Rot in Apples.

Although this disease (Sclerotinia fructigena—formerly known under its conidial name, Monilia fructigena) showed on the shoots of several varieties of Apples more or less in the spring, as well as very extensively on Plums. The only Apple showing any considerable quantity on the fruit in my orchards is Allington Pippin. Even this variety shows it in only one out of four orchards in which it is grown. In that one, however, a considerable number of the Apples hanging on the trees at the time of writing are entirely rotten as the result of the attack. The affected trees, planted seven years ago, were pictures of health before the present season; but just after showing a great amount of fine blossom they were struck suddenly with scab and brown rot in the shoots and foliage. Bad defoliation and dropping of blossom followed, leaving only about half a crop of fruit, much of which is disfigured by scab or killed by brown rot. The unhealthiness may be attributed to the extreme wetness of last autumn, winter, and part of the spring. The field is drained, but apparently not sufficiently where the Allingtons are growing.

Variations in the Health of Trees.

When a set of fruit trees is unhealthy in a particular season there is no need to despair of the future, for it often happens that a variety which presents a distressing appearance in one year is found to be quite healthy in the next season. On more than one occasion I have planted fresh trees between some which seemed to be "going to the bad," with the intention of grubbing-up the old ones when the new ones were well furnished with branches and had begun to fruit, only to find such a recovery in the affected trees that they were allowed to stand instead of the intended substitutes. This recovery has sometimes followed the application of

a liberal dressing of farmyard manure, but not always.

Psylla Mali.

There is a prospect of a bad attack of Apple sucker next season, as the Psylla in the latter part of September and the beginning of the present month was to be found in swarms in Apple orchards. According to some mentors I should spray the trees in order to kill the pest on them or on the wing; but I am not disposed to give up hoeing for a fortnight in order to spray all my Apple orchards on the chance of killing one in a hundred of the pests at a great expense. The trees are to be sprayed next spring, just before the buds begin to burst, with hot limewash, and this may coat over the eggs of the Psylla and prevent most of them from hatching. Failing that measure of success trust must be placed in spraying when the attack of the sucker has begun, which is usually successful enough to prevent any serious damage. So far as my experience is a guide, the injury done by the Apple sucker is exaggerated, provided that the spraying is done when the blossom buds are sufficiently separated to allow of the spray stuff getting well between them. The aphis has injured my trees ten times as much as the sucker.

Apples Increased in Size.

Last month the fear was expressed that the break-up of the summer drought was too late to promote the growth of even late Apples to their full size. The results of the heavy rainfall that followed, however, are agreeably disappointing. Lane's Prince Albert, Bramley's Seedling, Newton Wonder, Chelmsford Wonder, Dumelow's Seedling (Wellington), Cox's Orange Pippin and Allington Pippin—the last only in the healthy pieces of the variety—have grown surprisingly, and some of them are larger than usual. *A Southern Grower.*

NEW OR NOTEWORTHY PLANTS.

GYMNOSPORIA POPULIFOLIA, THE SILKBARK.

Twenty-one years ago the eminent plant-anatomist, Radlkofer, indicated the presence of laticiferous vessels in the Brazilian genus, Wimmeria, of the Natural Order Celastraceæ (Spindle Tree family).

The discovery incited Radlkofer's pupil, August Metz, to institute a critical anatomical investigation of the Order with a view to ascertaining the histological characteristics of its members, particularly with reference to the distribution of the caoutchouc-containing vessels or cells. The results of his researches are published in the *Botanisches Centralblatt* (xv, 1903, pp. 309-386). The paper records the presence of latex in 13 genera besides Wimmeria, viz., Plenckia, Mystroxylon (M. eucleæforme), Elæodendron (E. australe and E. capensis), Hartogia, Pleurostylia, Lauridia, Gymginda, Fraunhofera, Schæfferia, Euonymus (E. alata), Lophopetalum, Polycardia, and Zinowiewia.

Fig. 90.—Leaves of African, rubber-containing Gymnosporias.

1, Rent leaf of G. populifolia (upper surface), showing caoutchouc strands (A); 2, Same, intact (lower surface); 3, G. populifolia var. lepidota; 4, G. bukobina; 5, G. amaniensis.

Respecting the genus Gymnosporia, Metz based his investigations and remarks upon two species: one Indian and the other South African—G. rufa, Wall, and G. laurina, Szysz. He was unfortunate in his choice, as these failed to exhibit the presence of any caoutchouc-containing vessels, and it was only five years later that their presence was demonstrated by Loesener in G. amaniensis, G. bukobina, and G. populifolia and its variety lepidota (*On the Presence of Caoutchouc in Certain East African Gymnosporias. Engler's Notizblatt d. Kön.*, Bot. Gart., Berlin, No. 42, 1908).

It appears strange that the latter species, Gymnosporia populifolia, should have obtained in South Africa the popular English and Dutch names of "Silkbark," "Zybast" or "Zeydebast" respectively (in reference to the silk-like strands which are easily observed on rending a twig, leaf or the bark, cf. fig. 90, 1) for many years, and yet that the caoutchouc nature of these strands was not recognised. Indeed, so abundant is the rubber in the twigs and leaves of the plant that in dried specimens 100 years old these strands may be seen without the aid of a lens.

The Silkbark is a widely-diffused tree or bush, and extends from the south-western extremity of Africa (Cape Peninsula) along the coastal districts of Cape Colony, eastwards and northwards through Natal, Portuguese East Africa, right up to German East Africa, where it is replaced by the variety lepidota, a taller-growing plant. The species abounds in the Knysna forests of Cape Colony, and MacNaughton computes that it represents 2½ per cent. of the forest of that area. The elephants are partial to its foliage, and pull down large numbers of the trees, especially in the region of the swamps. Further north and east it frequents the Cathcart district, and attains to elevations of 6,000 feet above sea level on the Drakensbergen; thence it diffuses inland into the Transvaal, where it is poorly represented, the Kaffirs knowing it by the name of "um-Nama." Galpin has latterly recorded its occurrence on Pigg's Peak in Swaziland at 4,000 feet elevation.

In the Cape Peninsula Gymnosporia acuminata frequents the wooded kloofs and rocky krantzes of the hills and mountains in the vicinity of Cape Town, above Camp's Bay, in Orange Kloof (with its grand arborescent vegetation) on the eastern slopes of Table Mountain, and Devil's Peak, up to elevations of 1,500 feet, flowering sporadically from June to October. It occasionally forms a constituent of the littoral dune-formation, when it is invariably dwarfed and bushy, but in the forestal regions alluded to it attains a height of 50 feet, and probably more under very propitious circumstances.

As some confusion has hitherto existed with respect to the eynonymy of the species, and a description of the plant is likely to be of service to those interested in rubber, the following diagnoses are appended.

Gymnosporia populifolia,* Dümmer. — A small, unarmed, much-branched, evergreen, glabrous tree, 10 to 50 feet high, occasionally shrubby in arid situations. Trunk ½ to 1½ foot in diameter, covered with a thin smooth or fissured bark, ashy-grey or brownish without, red within. Third year's branchlets more or less terete, stout, longitudinally striate, dull, dirty brown; current year's twigs invariably short, rarely long and flexile, triangular, acutely though shallowly longitudinally ridged, greenish; internodes ¼ to 1 inch long. Leaves alternate, simple, exstipulate, ascending or subsequently spreading, borne on yellowish petioles $\frac{1}{12}$ to ¼ inch long, slightly grooved or flattened above, convex below; leaf-blade more or less narrowly rhombic, widest below the middle, acutely acuminate or cuspidate acuminate, abruptly wedge-shaped and entire below, 1 to 2 inches long, ½ to 1⅙ inch broad, subcoriaceous and entirely glabrous, dark shining green and smooth above, the midrib raised on both surfaces, though broader on the much paler and duller conspicuously reticulated undersurface; margin faintly wavy, its lower wedge-shaped portion invariably entire, its upper shallowly toothed, the teeth long (at times almost obsolete), ascending or incurved and blunt. Flowers small, perfect and regular, about ⅛ inch across solitary or in clusters of twos-fours in the axils of the upper leaves and much shorter than them (occasionally in many-flowered cymes), the subsequently recurved pedicels $\frac{1}{12}$ to ⅛ inch long, subtended by minute imbricate subbasilar bracts. Calyx four-five-fid,

* G. populifolia, Dümmer, comb. nov. G. acuminata Szyszlowicz, *Enum. Pl. Rhem. ii.*, 33, 1888, not G. acuminata Hooker f, which antedates and therefore invalidates it.

† Gymnosporia acuminata, Sim, *Forest Fl. Cape Col.* 184, t. 40, f, iii (1908); Loesener in *Notizbl. Kon.*, Bot. Gart. Berlin, Mr. 42, t. 4, ff. p-q (1908).

Celastrus acuminatus, *Linnaeus Suppl*, 154 (1781), not of Rafinesque or Wallich, *Thunberg Fl. Cap.*, 218 (1823); Pappe, *Sylva Cap.*, 8 (1854); Sonder in *Harv.-Sond. Fl. Cap. i*, 454 (1860); Fourcade, *Report Natal Forests*, 100 (1889); Wood, *Natal Plants, iii*, 19, t. 267 (1902).

Celastrus populifolius, *Lamarck Tabl Encyc., ii*, 94 (1793).

Celastrus ? Plectronia, *De Candolle Prod., ii*, 9 (1825).

Celastrus rupestris and C. mucronatus, *Ecklon and Zeyh. Enum. Pl. Aust. Afr.* 119 (1835).

Ilex livida var. b., E. Meyer in Drège *Zwei Pfl. Doc.*, 194 (1843).

Catha acuminata and C. rupestris, *Presl. Bol. Bemerk.* 33 (1844).

its lobes broadly triangular or ovate, obtuse or rounded. Petals equalling the calyx-lobes in number, but much longer than them, spreading, elliptic or suborbicular, pinkish. Stamens four-five, very short, with subglobose two-celled anthers. Ovary two-three-celled, with a thickly conic sessile obsoletely-lobed stigma. Capsule flattish, obcordate or obreniform, two-three-lobed (by abortion one-lobed), ½ inch across, dehiscing loculicidally and exposing the narrowly ellipsoid, brownish-black seeds, one in each cell, enclosed by a membranous, brownish aril.

The Tropical African VAR. LEPIDOTA, Dümmer. —G. acuminata var. lepidota (Loesener in Engler's *Bot. Jahrb.*, xli., 1907 08, f 2, P.Q., 307; *Notizbl. Kön.*, Bot. Gart., Berlin, No. 42, 66, t. iv, ff, P.Q.; G. lepidota, Loesener in Engler's *Bot. Jahrb.*, xvii., 1893, 549), was discovered by Stuhlmann in the forest region of Ru Nsoro at 9,500 feet elevation in the Central African Lake Districts, as also on Kilimanscharo and its vicinity, and differs primarily in the larger size and the relatively longer leaves, which are glaucescent and eventually lepidote above. The natives in the Uluguru Mountains apply the term "mbamala" to it. Loesener not only detected the rubber in the bark twigs and principal nerves of the leaves of this variety, but also in the inflorescence, the calyx, and even the walls of the capsule.

The other two rubber-bearing species obtaining in this region are G. amaniensis and G. bukobina, of which a brief description, translated from the original, is given.

G. AMANIENSIS, Loesener in Engler's *Bot. Jahrb.*, xli. 305, f.2, O. (1908).—An unarmed glabrous, slender tree, simulating a Eucalypt in habit, 40 to 100 feet high; young twigs slender, erect, terete, eventually covered with a brownish finely-chequered bark. Leaves borne on petioles ⅛-¼ inch long, ovate-lanceolate or sublanceolate, gradually narrowing to a subacuminate apex, acute or finely mucronate, wedge-shaped below, 2 to 3½ inches long, ⅛ to ¾ inch broad, papery or thinly leathery in texture, dark glossy-green above, paler and dull below, the midrib most conspicuous on the upper surface, the reticulations more prominent below; margin crenulate-serrulate. Inflorescences solitary in the axils of the leaves, dichotomously branched. Flowers unknown in a fully-developed state.* This species, exhibiting the same peculiarities with respect to the distribution of the rubber as G. populifolia var. lepidota, was discovered by Warnecke at Amani, 2,800 feet above sea level, in German East Africa. Its size should certainly favour its trial.

G. BUKOBINA, Loesener, l.c. f.2, A.-N.—According to Conrads, a spineless glabrous climber. Twigs slender, angular towards their extremities, eventually terete, and covered with a dark-greyish brown, finely fissured bark. Leaves shortly petiolate (petiole ⅛ to ¼ inch long), ovate-elliptic, gradually and narrowly acuminate, tipped by a hair-like mucro, rounded at the base, 2½ to 5½ inches long, 1 to nearly 2 inches broad, membranous or papery in texture, dark glossy green above, paler below, the midrib flat or slightly grooved above, more prominent and broadened below, the lateral nerves arcuate and their ramifications most conspicuous on the under surface; margin crenate or crenulate subserrulate. Inflorescence slender, solitary in the axils of the leaves, invariably much shorter than the leaves, and very rarely exceeding them, umbelliform, few-flowered, the pedicels thread-like, ½ to ¾ inch long. Flowers reddish, about ¼ inch in diameter. Sepals rounded. Petals spreading, suborbicular, ⅛ inch long and twice as long as the sepals. Stamens exceedingly short, inserted outside the annular crenulate disc, the anthers cordate-reniform. Ovary and stigma as in G. acuminata. Capsule by abortion two-lobed or one-lobed, the lobes about ¼ inch long.†

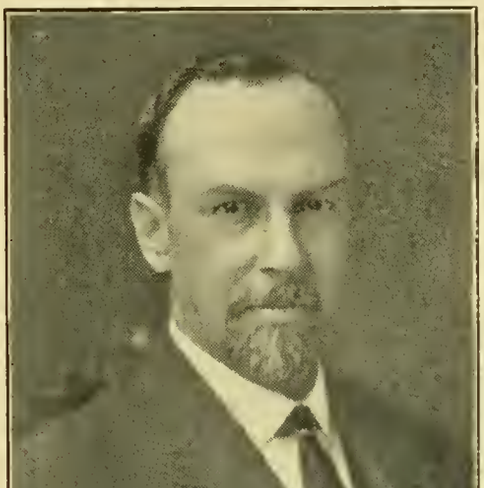
G. bukobina was discovered by Conrads in 1903 in the primeval forests of Kazinga, Bukoba, at the Mission Station, Marienberg, at 4,000 feet elevation, in the Central African Lake Districts, and, like the preceding species, contains the rubber-like tenacious matter in its bark, leaves, inflorescences and flowers.

Our knowledge respecting the commercial value of the caoutchouc, which is so abundant in these species, and which retains its flexibility in dried leaves 100 years old, is practically nil, nor have any experiments been instituted, so far as the writer is aware, to test the rubber with a view to its commercial exploitation. Allied rubber-containing species doubtless occur in British East Africa as well, and as considerable activity has recently been manifested in the forestry of that territory, there should be no insuperable difficulties in instituting experiments in this direction. It may, however, be that the density of the caoutchouc may seriously militate against its successful exploitation, but in the absence of definite experimentation this remains speculative. *R. Dümmer.*

HORTICULTURE IN AMERICA.

INTERVIEW WITH MR. W. ATLEE BURPEE.

THE subject of American horticulture is always one of great interest to English readers, and



MR. W. ATLEE BURPEE.

the rapid progress it has made recently has been noted on this side of the Atlantic with appreciation. This progress is due in great measure to the skill and efforts of a few leading men, among whom may be numbered Mr. Atlee Burpee, whose fame has spread far beyond the confines of his own country. During his recent visit to Britain Mr. Burpee was kind enough to express his opinions on various subjects to our representative. He said that one great difference he had noticed between gardening here and in the United States was that in Britain almost every cottager possessed a garden, in which he took a keen interest, which, until quite recently, could scarcely be said of the same class in America. "But during the last ten years," added Mr. Burpee, "the service of cheap, rapid trains and trams has been developed in all our cities, and the people can more easily get out into the suburbs. In Philadelphia, for instance, people of means do not now live in the city, except during the winter months, when many of them occupy apartments. They have elegant suburban residences, and travel daily to and from business. The result is that many of the fine city residences are to let, while block after block of the largest houses are converted into business premises. The better class of working people are following the example of the well-to-do as fast as they can, and there is a general turning towards rural pursuits, including gardening."

In answer to a question regarding Flower Shows, Mr. Burpee said that horticultural exhibitions were held in most cities and large towns, but they were not so general as they were here. Nevertheless, a good deal of enthusiasm is shown for flowers in the States, and they are more commonly used for decorations, especially in the winter, than here. In spring Dutch bulbs are largely grown, and also Lily-of-the-Valley. In summer Pæonies, Gladioli, Cosmos, and Dahlias are the favourite cut flowers, and in autumn, winter, and early spring Carnations, Roses, Gardenias, and Sweet Peas are grown under glass in enormous quantities. Roses grown out of doors (especially Hybrid Perpetuals) do not bloom for long, but Hybrid Teas and Ramblers are becoming more and more popular each year. America produces, under glass, the most extraordinary Roses. There, as here, a revolution in varieties has taken place during the last twenty years. Formerly the favourite pink Roses were Madame Cusin, Catherine Mermet, and Bridesmaid, but now more Killarneys are grown than all other pink varieties put together. A long-felt want has been a variety of the Killarney type with the colour of American Beauty. This variety has at last been produced, and is to be introduced next season simultaneously in England and America, under the name of Killarney Brilliant. It is curious to note that, contrary to what might have been expected, the Rose is *not* a seedling from Killarney.

Mr. Burpee remarked that many of the main differences between horticulture here and in America are caused by differences of climate, while custom also accounts for some. The seasons in America are much quicker. Of Peas, for instance, weekly sowings are made in all large establishments, on account of the crops being over so soon. In the case of Beetroots—a favourite garden vegetable in America—sowings are made every two or three weeks, the roots being pulled when little over an inch in diameter. All salad vegetables have to be treated in the same way. "Your English Tomatos," continued Mr. Burpee, "are too small and seedy. In America large fruits are demanded, almost seedless, and with solid flesh, to cut up in thick slices." Some idea of the quantities grown and handled may be gathered from the fact that the canning factories contract with farmers to take the fruit at 25s. a ton, and it is a profitable crop for the farmer, even at that figure. On the whole, the three most popular vegetables are Sweet Corn, Lima Beans, and Egg-plant Fruits. These latter are almost unknown in England; sliced and fried, they are delicious. "Here, again," added Mr. Burpee, "the question is largely one of climate. On your side I can give you an example the other way. Your early Cabbages and green Gooseberries appeal to me strongly, but we cannot get them in America. The flavour of your early green Cabbages is superb."

There is now in the States a larger and growing demand for the finer strains of flower and vegetable seeds. The market gardeners' seed is selected for prolific, sure-cropping qualities, whereas the private grower, who is prepared to take more pains with his crops, is beginning to demand a higher grade and finer quality in his produce. The large seed-houses encourage this demand, and are doing all they can to induce private people to grow their own vegetables. This is all the easier, on account of the marked superiority of home-grown vegetables over those supplied by the market gardener, which often have to travel long distances before they reach the consumer.

* *Notizblatt Kön.*, Bot. Gart., Berlin-Dahlem. No. 42, 66, t. iv, 05 (1908).

† *Notizb. Kön.*, Bot. Gart., Berlin-Dahlem. No. 42 66, t. iv, A-N (1908).

American growers and seedsmen are all inclined to specialise in one particular line. Mr. Burpee remarked that his own and many other large firms handle annually from fifteen to thirty tons of Onion seed, and it is not uncommon to sell annually about two tons of seed of one variety of Melon, or from 500 to 1,000 lbs. of a popular strain of Tomato. Sweet Corn, of which there are at least twenty varieties, is reckoned by the bushel, and a single house will sell from 400 to 1,000 bushels a year of a popular variety. Much more seed of Garden Beets is sold in America than in England; but, on the other hand, much less is handled of Mangels or Swedes.

"Potatos," said Mr. Burpee, "are chiefly sold by houses which specialise in them. Our varieties don't seem to be much good with you, nor yours with us." In answer to a query as to the flowers most popular with amateurs, Mr. Burpee mentioned Sweet Peas, Pansies, Asters, and, above all, Nasturtiums. "Phlox Drummondii blooms all the summer, and so do Verbenas, Salvias, Balsams, Alyssums, Marguerites, and Eschscholtzias, but Godetias do not succeed so well. There are a few which are grown from seed, but Dahlias, Gladioli and Cannas grow well, and are popular.

Fig. 92.—Leamington Spa: view in the Jephson Gardens.

"We have no great national society like your Royal Horticultural Society, but every State has its own experimental station for testing farm and garden seeds, methods of cultivation, plant diseases, etc. These are supported by grants from the State exchequers. Then the United States Department of Agriculture is doing much good work for Horticulture.

A question with regard to the free distribution of seed, which is carried on to so large an extent, brought forth a vigorous protest. "It is opposed by every seedsman," said Mr. Burpee. "While the original intention was to send out new and untried varieties to be grown and reported upon to the Government, now the commonest varieties are distributed in huge quantities—150,000,000 packets. The whole system is absurd, and would never be tolerated in England."

With regard to distribution, "You have a great advantage over us," said Mr. Burpee, "in your admirable parcel post. Ours is as yet only in the experimental stage, and the zone system is clumsy, to say the least of it." We asked Mr. Burpee's opinion on the pernicious system of renaming flowers and vegetables, which has been the bane of so many growers. "I do not think this evil exists in America to anything like the extent that it does with you," he replied. "Of one thing I am sure, that our leading seedsmen are more willing to be friendly with each other than yours. We visit each other's trial grounds and compare notes in a way I have never seen done in England. However, when all is said and done, I must confess that you are great horticulturists."

LEAMINGTON SPA.

Thanks to its natural mineral springs, Leamington has, in the course of a century, become one of the most foremost spas in the country. One historian in the early part of the nineteenth century returns the then entire population at 543, and speaks of its only importance lying in its connection with Kenilworth. Notwithstanding that perhaps its first mineral spring was discovered in 1586, its comparative modernity affords an explanation of the well-planned, spacious streets and boulevards of the town. Certain it is that "town planning" has long been adopted in that part of the town east of the river Leam, from which the town takes its name, and which for four miles is accessible to the public. In its normal condition this river within its deep banks flows in stately dignity, overhung by Weeping Willows and a wealth of wild Clematis. It divides the old from the newer portion of the town for some distance, until town is lost on both sides in public gardens, parks, and rural scenes. I have, however, seen the stately dignity changed under stress of storm and lashed by the torrential impetuosity of an artificial cascade into an almost incredible fury. The present season has witnessed more than one such scene. This river is ideal for the purpose of a water carnival, now an annual event in connection with the flower show fixture in July.

The Lower River Walk

is a curved belt of grounds, 11 acres in extent, with a fine young avenue of Chestnuts, and a sloping bank of grass towards the river. Some beds of Hollies and flowering shrubs break the formality of this long stretch of grass, and doubtless this rather far-away ground will in course of time be treated more elaborately in harmony with other parts of the parks and gardens. Immediately behind the avenue is Leamington's famous playground of 20 acres,

Victoria Park,

where ample provision is made for tennis, cricket, and other games, and where the young but very successful flower show of Leamington and county is held, in connection with which horse-jumping, sports, and various outdoor attractions are provided. The York Promenade on the river bank, a pretty enclosure of 4½ acres, is entered either under or over the road bridge from the Lower River Walk, and here within the last ten years, specimen trees and shrubs, deciduous and evergreen, have been established, and an experiment with Rhododendron and Azalea beds has been amply justified—though the natural soil is not a suitable medium. Crossing the Leam by a foot-bridge, on which one would tarry to admire the exuberant Clematis vitalba festooned gracefully above the water, the visitor approaches the Royal Pump-room Gardens, which are surrounded and intersected by broad gravel paths. The latter are well shaded and furnished with resting-places; the central portions of the gardens are gay with a series of beds devoted to herbaceous plants and annuals, and facing the Boulevard are a number of bold beds, occupied by the usual summer bedding subjects. A bandstand and ample greensward are additional attractions in this open and well-patronised space of six acres.

Across the main Warwick Road are the

Jephson Gardens,

the most popular and attractive, albeit the most formal of all the public gardens. They bear the name in honour of Dr. Jephson, who is remembered as the greatest benefactor of the town by making known the efficacy of its various mineral springs. There is a monument, with a temple-like structure, in a prominent position in the gardens, erected to his memory. In a triangular piece of ground I remember seeing two striking beds in carpet design—one representing the Crown, and the other representing the Prince of Wales's feathers. Both beds were effectively worked with the usual carpeting subjects, such as Alternantheras, Mesembryanthemum, Golden Pyrethrums, Cerastium tomentosum, &c., the jewels in the Crown being formed by Echeverias. A sunken panel nearly opposite, over the central pathway, formed an appropriate receptacle for another bold carpet bed, which represented the borough and county coat of arms and motto. The design was cleverly executed, the amount of detail being a severe test of the skill and ability of the operator. The same subjects were used here, and the effect was most pleasing. If one may offer a word of criticism it is that the back of the bed should be raised, in order that the picture may be seen from the pathway more easily and completely. A Rose Garden on the site of a former band-stand is a thing of beauty and fragrance. Richmond, Caroline Testout, Mrs. J. Laing, Liberty, Madame Ravary, a bed of Mme. A. Chatenay, and many other favourites are to be found here, and a rich variety of Wichuraiana and Polyanthas, laden with bloom on pillars and tripods, skirt one of the side pathways. A new site was reclaimed a couple of years ago on a lower level near the river for a concert platform, pavilion, and bandstand. A large space of slightly-rising ground serves as an auditorium, to which a rockwork bank supplies a pleasing background. The bank is planted with Arabis, Aubrietia, Alyssum, St. John's Wort, and other plants. The Jephson Gardens occupy a space of 15 acres, and in addition to the river occasionally in view there is a fine sheet of ornamental water, where numerous members of the feathered tribe disport themselves to the perpetual amusement of the young generation. During the season, on special occasions, the gardens are illuminated; the lake

being lit by fairy lights, the reflections from which fall radiantly in the still water, and produce wonderful effects. Many fine examples of trees and shrubs are to be seen in these gardens, conspicuous among them being a group of Taxodium sempervirens at one end of the grounds, a additionally attractive as single specimens. Quercus Ilex was given much prominence when these gardens were first made, and is a valuable ornament. Limes, too, were largely planted in streets and gardens, and a plant of Tilia alba in the gardens is a fine feature.

Fig. 93.—Taxodium distichum in Jephson Gardens, Leamington Spa.

plant of Taxus Dovastonii with a big spread near the Jephson monument, Pavia flava and P. macrostachya in the vicinity of the Rose garden, a Tulip Tree (Liriodendron tulipifera) 60 feet high, and Carpinus betulus, with a spread of 60 feet, near the same spot. A very good plant

Other open spaces, such as Euston Place and the Holly Walk, with its fine Lime avenue, and Linden walk, testify to the generous policy of the authorities in landscape gardening; and the embellishment of the exterior of the various public buildings, such as the town hall, library, and

Fig. 94.—Ornamental water and monument in Jephson Gardens, Leamington Spa.

of Liquidamber is conspicuous, and skirting the lower path, leading to the band pavilion, is a six-stemmed specimen of the common Chestnut, all the stems being of considerable and fairly equal girth. Several good Conifers have of recent years been introduced, and, with green, golden, and silver Hollies, they will, in a few years, prove

Royal Pump Room house shows also a spirit of wise enterprise. Whilst commending those in authority who provide the funds, a tribute of appreciation must be offered to the parks superintendent, Mr. J. T. Hayes, for his well-directed energy and enthusiasm. *Annual Visitor.*

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA × SCAMPSTONENSIS.

Two very beautiful flowers of the same cross, and showing the wide difference between extreme forms of secondary hybrids in which Cattleya bicolor is concerned, are kindly sent by Mr. F. C. Puddle (gr. to W. H. St. Quinton, Esq., Scampston Hall, Rillington, Yorks). L.-C. La France results from crossing L. tenebrosa with C. bicolor, and in the flowers of L.-C. Scampstonensis (L.-C. × La France × C. Dowiana aurea) C. bicolor predominates in one and L. tenebrosa and C. Dowiana aurea in the other. Both are exceptionally fine. They measure six inches across, both forms being similar in the sepals and petals, which are of a golden red hue with purple veining. The labellums are deep violet with white veining at the base, the lip of one being formed like C. Dowiana and the other having the expanded front lobe and constricted middle of C. bicolor. Both flowers are highly fragrant.

CYPRIPEDIUM × TRACERY (PSYCHE × FAIRRIEANUM).

A flower of a very pretty hybrid is sent by Mr. F. C. Puddle, Scampston Hall Gardens, Rillington, Yorks. C. Psyche is derived from C. bellatulum and C. niveum, both of which show in the hybrid, which has the deflected petals usual in C. Fairrieanum crosses. The flowers are white with dotted lines of purple and the staminode has a bright green veining on white ground.

ODONTIODA JOAN.

Messrs. Charlesworth and Co., Haywards Heath, write that the cross from Odontoglossum ardentissimum and Odontioda Charlesworthii has been shown by them on several occasions—for example, at Chelsea and at Ghent—and therefore the name O. Rawdonensis given by Messrs. Mansell and Hatcher, and reported in the proceedings of the Orchid Committee of the Royal Horticultural Society in the *Gardeners' Chronicle*, September 27, p. 226, is incorrect, and the description of the pretty hybrid shown under that name applies to Messrs. Charlesworth's O. Joan.

TAPPING CEARA PLANTS.

The fall in price which is causing so much apprehension among the producers of plantation rubber can be met in some measure by improvement in methods of production. That there is room for improvement there can be no doubt, and therefore records such as the following, though dealing with m tters of detail only, are of a somewhat general interest :—

I have recently been tapping some Ceara plants (Manihot Glaziovii) at my nursery in Dabadia, Trinidad. They were planted about ten years ago, at an elevation of 20 to 300 feet, and this is the first time they have been tapped. The outside bark was first peeled off, as it would be too tough to cut with a knife. A herring-bone tapping was then made on one side of the tree and a boy stationed by the side with a syringe, from which he supplied a constant slight flow of water down the centre cut. In this way quite a large quantity of latex was obtained, which was afterwards coagulated by means of an 8 per cent. solution of lime juice or by sulphuric acid. The slabs thus formed were taken the next day out of the coagulating pans and placed to dry on shelves lined with perforated zinc. When dry they were removed to an air-tight chamber, and smoked for fifteen minutes over a charcoal fire on which were placed seeds of the Koperite Palm (Maximiliana martiana). The temperature of the room was maintained at about 80° to 90°. When the smoking was completed the rubber was placed in powdered sulphur, which helps to keep it in condition. *Cyril Warren, Dabadia, Trinidad.*

THE SPANISH SAFFRON INDUSTRY.

At the present season, when the autumn Crocuses, including C. sativus, the source of commercial Saffron, are in flower, the following particulars of the Saffron industry in Spain recently published in the *Journal* of the Royal Society of Arts has a special interest.

The Saffron plant has been known and valued, since the earliest historical times, for at least some of the many useful qualities which make of it an important article of commerce to-day. The origin of its name is the Persian word "zafaran," to which the Arabians added the prefix "al," which was adopted in the eighth century by the Spanish as "alzafaran," and has since been modified in Spain to the present form of "azafran," and in English and other languages to obvious derivatives of the same origin. It is believed that Saffron originated in Asia, whence it was brought to Europe long before the Christian era. It is a bulbous, iridaceous plant, having blue flowers with large yellow stigmata. These stigmata, with part of the style, are dried or toasted by fire in a species of sieve, and the pungent aromatic result is the Saffron of commerce. It is used in large quantities in some countries in cookery, and in all to more or less extent for colouring confectionery, wines, cheeses, varnishes, etc., although its former wide employment in medicine and as a dye has much decreased in recent years. Its main constituents, chemically, are a volatile oil, water, wax, cellulose, malic acid, oxide of iron, pigments, and certain gummy and albuminous substances, of which the volatile oil appears to be the most active agent.

Saffron is classified and graded by its colour and odour, by the length and thickness of its pistils, and by its country of origin. It is cultivated at present in Egypt, Arabia, Italy, and in the French Departments of the Sarthe, Marne, Loire, and Nièvre, though nowhere on as great a scale or of as fine a quality as in Spain. The part of Spain where it is principally grown is comprised within a triangle drawn between the towns of Tarragona, Segovia, and Cartagena, or roughly on the middle third of the Mediterranean coast inward in converging lines to a point a little to the north-west of Madrid. The United States Consul at Malaga says that the colour sought is a brilliant, intense dark red, the odour pungent, and the pistils long and thick. It is graded in Spain according to colour as "select," "superior," "good," and "ordinary," and according to odour as "pure," "aromatic," "excellent," "good," and "ordinary." As Saffron is of great value in relation to its weight, the temptation to adulteration to increase weight, as well as colour and other characteristics, is very considerable. The former object is sometimes achieved by storing the Saffron in damp warehouses, or by wrapping it in Cabbage leaves, from which it absorbs moisture, and also by mixing finely powdered red sand with it. Its colour is sometimes heightened by adding a mixture of oil and honey; but this adulteration is easily detected by pressing a paper over a few of the fibres with a hot iron, when any oil shows on the paper. Other adulterations consist in mixing pistils of other plants with the Saffron.

The plant is a hardy, drought- and frost-resisting one, which commercially does rather better on medium or poor than on very rich soils. The plant is renewed from the new bulbs formed in the fourth year of its growth. They are dug up in May, and carefully examined to see that they are perfect in form and contain no signs of bruises or attacks of disease. Their outer skin is removed before planting and the bulbs sprinkled with water, as fine particles of earth stick to them and aid in conserving their moisture. Bulbs about as large as medium-sized Spanish Chestnuts are the best. The outer skins removed before planting are used by the labourers for stuffing mattresses, and for similar purposes. As the bulbs are planted about ten inches deep, and as each year new bulbs are formed above the original ones, which die out as the new ones develop, the roots, of course, each year grow nearer to the surface of the soil, until it becomes necessary to dig them out and plant anew; otherwise the large cluster which forms makes it impossible for the bulbs to attain complete development, and their proximity to the surface makes them unable to withstand drought. Thus the digging up must necessarily take place at the end of a cycle of four years, or, if the plants have been forced by thorough cultivation, in three. The operation of digging out takes place in March, April, and May, at which period the bulbs have reached their most complete development.

In good seasons, when the crop has benefited by rains in the spring, the Saffron flowers begin to open early in September, but if the year has been dry flowering is retarded, and may not take place until early in October. A late flowering places the whole crop in jeopardy, as an early frost—which is not unlikely to occur on the high plateaus of central Spain—would completely ruin it. As a rule the flowers are collected from the latter part of October to the middle of November. The number of stalks, and, of course, flowers, depends upon the time the bulb has been planted. The first year it bears only one stalk and one flower, in the second two stalks, each of which has two or even four flowers; and in the fourth year each bulb has become the centre of a cluster of bulbs, each of which bears two or three stalks, with two or three flowers on each. These, however, though greater in number, are smaller in size. From the fourth year onward the bulbs continue multiplying, but the number of flowers decreases until after a long enough period they practically cease to appear altogether. This again prevents the same plants from being left on the same land longer than four years.

Saffron flowers are white in colour when they first open, turning from that to their characteristic violet colour. Flowering lasts some twenty days, the period when most flowers are in bloom being called "mantle days" (dias de manto) by the labourers, probably from the appearance the land presents of being covered with flowers. There are two or three of these mantle days, during which the labour of gathering is hurried and arduous. As the flowers open during the night, and are withered by the sun during the following day, it is necessary to gather them between dawn and about ten o'clock in the morning. This work, of course, must be done with the greatest care not to injure the stigmata, the most important part of the plant, and if not done promptly and thoroughly a great part of the crop is lost. The three weeks of gathering are, therefore, an exciting period for the planters, and the collecting is an interesting sight to the onlooker. The farmer's whole family takes part, including men, women, and children. The flowers should be gathered at the moment of opening, and if possible just a little before they are completely opened, as they wither within a few hours on the plant, besides which their stems toughen rapidly, and they become more difficult to gather without injury.

The gathering itself is carried out by labourers, who, with baskets on their arms, walk down the rows breaking the flowers off, or cutting them with the thumb-nail at the point where they join the stem. Each worker is given a certain number of rows to do, and is paid by the weight of flowers he has gathered, the price being usually about one penny per pound. The flowers are then spread out on mats to dry partially before proceeding to separate the stigmata from the flowers. The latter operation is carried out in two ways; in some districts the pistil is cut off with the finger-nail close to the corolla, so that all the Saffron kept consists only of the red portion, while in others, instead of cutting them, the pistils are pulled out with their white stems adhering, so that the resulting Saffron is half white and half red. It is considered unwise to cut the pistils either so high that the three stigmata separate, or so low as to include too great a part of the white stem. The flowers, after the stigmata have been removed, have no value or application whatever, even as fertilisers, and as they give off a sickening smell, are usually spread out on the ground in the sun to dry rather than to rot. The work of separating the stigmata from the flowers is relatively well paid, workers earning from one shilling to one shilling and twopence per pound of stigmata separated, or, in some places, instead of cash payment they receive a fourth part of the Saffron separated.

Immediately after the separation of the pistils there ensues the most delicate operation in their treatment—that is, the curing or toasting. This is done over a slow fire, the Saffron being held over it in sieves, in which it is spread to a depth of about one inch. If the fire is too hot the Saffron turns blackish or dark blue, and loses a great part of its weight, while, if not hot enough, it comes out soft, badly cured, and of inferior commercial value. During the toasting process the characteristic yellow colour of the uncured pistils turns to a deep red. After toasting, the product is stored in a dry place with as even a temperature as possible, and should be kept in bags or rolls of black woollen cloth. This is said to afford better protection from damp and variations of temperature than white cotton or linen, and the black colour is believed to preserve the hue of the Saffron more perfectly than other colours. Saffron after toasting weighs about one-fifth as much as in its original uncured state, and it is calculated that, on an average, each acre of land produces from fifty to fifty-five pounds of uncured Saffron, equal to ten or eleven pounds of the final product. Seventy-seven pounds of flowers are required to obtain one pound of cured Saffron ready for market.

Those handling the plant have to take some care as regards its effects upon them. If the odour or exhalations of uncured Saffron be breathed during a long period it may cause drowsiness, or, in some cases, even cerebral disturbances, convulsions, and soporific fevers, owing to which it is dangerous to sleep in the apartments where picking is carried on. Many persons, especially women, cannot work with the product at all, as it induces in them a state of stupor somewhat resembling that caused by opium, though, of course, less marked. Saffron suffers little in Spain from either disease or natural enemies. Under the first-named are mentioned a sort of tumour appearing on the bulb, called "berruga"—dry gangrene—which starts in the interior of the bulb and shows itself by a patch of discoloration on the outside, and a malady which is called "rust."

SCOTLAND.

THE HONEY HARVEST.

The honey harvest this year has been one of the finest experienced by apiarists for many years as regards the clover honey. Not a few bee-keepers have secured from 170lb. to 190lb. from individual hives, and in less favoured districts, where the ordinary season's run was from 30lb. to 40lb., the yield has been from 50lb. to 60lb. One expert apiarist derived from 175lb. to 190lb. per hive of clover honey in the space of six weeks, while in one instance 260lb. were taken from a bar-frame hive of the newest type. Exceedingly lucrative, too, has been the heather season, and yields of from 70 to 80 sections per hive have been quite common. The honey, too, is of superior quality, of very fine flavour, and some of it almost as thick as candy. The best yields reported run up to 220lb. Disease has not been entirely absent, and will materially affect the profits in some districts, but the more successful bee-keepers estimate their profits at from £4 to £5 10s. per hive.

THE ROSARY.

CULTURAL HINTS FOR OCTOBER.

The Hybrid Perpetual and other Roses employed for late forcing should at once be repotted, first examining them to see that the soil is moist. The old ball of soil should be reduced. The compost should consist of two parts of fibrous loam, one part well-rotted manure, and one part quarter-inch bones and burnt garden refuse or earth. If procurable, soil which has been stacked for twelve months and mixed with cow manure is preferable to freshly-dug soil. The potting should be done firmly, and the pots afterwards placed in a bed of ashes. One good watering should be applied a day or two after potting. Preparations should now be made for potting a supply of ground plants, the operation to be finished by the end of the month. A good compost should be mixed and placed in an open shed, and pots and crocks well washed. Bushy, well-ripened plants should be obtained, preferably on briar stocks, although the Manetti may be used for all H.P. Roses except Frau Karl Druschki. This latter Rose should always be on the briars or its own roots. By potting up ground plants stronger roots are secured, capable of yielding the best quality of blossom; the plants also cost much less, the charge for carriage being avoided. They cannot, of course, be forced the first year, but if they are potted annually a supply for forcing is always at hand. Those potted in the autumn can be plunged in temporary beds the next summer; they grow as well there as in the ordinary plunging ground if given proper attention. There are now a wealth of varieties among Hybrid Teas, Polyanthas and Ramblers, and in a good establishment there should always be a number of these on hand. The Polyantha Roses are very valuable, especially such varieties as Orleans, Jessie, Erna Teschendorff, Maman Turbat, Jeanne d'Arc, Merveille des Rouges, Ellen Poulsen, George Elga, and Susie. Plants potted in October may be placed in a gentle heat in March; if slightly pruned they make good flowering plants for the table or conservatory. After flowering they may again be gently pruned and be placed in heat, when they will soon yield another crop of buds. If removed to a cold frame they will be ready for plunging out-of-doors when in full bloom, and a most effective display may be obtained.

Roses re-potted in June which are required for early forcing should now be dried off preparatory to placing them under glass. They should be laid on their sides for two or three weeks. Those which were planted out under glass in June should be gradually dried off if they are expected to start again early in the New Year. If a number of pot Roses are required during November and December—e.g., for decoration—the desired quantity of pot plants of the thinner Roses (such as Papa Gontier, Betty, Lady Battersea, Mrs. H. Stevens) should be grown out-of-doors during the summer. The flower buds must be kept pinched off until August, when the plants will form a number of fresh ones; these will develop at the required time if the plants are placed in a very gentle heat, just sufficient to prevent damping. The same plants will be again available for forcing in the spring.

Propagation by Cuttings.

Cuttings may now be inserted out-of-doors, and will root very readily if the soil is sufficiently gritty. The ground should be trenched if possible; the beds should be well out in the open and should measure about 6 feet across. When planting the soil should be cut down so as to form a wall of earth. Some peat and sand should be strewn over the bottom of the trench thus made, so that the base of the cuttings may rest thereon. The cuttings should be made from the current year's growth, taken with a heel. They should be about 8 inches long, of which 6 inches should be buried in the soil. They should be planted in rows about 15 inches apart, 2 inches being allowed between each plant in a row. The choicer kinds—Teas and Hybrid Teas—with the exception of a few specially hardy ones, should be dibbled into cold frames, mixing plenty of sand with the soil. If there has been plenty of rain the ground may now be prepared for new plantations. Fresh soil should be provided to a depth of 3 feet; the extra trouble is well repaid by results. Basic slag, in quantities of 6 to 8 ounces for the square yard, should be applied to the lower soil, and also some farmyard manure. If the soil has been heavily manured some lime or chalk should be applied during the trenching process. Light soil can be much improved by the addition of a considerable quantity of cow manure, dug well down into the lower soil.

In the arrangement of beds for Roses complicated designs should be avoided. The circle or parallelogram is a convenient form for working among the plants. Roses should be transplanted every three or four years, the best method being to transplant about a third of the total number every year, those first moved being transplanted again the fourth year, and so on. The operation is an important one, and its neglect is a frequent cause of ill-health among Roses. The course should be well prepared beforehand, and as the Roses are replaced a handful of bone meal should be put in with each plant. If there are any Ramblers or weeping Roses from which the old wood has not yet been cut, an early opportunity should be taken to carry out this work. The same operation should also be performed on Hybrid Perpetuals, leaving four or five ripe young growths for next year's flowering.

In making new plantations this season it should not be forgotten that there are a number of fine autumn-flowering varieties which can be grown as free bushes or pillars and make a fine display during the autumn months. Care should be taken, however, in planting such bushes in parks and public open spaces that they are secured against injury. Hedges of Roses may be planted wherever there is an opportunity. The free-flowering varieties, such as Gruss an Teplitz and Zéphirine Drouhin, are specially suitable for this purpose. The requirements of these varieties should be carefully studied, particularly if they are to remain permanently in position. The soil should be well trenched to a depth and width of 3 feet if there is to be a single row of plants, or 4 feet if a double row.

Mention may be made of the several charming Rose species which are now available, and which may be planted together with flowering deciduous shrubs. A few of these are Rosa Moysei, R. cinnamomea, R. altaica, R. Hugonis, R. xanthina, R. sericea Pteracantha. *Experience.*

NOTES ON IRISES.

SPANISH IRISES.

It is astonishing that the majority of gardeners should be content to grow plants year after year in their gardens without wishing to know whence they come or how they have been evolved. Every gardener knows the so-called Spanish Irises, but who can produce specimens of the wild plants from which they have been bred? It is easy to say that they are the hybrid offspring of Iris xiphium, but can any English garden show us specimens of a form of I. xiphium which could conceivably have produced them? Investigations have so far only pointed to negative results, and it would be extremely interesting if this note led to the discovery that the plants for which we are in search do after all exist in an English garden.

In order to narrow the field of investigation we may first deal with the suggestion that Spanish Irises are of hybrid origin. By this we should mean that they had been produced by crossing two species, not by breeding together the various colour forms of one species.

There are six known members of the Xiphium group of Irises, I. xiphium itself and I. xiphioides, I. tingitana, I. filifolia, I. juncea and I. Boissieri. Of these I. xiphioides stands by itself, and differs from the others in the shape of its segments, and by its capsule and seeds. None of its peculiarities ever appears among Spanish Irises, and it may, therefore, be excluded as a possible progenitor. Of the remaining species I. xiphium differs from the other four in the structure of the perianth tube. In I. xiphium the short, broad, funnel-shaped tube is set immediately on the ovary, but in the other four species there is between the ovary and this broad funnel a linear tube, which we may look upon either as its prolongation or as an elongated neck of the ovary.

In this connection it is interesting to remember that the same formations of perianth tube and ovary occur also in the Spuria group, whose members bear other striking resemblances to the xiphium species, e.g., in the shape of the segments of the flowers and in the arrangement of the lateral branches on the stem, which occur, though rarely, on strong-growing forms of I. xiphium. Thus, I. graminea may be compared with I. xiphium, for in each case the ovary expands abruptly into the broad, short tube, while I. spuria and I. Sintenisii both exhibit that tubular elongation of the ovary at its upper extremity which occurs in the majority of the xiphium species.

If Spanish Irises numbered among their ancestors any of the species tingitana, Boissieri, filifolia or juncea, which are all characterised by this tubular elongation of the neck of the ovary, we should expect to find some traces of this character among them. Indeed, I am inclined to believe from the evidence of an undoubted cross between I. xiphium and I. tingitana which was raised by the late Sir Michael Foster, and which resembles I. tingitana in all respects, and has the additional advantage of being hardy and floriferous without special treatment, that the presence of this neck to the ovary is dominant over its absence.

We are forced, therefore, to conclude that the Spanish Irises must have been evolved from I. xiphium, taking the name to cover also the yellow-flowered forms which were described under the name of I. lusitanica. But the difficulty then arises that I. xiphium in the wild state seems to flower much later than our Spanish Irises. It has been found in flower so late as August and September on the Sierras del Pinar and de Cazorla in Southern Spain, while even at sea level on the south coast of France it is in full flower on July 1. I have specimens in cultivation from the neighbourhood of Beziers in the Department of Hérault, and others which resemble them in all respects from Portugal, and both were recently in flower here on July 15. At the other extreme we have the above-mentioned hybrid of xiphium and tingitana, which flowers in April, and the hybrids of the pseudo-filifolia of trade catalogues, which flower in the middle of May, a full fortnight or more earlier than ordinary Spanish Irises. The origin of the false I. filifolia is a mystery, but its offspring are both too large and vigorous and too early flowering for it to be a parent of Spanish Irises. The only wild form of Xiphium that flowers here with the Spanish Irises comes from Algeria, and the flowers are of a shade of blue that I have not seen elsewhere. In other respects it much more closely resembles our idea of the wild parent of the Spanish Irises than any other form of I. xiphium. Does a similar form exist in Spain, or is this one more case in which one of the commonest plant names in our gardens bears little relation to truth and exactness? *W. R. Dykes, Charterhouse, Godalming.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Temperatures of the Various Houses.—The fine season has suited Orchids generally, and especially the deciduous or semi-deciduous species, which require a decided rest during the winter. Others, such as Cattleyas, Lælias, and their hybrids, also the Mexican Lælias of the L. anceps type, have also been benefited by the unusual amount of sunheat, which is seen in extra vigorous root action. Where shading has been afforded with care, fresh air admitted and atmospheric moisture supplied, Odontoglossums, Oncidiums, Masdevallias, and other cool-growing Orchids have suffered no injury from the hot weather, although on several occasions it has been a difficult matter to keep the temperature below 75° during the day. This was the case here in a span-roofed house, but a lean-to house facing north had at such times a temperature much lower than 75°, whilst in it a cool humid atmosphere was maintained easily. But the plants in the span-roofed house show, by their more robust growth, that the extra warmth has done them good. Whilst the nights remain warm plenty of air should be admitted to the cool houses, and unless very cold weather sets in no artificial heat should be necessary for some time to come; but the grower must prepare for sudden fluctuations in the temperature, especially in the early mornings, when frosts often occur without any warning. Whenever frosts threaten maintain a rather higher temperature at night. Just now it is a matter of importance that the night temperatures do not fluctuate much, and it is therefore preferable to maintain a little extra warmth in the hot-water pipes the last thing at night than to have a very low temperature in the morning. The proper degrees of warmth at night for the present should be: East Indian house, 65° to 67°; Cattleya and Mexican houses, 60° to 65°; intermediate house, 55° to 60°, the higher temperatures being employed when the external air is about 45° or 50°, but when the weather becomes colder and the thermometer drops to nearly freezing point the lower figures are preferable. The atmospheric temperature of the Odontoglossum or cool house should be 55° or 57°, but in very cold weather 52° or even 50° will suffice. When frosts occur in the early mornings the temperatures of the various divisions may be allowed to fall a few degrees below the normal; at such times no water must be afforded to any of the plants, nor should damping the bare spaces be practised until the thermometer rises again, as the drier the atmosphere is kept during such times the less risk will there be of the plants receiving a check from a chill. There is less need for damping now; unless much fire-heat is used, a moderate amount of damping in the mornings and afternoons should suffice in any of the divisions. Immediately water is sprinkled about the warmer houses in the afternoons more artificial heat should be employed.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Preparations for Planting.—The present is a suitable time to prepare vacant ground for planting trees and shrubs. The soil is now in a suitable condition to be thoroughly broken up, and if left in a rough state for a month or so it will be in perfect tilth for planting when the time comes. Ground which has already been occupied with trees or shrubs should be trenched very deeply, removing all old roots and mixing with the staple a good deal of fresh material in the form of rotten dung or loam, not only to improve the soil, but also to prevent the ground from sinking too low after the trees are planted.

Rhododendron.—Any planting which may be done in the autumn should be carried out as soon as possible, so that the roots may become active before the cold weather sets in. There is probably no more suitable time for planting Rhododendrons than October and November. Where the natural soil is suitable it will only need to be deeply dug; but unsuitable ground must be specially prepared. In the latter case a good portion of the old soil should be removed to allow for the addition of fresh material during the operation of trenching. Loam, peat and well-rotted leaf-soil well mixed together form a good rooting medium for Rhododendrons. The soil should be at least 18 inches above the natural level when finished to allow for sinking. Do not plant too deeply, but make the soil about the roots as firm as possible. A moderate top-dressing of leaf-mould or similar material will be beneficial. Hardy Azaleas may also be planted at the present time and given similar treatment.

General Work.—The general stock of cuttings of all summer bedding plants should be examined, and if there has been any material losses through damping or any other cause these should be made good. Rooted cuttings of Coleus, Iresine, Ageratum, Heliotrope, and subjects of a similar nature, should now be placed in their winter quarters, choosing a position near to the glass in a cool house. Pelargoniums which are still out-of-doors must be given some shelter now that frost is imminent, but unheated frames will be sufficient for some time to come. All cuttings in boxes or pans must be examined from time to time for the purpose of removing decayed leaves and flowers. Very little water will be required, and when it is necessary it should be given on fine mornings. Viola cuttings are now very plentiful, but if the stock is not too liberal another batch should be inserted.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Walnuts.—Any nuts that are still ungathered should be knocked from the branches and stored. Those which leave the husk most freely should be used first. Those that are still tight in their outer shells should be placed on a shelf until the husk decays, when the nut should be cleaned, and stored in a cool, dry shed in sawdust or sand.

Planting Wall Trees.—It is now time to make preparations for lifting and transplanting wall fruit trees. Peaches and Nectarines on south walls lose their leaves first, therefore a start should be made with these. In many gardens where Peaches are grown largely under glass, and more especially where very early and hard forcing is practised, it is necessary to renew the trees frequently from specimens on walls outside. Both the Peach and the Nectarine transplant easily unless the tree is very old. In many cases these trees crop better after they have been shifted from positions occupied for some five or six years. In transplanting large trees let the ground be well prepared for its reception. If the site has been occupied by a tree the soil will probably be exhausted, and should be replaced by adding fresh compost to a distance of 5 or 6 feet from the wall in a half circle. The top soil may be thrown back to say about 4 feet from the wall, and a 9-inch layer of the old soil carted away. This may be replaced with good fibrous loam chopped into pieces some months previously, but if this material is not procurable good garden soil may be used, mixing with it a little wood ash and old mortar rubble. In the case of young vigorous trees no manure of any kind should be added, but old trees in bearing may be afforded a little bone manure or some other slow-acting fertiliser. Well decayed leaf mould may be set under and scattered over the young roots. Before unfastening the tree from the wall free the roots and prepare a ball for shifting. It is always best to remove fruit trees with as large a ball of soil as convenient, but do not attempt to move a ball larger than the men and implements can conveniently lift, for unless there is a good command over the tree the roots may become broken and much of the soil loosened. Open a trench in a semicircle around the tree, and then gradually undermine the roots with a steel fork, taking care to preserve all the fibrous roots. Any gross roots growing in a downward direction should be severed by a clean cut. Endeavour to work through the soil horizontally in the direction of the wall to obtain as level a bottom to the ball as possible. Pick away in small portions loose soil from the top and sides. As the work proceeds insert a strong plank under the base of the tree, and allow the ball to settle gradually on it. When the whole is free the tree may be detached from the wall and the branches tied in bunches, slipping a tie of soft twine around the whole. If the roots are hanging beyond the soil these, too, should be secured to the main stem, but not so tightly as to risk injuring them. The tree may then be lifted by the plank on to a barrow and conveyed to its new site, which will have been previously prepared. Any roots that have become bruised or broken should be trimmed with a sharp knife, making the cut in an upward direction. In planting spread the roots evenly in the shape of a fan, always pointing their ends upwards rather than downwards. Take care not to plant too deeply, rather err the other side—roots will always find their way downwards, and the ground is sure to sink to a depth of several inches. Make the fresh soil quite firm above the roots, lightly tie the tree to the wall, give a thorough soaking with clear water at the root, and a light syringing overhead occasionally whilst the leaves remain and the weather is mild. When the work is finished apply a thin layer of litter as a mulch.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Turnips.—Late Turnips should now be thinned to 6 inches apart, stirring the ground between the rows with a Dutch hoe directly the thinning is done. This crop will benefit by frequent dustings of soot or fine wood ashes during the autumn, and in the event of mild weather continuing the Turnips will prove very valuable both for the supply of roots or Turnip greens in spring. Roots which have grown to full size may be lifted and stored before they become too large for use, and the cooler they are kept the better, so long as they are protected from rain.

Globe Artichokes.—The ground between these plants may be dug now, and all unnecessary foliage removed. In districts where Globe Artichokes are liable to be injured by frost a sufficient number of stocky suckers may be carefully removed from the plants and potted into 7-inch pots to be wintered near to the glass in a cold pit, which should be freely ventilated. Such suckers may be planted in the open in March or April in a well-prepared bed, and they may be expected to afford supplies in June or July. This is the best means of retaining a good stock.

Leeks.—Early planted Leeks should be carefully earthed up in order to have them thoroughly blanched before the season is too far advanced. Afford liberal supplies of manure water at the roots of later Leeks, and keep the soil stirred frequently.

Autumn-Sown Onions.—These should be thoroughly cleaned by hoeing and hand weeding the land between the rows. Numerous small weeds make their appearance at this season, and if not checked at once may prove very troublesome. Frequent light dustings of soot may be given with advantage during the autumn.

Spring-Sown Onions.—Most of these will have been harvested by this time, but the bulbs should be carefully examined, and any that show signs of decay removed. Turn the bulbs several times during the autumn.

Cabbage.—Make further plantations of Cabbage as soon as possible in order to ensure a full supply during May and June, as those planted a month ago will have been cut and the stumps removed from the ground by that time. Ground which has been manured for the previous crop will suit them well, but if this is not available a dressing of well-decayed manure should be dug into the plot at once. Plant in rows 18 inches apart, and leave a distance of 12 inches between the plants in the rows. Flower of Spring, Early Offenham, and Milecross Marrow are suitable

varieties. Lime or soot may be sown frequently amongst the plants to keep slugs in check.

Endive.—Make further plantations of Batavian Endive in cold pits for use during the spring, allowing the plants a space of 2 inches apart each way. Dampness is the worst enemy to this crop in winter, and should be guarded against by admitting air freely when this can be done without the surface of the bed getting moistened by rain. Fully developed plants may be carefully tied for blanching whenever the foliage is quite dry.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Peaches and Nectarines.—If the earliest trees have the young shoots sufficiently ripened, the leaves may now be dislodged by drawing a small Birch besom lightly over the branches in the direction in which they are growing, but be careful not to draw the broom the other way, or many of the buds will be knocked off. In houses where the wood of early trees is still green, a little fire heat will assist the wood to ripen. Trees that are sufficiently well ripened already should be afforded cool, airy conditions, and when all the leaves have fallen preparations may be made for a fresh start. The first work that should be undertaken is the pruning of the trees. If the shoots were thinned at the time the fruits were gathered, and only sufficient branches retained for furnishing next season's crop, the pruning will merely take the form of removing some of the older branches in order to make room for younger shoots. Loosen the tree from the trellis-work, and then scrub the base of the stems with either Gishurst Compound or a mixture of soft, soapy water and sulphur. Take care not to damage the young shoots nor the buds; the smaller branches should be treated with a soft brush. Cleanse the trellis and the woodwork of the glasshouse with soapy water, and either lime-wash or paint the walls. If it is intended to plant fresh trees, the present is a very suitable time to do the work, as Peaches and Nectarines transplant splendidly just as they are shedding their leaves. Specimens that were planted a year or two ago and have since grown very freely, making strong shoots, may be lifted and replanted. In doing this work take care to preserve the fibrous roots from injury. Before setting the tree in position, ascertain that the border is well drained, and plant in fresh fibrous loam, keeping the roots close to the surface. Newly-planted trees should not be secured to the trellis for a time, as the ground is sure to settle a little. After the remaining trees have been pruned and trained remove some of the soil to a depth of, say, about two or three inches, and replace it with a top-dressing composed of fresh, fibrous loam mixed with lime rubble, and a moderate quantity of some rich fertiliser.

The Orchard House.—In many gardens, and in particular in those in northern districts, it is necessary to grow choice dessert Apples, Pears and Plums in pots, or as cordons out-of-doors in warm borders. In growing orchard-house trees, it must be remembered that pots of a medium size well filled with roots give better results than larger receptacles. Specimens in small pots can be easily assisted to swell their fruits by top-dressings of artificial manure mixed with loam, and also by liquid stimulants. The work of potting the trees should be finished this month. Specimens that require a shift should be placed in receptacles 2 inches wider. It is often an advantage to place the trees in the same pots again, in which case some of the old soil should be removed and the larger roots shortened. The soil for potting must be of a fibrous nature and well enriched with artificial manure, adding lime rubble to give an open texture. Let the pots be well drained, and pot firmly. Trees that do not require re-potting may have a few inches of the surface soil removed, replacing this by some of the soil that was prepared for potting. When the work is finished water the roots thoroughly, stand the trees in a cool, sheltered situation out-of-doors, and cover the pots with dry litter to prevent frosts from breaking them.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Souvenir de la Malmaison Carnations.—Layers potted into large 60-sized pots should be sufficiently rooted for shifting into 7-inch pots. They should be potted in rich loam lightened with sand, leaf-mould, wood ashes and mortar rubble, and enriched with soot at the rate of a 7-inch potful to each barrow-load of the compost. Pot firmly, taking care that the "ball" is not broken during the process. Take measures to destroy any green fly that may be present on the leaves, and then place the plants in a cold, light house. Well water the roots as soon as the potting is finished. Keep the house closed for a few days, and then admit air, gradually increasing the amount until the house is thrown wide open. Stake the shoots to prevent them from falling over, as this would cause them to become loose in the soil, often bringing the cut end of the layer to the surface and splitting the stem, thereby allowing water to enter the wound and setting up decay. When the plants start into growth in the spring do not practise overhead syringings, as success is more assured if precautions are taken to keep the foliage dry.

Poinsettia.—This plant, which is more correctly known as Euphorbia pulcherrima, should be grown in a temperature of 55° to 60° at night; less warmth than this may cause the bottom leaves to drop. As the pots are filled with roots the plants require liberal feedings; a good plan is to give them a pinch of soot mixed with a concentrated fertiliser. Do not place the manure near to the stem of the plants, and water with a rose can. These stove plants require a liberal supply of water as drought is very harmful.

Herbaceous Calceolarias.—Greenhouse Calceolarias should be sufficiently rooted for shifting into larger pots, using 4½-inch or 5-inch receptacles, according to the size and vigour of the individual plants. The potting soil should consist of a mixture of rich loam, leaf-mould, coarse sand, and a little wood ash. Continue to grow the plants in a cold frame on an ash bottom, but protect them from frost. Green fly is a great pest of these Calceolarias, and must not be allowed to spread, for they may cause the foliage on the leading shoots to curl and become deformed, and bring about the death of the plant. Care should be taken to fumigate the plants at regular intervals, and, if necessary, again the following evening. To prevent any bad effects from the fumigations keep the foliage perfectly dry, and on no account syringe the plants overhead at such times. As the winter approaches remove the plants to a shelf in a greenhouse or pit, placing them near to the roof-glass. Small, sickly plants should not be destroyed, but given extra attention, adding a little more sand to the soil in which they are potted; generally, plants which thrive the worst produce the best and finest flowers, both in colour and texture.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Nursery Beds.—Set out in frames prepared a few days ago seedling Cauliflowers raised in September. Where plenty of frames are available 250 plants may be set in each light, but where room is limited 300 plants may be accommodated instead. Keep the lights closed for three or four days after planting the Cauliflowers; afterwards admit air both day and night, irrespective of the weather, until frosts occur. A close atmosphere and frost are both very detrimental to young Cauliflowers. Make another sowing of this vegetable to furnish plants for an outdoor crop. Sow in frames, keeping the lights closed until the seedlings appear, when a little ventilation may be afforded. The plants should be strong enough for transplanting early in November. We have commenced sowing Lettuces. Where large numbers of each variety are grown it is advisable to make several sowings at intervals of two days. This will ensure a supply of sturdy, even-sized seedlings for pricking out, even should bad weather cause the transplanting to be delayed for several days. If a layer of sifted black soil is spread over the top-dressing of the nursery beds before placing the bell glasses in position it will greatly facilitate the work of pricking out and favour the growth of the seedlings.

Chicory.—This crop is divided into three batches, and forced at different periods, so as to produce a succession of Chicory from the end of November until the end of February. The first batch should be lifted now and exposed to the weather for eight or twelve days. Afterwards collect the roots and break off all the leaves by hand (do not cut them) close to the collar. Make a trench 4 feet wide and 8 inches deep; set the roots 1 inch apart in the row, allowing a space of 3 inches or 4 inches between each row. Cover the roots with 4 inches or 5 inches of sifted soil; another layer of soil 2 inches thick will be placed on the roots 15 or 20 days later, to obtain very long and thick crowns. Whenever possible the ridge is covered with frames and lights to ward off rains. In heavy land, the roots are set on the ground and covered with black soil. Frames and lights are essential, and plenty of head room can be obtained by placing the frames on bricks, as frost does not cause damage.

THE APIARY.

By Chloris.

Shallow Frames.—As the shallow frames are removed from the hive they should be extracted in a bee-proof warm room, for the honey leaves the combs better when warm. When the extracting cannot be performed at once, the frames must be stored in a very warm room until the work can be conveniently done. Generally it will be found advisable to extract the unsealed honey and place it in the ripener, then classify the frames according to the honey stored in them—perhaps into dark, medium, and light honey, for each, separately extracted, will bring a better price than when all are mixed.

Brood Combs and the Extractor.—In some parts of the country the brood-chambers are clogged with honey, and many bee-keepers are at a loss to know what to do. Generally speaking, it is unwise to take any honey from the brood-chamber, but when little or no space is left for the queen to oviposit, some frames should be removed, taking care to extract from none that have brood in them, for extracting will kill it, and leave at least 25 to 30 of sealed stores for the bees to consume in the winter. When the shallow frames have had the honey extracted, place the empty combs on each side of the brood-nest to be cleaned up, and the queen will use them for brood-rearing, if she be stimulated; and where shallow frames have been used they may, after extraction has taken place, be put above the brood-chamber or queen-excluder zinc, and the workers will clean them out, using the honey to feed the queen and brood.

Uniting Hives.—Where bar-frame hives, or, as they are sometimes termed, movable-comb hives, are used, uniting can be easily performed. It will first be necessary to bring the hives close together, and this can be carried out by moving the hives towards each other one yard per day, and by this we mean each day when bee-flight is possible. In the evening, when bees have finished their day's work, give each stock to be united a puff of smoke to cause the bees to gorge themselves with honey to render manipulation possible. After two or three minutes give them another puff each (too much smoke is unnecessary), open the hives, take out the combs covered with bees in each hive, and dust them with flour from a flour dredger. This is done to destroy the distinctive scent of the bees, so as to prevent fighting. Then place the combs with their adhering bees alternately, but do not space them as usual; give rather more room, so that the bees of one comb cannot touch those of another. The following evening the ordinary spacing may be resorted to. Take care to keep all brood in the centre, and fill the remaining portion of the hive with those containing honey.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

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Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCTOBER 13—
United Ben. and Prov. Soc. meet. Nat. Chrys. Soc. Floral Com. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 50.1°.

ACTUAL TEMPERATURES :—
LONDON, *Wednesday, October* 8 (6 p.m.); Max. 59°, Min. 53°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, October* 9 (10 a.m.): Bar. 29.3; Temp., 57° *Weather*—Sunshine.
PROVINCES.—*Wednesday, October* 8: Max. 56° Preston, Min. 49° Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY—
Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY—
First portion of the Nursery stock at Coombe Wood Nursery, Kingston Hill, by order of Messrs. J. Veitch and Sons, Ltd., by Protheroe and Morris, at 12 o'clock.

WEDNESDAY—
Bulbs, Lilies, Palms, etc., at Protheroe and Morris's rooms, at 1.

FRIDAY—
Sale of a portion of the Wilderspool collection of Orchids, at Millbank, Wilderspool, Warrington, by Protheroe and Morris, at 1.

MONDAY, WEDNESDAY, AND THURSDAY—
Dutch and French Bulbs, Lilies, etc., at Stevens' Auction Rooms, 38, King Street, Covent Garden, W.C., at 12.30.

WEDNESDAY—
Roses, etc., at Stevens' Auction Rooms.

Disease Resistance.

The methods of counteracting disease in plants are as a general rule so cumbersome that gardeners as a class are apt to rely on the prevention of disease by good cultivation, and to neglect the adoption of remedial measures. If good cultivation did indeed ensure always healthy plants, there would be little to be said against this custom; but, although it is certainly true that the good cultivator is less troubled than the bad by outbreaks of disease among his plants, it is certainly not true that good cultivation is a preventive of disease. Who, for example, can boast that his Sweet Peas are immune from streak, or that his Celery is free from spot! What gardener can guarantee that rust shall not invade his Chrysanthemums, or that the Potatos in his clamp shall not develop dry rot! Therefore the wise cultivator is on the look-out for remedial measures to be adopted in case of an outbreak of disease, and if he is very wise he takes time by the forelock and applies the remedy at the earliest moment. He counts the cost also, and at times prefers to sacrifice a crop rather than spend time in battling with the disease. Nevertheless, and despite his wisdom and alertness, the progressive cultivator knows that in but few cases do the remedies which are recommended and adopted prove to be infallible. Indeed, in this delicate matter of intervening with the object of favouring one life—that of his crop—and destroying or debilitating the other—that of the pest—it is evident that success is at best uncertain. Until, however, disease is banished from the earth, the gardener must continue to apply such remedies as the man of science prescribes, and, broadly speaking, these methods give some not inconsiderable amount of relief. He who neglects them finds to his cost that his orchards yield but little, that his Roses are mildewed, and that eelworm refuses to be exorcised by the magic of good cultivation.

Further, it is a matter of general experience that good cultivation—in the sense of liberal manuring necessary to produce high yields—may actually encourage disease. Thus many gardeners attribute the prevalence of streak in Sweet Peas to the use of large quantities of manure, and it is certain that Potatos, grown on light, sandy soils by cultivators who are backward in practice, are, if the climate be good, less subject to disease than those grown on heavier well-manured land.

Confronted by these facts, horticulturists have asked long ago whether it may not be possible to obtain strains of plants which shall resist disease. General observations encourage this question, for varieties differ among themselves with respect to degree of susceptibility to disease. The more sanguine would wish to secure varieties proof against disease in general, but the more modest cultivator would be satisfied if varieties could be provided each of which is proof against one definite disease. There is a reasonable hope that the latter result is possible of attainment. We have, for example, recorded from time to time in these pages the production of disease-resisting varieties of Wheat, Melons, Corn, Cow peas, and sundry other plants. It is true that the success which has attended the raising of disease-resisting varieties is meagre; nevertheless, it is enough to show that the hope of better things in the future is not chimerical. Research is at best a slow-moving machine, and even when its wheels are well oiled with grants it cannot move fast, though it is to be hoped that its movements will be surer than they have been apt to be in the past.

Among recent research in the phenomena of susceptibility to disease we may mention a paper by Mr. G. T. Spinks (*Journal of Agric. Sci.*, V. 3, 1913) as indicating a promising and little-followed line which may prove of use in adding to practical knowledge. The author has set himself to ascertain which are the nutritive conditions which favour immunity or susceptibility. His experiments confirm the opinion, commonly held by gardeners, that high nitrogenous manuring favours such diseases as mildew and rust (of Wheat), and, so far as they go, his experiments indicate that in the cases of these diseases potash in particular, and to some extent phosphates, increase the power of resistance of the plant.

Mr. Spinks, who worked with a rust-susceptible Wheat (Michigan Bronze) and a rust-immune Wheat (Little Joss) makes also the useful observations that if a variety is immune it yields less readily to unfavourable conditions than the susceptible variety. For example, even though an excess of nitrogen be supplied, the "immune" variety, though it does not preserve intact its resisting power, is less affected than is the susceptible kind.

Incidentally it is brought out that certain mineral substances appear to confer an artificial immunity; for instance, in the case of mildew, Wheat growing in soil to which lithium salts (carbonate, phosphate, etc.) are added is less susceptible than when grown in soil to which no addition of lithium salts is made. The evidence, though definite, is slender, and we shall look with interest to an extension of these experiments, and to the confirmation of these observations.

Supplementary Illustration.—The Supplementary Illustration this week shows a portion of the Duchess Garden at Eaton Hall, Chester. The garden owes its name to the fact that the first Duchess of WESTMINSTER built the beautiful summer-house shown in the background of the illustration. The interior of this summer-house has features of interest apart from the garden, notably some beautiful carving by a local artist who has long since attained to public fame, and a series of interesting sketches by the late H. STACEY MARKS, the more notable being his illustrations of SHAKESPEARE'S "Seven Ages of Man." The garden, however, at this period was of a very informal kind, and merged into the surrounding woodlands. The present Duke, some fourteen years ago, had a number of the surrounding trees removed, and the site of about eighty yards square laid out as a formal garden. The beds are outlined with Box edging, and the walks have been formed of a very pleasing kind of small bricks on edge in varied herring-bone patterns. Between them has grown a quantity of Moss and Lichen, giving the paths an old-world appearance, as though they had been laid for generations. At the angles of the principal walks old English and French millstones have been used with good effect. Surrounding the formal beds on either side are long borders filled with various herbaceous plants. The beds are furnished with a representative collection of Roses. Between the Roses Mr. N. F. Barnes plants each season some 20,000 Darwin Tulips in the various soft shades of mauve and pink for spring display.

HORTICULTURAL CLUB.—The members of the Horticultural Club will meet at dinner on Tuesday, the 21st inst., at the Hotel Windsor, Victoria Street, Westminster, when Prof. W. B. BOTTOMLEY, B.A., will deliver a lecture on "The Effect of Soluble Humates on Nitrogen-fixation and Plant-growth." The lecture will be illustrated with lantern slides and living plants

from the Royal Gardens, Kew, showing the good effects of manuring with peat after it has been treated in the manner to be described by Prof. Bottomley. There will also be chemical demonstrations.

Coloured Supplement.—The subject of the Coloured Plate to be published in the next issue is the Cherry Fly (Rhagoletis Cerasi, Linné).

"The Botanical Magazine."—The issue for September contains illustrations and descriptions of the following plants :—

Agathis vitiensis. tab. 8,512.—This coniferous tree, belonging to the Araucarieæ, is a native of the Fiji Islands, where it attains to a height of from 80 to 100 feet, with 60 feet of clear stem. The plant is not common in this country, but a specimen has been grown in the tropical Palm house at Kew since 1881. In 1897 it was transferred to the Mexican house, and is now some 25 feet high. The Kew plant developed a female cone in 1911.

Rosa foliolosa. tab. 8,513.—The flowers of this species, as shown in the *Bot. Mag.* plate, are of a striking colour, described as cardinal-red. It is one of the most distinct of the American species, and is known as the South-Western Prairie Rose. The plant does not appear to be common in gardens in this country, although it has been in cultivation at Kew since 1880. A plant recently bloomed in Canon Ellacombe's garden at Bitton, near Bristol, and furnished the specimens from which the *Bot. Mag.* plate was prepared. R. foliolosa would probably make a good garden Rose, in view of the charming colour of the petals and the dwarf habit of growth. Underground suckers offer a ready means of propagation.

Catasetum microglossum. tab. 8,514.—This species is near to C. barbatum, and was found growing wild near a native dwelling house on the River Igaraparana, in Peru. At Kew the plant has been grown in a warm house in company with other members of the genus, and has thriven well. The flowers are of medium size and dull purple in colour, with a yellow lip.

Iris mellita. tab. 8,515.—This species was described by Mr. J. G. Baker in *Gard. Chron.*, December 2, 1876, p. 709. The plant apparently has a wide habitat, for although forms from different regions have been regarded by some as species, they are considered as being synonymous. The leaves are densely tufted; the flowers are borne on short stems, usually in pairs. The perianth has a greenish tube blotched with red upwards, whilst the limb varies; sometimes it is purple and sometimes yellow with longitudinal reddish veins along the base. Iris mellita is considered to be synonymous with I. rubro-marginata of Baker (*Gard. Chron.*, 1875, vol. III., p. 524) and I. Straussii Dykes (*Gard. Chron.*, 1909, Vol. XLV., p. 391).

Utricularia longifolia. tab. 8,516.—The flowers of this Bladderwort are bright purple with a pale spur. The species, which is not new to gardens, is fairly common in some collections in this country. Mr. Lynch grows the plant very successfully in the Cambridge Botanic Gardens, and from that source the material for the plate was obtained.

———In the issue for October we note the following plants :—

Stanhopea grandiflora. tab. 8,517.—This is a very old species in gardens, and when first discovered was placed under Epidendrum grandiflorum; later it was transferred to Anguloa, to be placed in its true genus still later by the younger Reichenbach. The plant grows best in a warm, moist house in a basket suspended from the roof rafters.

Rhododendron hæmatocheilum. tab. 8,518.—This species was first described by Mr. Craib in *Gard. Chron.*, April 5, 1913, p. 214. The plant is a native of China, and was introduced by Messrs. James Veitch and Sons, through their collector, Mr. E. H. Wilson. The young flowers are blood-red, fading with age to carmine. Specimens in the Coombe Wood Nursery, Kingston, Surrey, appear to be quite hardy

Nautilocalyx pallidus. tab. 8,519. — This Gesneraceous plant is a native of Peru, and bears creamy-white tubular flowers, each about two inches long, the interior of the tube being streaked with purple. The plant was introduced by Messrs. Sander and Sons through their collector, Forget, and specimens presented by them to Kew Gardens flowered more or less continuously throughout the summer in a warm greenhouse.

Schizophragma hydrangeoides. tab. 8,520.—The Schizophragma of gardens is Hydrangea petiolaris; the true S. hydrangeoides is of comparatively recent introduction, having first blossomed in this country in 1905 at Grayswood, Haslemere. At Warley Place, Essex, the plant grows in company with Hydrangea petiolaris on a wall, where the two plants flower simultaneously. The flowers are creamy-white, forming a dense corymb, but they are not very attractive. The sterile flowers found on the margins of the corymb are each reduced to a creamy-white cordate bract.

Streptocarpus cyaneus. tab. 8,521.—This pretty plant bears flowers of varying shades, a pale lavender or blue, rose-pink or rosy-mauve, and should prove useful for hybridising. The species is a native of the Barberton and the Swaziland districts of South Africa.

Legacies by the Late Mr. Robert Lindsay, Edinburgh.—After providing for various legacies, the late Mr. Robert Lindsay, of Kaimes Lodge, and formerly curator of the Royal Botanic Garden, Edinburgh, has left the residue of his estate to Benevolent Institutions. The Edinburgh Royal Infirmary, the Longmore Hospital for Incurables, the Leith Hospital, and the Leith Public Health Hospital receive each one-fourth of the residue, which will amount to upwards of £3,000.

Messrs. Stuart Low & Co.'s Orchids.—We are informed that the Orchids at Messrs. Stuart Low and Co.'s establishment, Bush Hill Park, Enfield, have been removed to the firm's new branch at Jarvisbrook, near Crowborough.

Flowers in Season.—Mr. Thomas Johnson, Motcombe Gardens, Shaftesbury, has forwarded specimens of Heliotrope with very large inflorescences and robust foliage. Mr. Johnson states that the plants are growing in 4½-inch pots, and that some of the heads of blossoms measure 18 inches across.

Zinc Arsenite as an Insecticide.—Experiments carried out by Mr. W. J. Schoene (Bull. 28, New York Agricultural Experiment Station) demonstrate that zinc arsenite is a very effective insecticide, one pound being equal in effectiveness with three pounds of lead arsenite. If, however, zinc arsenite be used alone, or with lime-sulphur, or with glucose, burning of foliage results. On the other hand, zinc arsenite and Bordeaux mixture combined make a very effective insecticide, and when sprayed on foliage the mixture remains effective for twenty-five days. Another point of importance which is brought out by Mr. Schoene's experiments is that Bordeaux mixture resists wet weather better than does lime-sulphur solution.

Watercress. — It appears from the review by M. D. Bois (*Journ. Soc. Nat. Hortic.*, France, July, 1913) of M. Felicien Lesourd's little book entitled *La Culture du Cresson*, that Watercress was first cultivated systematically in France in 1811, and that of the kinds of Nasturtium officinale now grown, Billet—a new variety—is the most vigorous and productive. Some 200 acres are devoted to the cultivation of this indispensable plant, without which a "poulet" could not be served at a French table with decency nor ate with enjoyment. *Le Cresson* has for some time been under suspicion, and dark hints of its relation with typhoid have been spread abroad. M. Lesourd shows, however, that Watercress will flourish in spring water to which mineral fertilisers are added, and that grown in this way it is beyond suspicion. Those who care to do so may cultivate this wholesome herb in ordinary soil, provided that they give constant attention to watering of the plant.

A New Method of Manuring Fruit Trees.—An account is given in the *Revue Horticole*, p. 248, 1913, of a method recommended by M. Arthur Cadoret, Professor of Agriculture at Journois, for the manuring of fruit trees with artificial manures. Holes about 2 inches in diameter, 8 to 12 inches deep, and about 2 feet apart are made in a circle around the tree at a distance from the trunk equal to the length of the branches. In each hole, which is made by means of a crowbar, is placed about 1½ ounces of a complete manure. The manure consists of superphosphate, nitrate of soda and potassium chloride (or kainit). For ten holes, which require about 1 lb., the following amounts are used :—Superphosphate 7 oz., nitrate of soda 3½ oz., potassium chloride 3½ oz. These amounts, which have given good results, may perhaps with advantage be increased; for example, the quantities of nitrate of soda and kainit may be 10 oz. instead of 3½ oz. The advantages claimed for the method are (1) rapidity and economy of labour, (2) in the case of trees under grass no damage to the sod, (3) no damage to the roots, (4) the manure is put in the immediate neighbourhood of the feeding root. The method is, of course, applicable to trees of all kinds, and the proportion of the manures should vary according to the condition of each tree. If the tree be making excessive growth the nitrogen (nitrate of soda) should be withheld; if its growth is feeble the amount of nitrate may be increased with advantage.

The Improvement of Poor Hill Pasture.—Useful and suggestive, though by no means dogmatic, advice on this difficult subject is given in Leaflet No. 275 (Board of Agriculture). Attention is drawn to the fact that a certain proportion of the hillside pastures has only gone completely out of cultivation during the past 50 years, and it is suggested that such land, lying generally between 500 feet and 1,000 feet, might prove amenable and profitable. The impoverishment and neglect of such pastureland is attributable to several causes, first to the fact that the old methods of cultivation by draining and liming have become too costly; second, because such pastures have been given over exclusively to sheep. Unlike cattle, which eat down the coarser grasses as well, sheep select the finer herbage, and hence in course of time the coarse herbage predominates and the value of the pastures for sheep-feeding is lost. The intrusion of bracken, heather and moss help in the work of deterioration, which is finally completed by the matting together of the undecayed rhizomes and roots of Bent-grass which has driven other grasses from the ground. With a view to preventing this state of affairs it is recommended to mix a few cattle with the sheep on rough hill pastures. The bracken may be got rid of at no prohibitive expense by systematic and repeated cutting. The heather is best destroyed by burning, and moss yields readily to treatment with superphosphate. Land of the kind here treated of is suffering particularly from a lack both of lime and of available phosphate; hence it is recommended to try the effect over an acre or so of basic slag, at the rate of 8 to 10 cwt. per acre.

Wire Pots.—Pots made of wire gauze of suitable mesh have been used for some years for the purposes of physiological experiment; now, according to an article by Herr Fritz Belz, in *Die Gartenwelt*, (August 16, 1913), similar pots have been introduced into commerce by the firm of Ludwig Luckhardt, Cassel, and ac-

cording to Herr Belz they are proving very useful for cultural purposes. The "wire" pot appears to be particularly useful for cuttings of Fuchsias, Pelargoniums and the like. In addition to admitting of freer aeration of the root, their use obviates the necessity of disturbing the root at the time of potting up, for when the wire pot is used all that is necessary is to transfer it bodily to one of larger size. Mr. Belz gives illustrations showing that cuttings struck in wire pots develop more luxuriantly and rapidly than those struck in ordinary pots.

Hops in Belgium.—The Board of Agriculture has received a report, dated September 22, from H.M. Consul-General at Antwerp, reporting that since the picking of Hops has begun it is stated that previous estimates should be reduced by some 10 per cent., which will bring the estimated yield of the whole area under Hops to some 50,000 cwt. Prices of Hops for exportation to Germany range from about £5 18s. to £6 14s. per cwt., and £7 2s. per cwt. has been paid for extra choice Hops.

Primulas.*—This is a handy little volume, specially prepared for the cultivator, dealing briefly with the propagation of the various species in cultivation. Practically all the species known are mentioned, and those in cultivation are more or less fully described. Pax and Knuth's classification is adopted for general purposes, followed by an horticultural classification. Upwards of 200 species of Primula have been described, the bulk of them at home in the mountains of Western China and North India; yet there is a large European contingent, and one species has an extreme isolation in South America. The illustrations, in about half natural size, are very pretty, and include P. elatior, P. acaulis, P. obconica, P. cortusoides, P. megaseæfolia, P. malacoides, P. Forrestii, P. farinosa, P. rosea, P. patens, P. frondosa, P. pubescens, P. verticillata, P. capitata, P. denticulata, and P. Bulleyana. Hybridity, duplication, colours and diseases are also dealt with briefly. In a word, a charming little book for those who are glad of an opportunity of exercising their French while gaining knowledge in another direction.

Chrysanthemum Shows in the L.C.C. Parks.—We are informed that the annual Chrysanthemum shows at Southwark Park, Battersea Park and Finsbury Park are now open to the public, and that Chrysanthemum shows at the undermentioned parks will be opened on the dates specified:—Victoria Park, 11th inst.; Brockwell Park, 18th inst.; and Waterlow Park, 18th inst.

* *Monographie du genre Primevère.* Par S. Mottet. Small 8vo, pp. 108 with twelve plates. Price 2 francs.

POTATO SHOW IN EDINBURGH.

A Potato competition for prizes offered by Messrs. Dobbie and Co. was held in Edinburgh recently. The firm offered prizes for six tubers of either the variety Chapman or Prolific, and the entries closed on 30th ult. No fewer than 676 dishes were received, and these were exhibited in Messrs. Dobbie's offices on the 1st inst. The judges were Mr. Thos. Scarlett, Edinburgh, Mr. Chas. Grigor, Innerwick, and Mr. Chisholm, of the Edinburgh and East of Scotland College of Agriculture. Sixteen prizes were originally offered by the firm, but owing to the large number of entries the prizes were increased to fifty. The 1st prize was awarded to Mr. J. Douglas, North Berwick, with grand tubers of the variety Prolific (see fig. 95). Miss

Fig. 95.—First prize dish of potato "Prolific."

Burton, Polton, was placed 2nd with the same variety. 3rd, Mr. James Hawkes, Isleworth.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Government Seed-Testing.—We have read with much interest the very able leading article which appeared in your issue for September 13, and we were much surprised that any exception could be taken to the conclusion drawn in the closing paragraphs of your article, where you wrote as follows:—"The conclusion, therefore, to which we incline is that, whereas in countries of large area and in varied state of development, or in those with a backward agriculture and without a highly organised system of agricultural instruction, a Government seed-testing station is a valuable means of improving the quality of commercial seed, in England such an institution is not necessary. For it to be effective it must be fortified with considerable powers; it must be accompanied by the enrolment of a large number of inspectors, and it must entail, therefore, a very considerable expenditure. The final and desirable end which it might be expected to achieve may, we think, be attained by educative means." We are also surprised that anyone could take exception to the resolution drawn up by the Parliamentary Committee of the R.H.S., and unanimously adopted by the President and Council, which runs as follows:—"Understanding that a recent deputation to the Board of Agriculture and Horticulture recommended that a National Seed-Testing Station should be established where seeds could be tested if desired, your committee, whilst not wishing to object to the testing of seeds, desires to point out that any such station, if created, must provide a full and sufficient guarantee both to buyer and seller as to the identity of the bulk sold with the sample submitted for test." We have heard no demand on the part of small provincial seed houses who get their supplies from respectable wholesale firms for a central Government seed-testing station, and, as frequently pointed out, the larger leading houses, both wholesale and retail, have their own laboratories for the testing and examining of seed, and therefore have no need to beg for State assistance from the taxpayer. It must be manifest to all who have had experience of the Food and Drugs Act that this Act would have been simply an encouragement to fraud had not inspectors been appointed. Probably our house was the first in England, if not in the world, to inaugurate a complete system of seed-testing, and we have never needed or asked for a Government station to be provided at the expense of the community. If, however, a Government seed-testing station be formed, it should only be provided as stated in the resolution above quoted, on the understanding that "such station, if created, provide a full and sufficient guarantee both to buyer and seller as to the identity of the bulk sold with the sample submitted for test." In other words, to make a seed-testing station effective against fraud, it is absolutely essential that a sufficient number of Government inspectors should be appointed, and we need scarcely say that if such inspectors are appointed we should welcome their visits to our seed stores, and give them every possible facility that they may require to carry out the work to which they were appointed. *Sutton and Sons.*

———Those who write in favour of the establishment of a Government seed-testing station on the score of assisting farmers to obtain a better selection of seed must have a poor estimate of the capacity of the farmer to judge the quality of seeds by their appearance when buying from sample in the open market. It is surmised also that if the bulk does not come up to sample the farmer does not detect the difference, and thus sows seeds inferior in quality. I should like to disabuse the minds of such kindly disposed persons in their wish to assist the farmer, and to say that few farmers are ever taken in by inferior seeds in sample or bulk. If they suffer once you may rest assured they never do a second time by the same firm or person. What is done when the bulk does not come up to the standard of sample? The former is politely returned and the farmer goes elsewhere without any scruple. It may be said the farmer does not know the difference between a good and an impure sample. If anyone who suggests this were to attend once a corn market where all kinds of agricultural seeds are offered for sale by seedsmen and farmers themselves as grown they would quickly find that the ordinary farmer is not so ignorant as to be taken in by inferior seed. He can quickly distinguish Plantain seed from broad Clover and foreign-grown Clover seed from English; he will quickly detect the presence of Burnet among Sainfoin seed, dodder in Clover, cliders in Vetches, as well as the presence of smut in Wheat. He will also say to what extent seeds are likely to germinate, but if he is not satisfied in his mind he tests the germinating powers of his seeds. The remedy for an attempted bad deal is to ignore that firm in the future. Seedsmen quickly find that there is only one way of obtaining custom—straight dealing in seeds of the highest quality; it does not pay to sell inferior seed of any kind. I sell much seed Wheat, Barley, Oats, Vetches, etc., and know it would be useless to offer seeds of inferior quality to my customers. I have had the same men buy yearly, and I am certain they would not if they did not get value for their money. Any establishment of seed-testing stations would necessarily

mean increased expenditure that is not needed. There is already too much expense attached to farming. Seedsmen of repute do not welcome such an innovation. They have a reputation to maintain: if not, good-bye to their business. I am wondering from whom such a request came. Some purist or scientific interferer who is anxious to help the farmer, but in the wrong way. *E. Molyneux, Swanmore Park Estate, Hampshire.*

——— From the letter of your correspondent "*Nachbar*," printed on p. 234 of last issue I gather there are more than myself keenly anxious that this matter of seed control should be brought to a head. I therefore venture a suggestion which I have long held. A definite standard of purity and germination has been recommended. That I believe to be as equally unworkable as it is unnecessary and undesirable. We have not of late years had two successive seasons in any respect approaching similarity. Consequently quality and germination, rarely if ever the same no matter how closely alike the preceding season, are bound to vary more than ever. And so will impurities vary with a wet or dry season. There may be found those who would urge the fixing of a Government-controlled standard according to season. But that, I make bold to say, would be an administration of unexampled absoluteness, if not an arrogant one, because we are dealing with natural, not artificial, products. Besides, as everyone in the trade knows, such a course would render unfit for any purpose a tremendous bulk of seed defective only in a low germination, and as well as making seed-growing more uncertain and precarious than oft-times it is even now, would have the effect of driving numerous competitors out of the field and ultimately raising prices—good for the remaining growers no doubt, but bad for the retailer and worse for the consumer. The consumer, that is, the farmer, but requires to know definitely and authoritatively what he is buying; the quality of it or the price he pays is no one's business but his. If, knowing this and buying an inferior seed, his crop falls short, he alone is to blame, he alone suffers. I am in favour of a seed control station, worked on certain clearly defined lines, such station to be at the disposal of everyone, but to exist in the main for the retailer and the farmer. My plan is that every retailer of Grass and Clover seeds should fix his own standard of purity and germination, that standard he best knows to be suited to his particular class of customer; that every retailer (the farmer-grower who sells to his farmer-neighbour equally with every seedsman), should prepare and deposit with such seed control station the first week in March (or earlier if the station so determine) a list of the seeds he has to sell; that opposite every item he offers he should clearly state, not only the price, the purity, and the germination, but should declare also what the impurities, if any, consist of. The statement might, for example, take this form:—French-grown Italian Rye-grass. Purity 96 per cent.; impurities, 2 per cent. weeds (which to be named—say, Bromus sterilis and B. mollis), 1 per cent. Trefoil, 1 per cent. inorganic matter, Germination 98 per cent. And there to be an allowance of not more than 3 per cent. on either —purity and germination. Now all else would rest with the farmer. He would, if he chose, send to the control station a properly drawn sample of his seed with the name of the retailer and particulars of the seed as offered in that retailer's list, and the station would test the seed for him. To give the system an opportunity of becoming smooth yet sure in working, no action need be taken for a time (unless the difference between listed guarantee and results were unreasonably divergent), save to give warning of the discrepancy to the retailer. But if it were found that, despite these warnings, the seed from any particular source regularly and persistently fell short of its listed guarantee, then public notice of it should be given: but need to go to such a length would be very unlikely to happen. Though, as far as I know, no such plan as this is in operation anywhere, I see no reason whatever why it should not work well for all parties concerned, and be equally just to all. *C. E. C.*

A Seven-Flowered Sweet-Pea Spray.—The older grandiflora varieties of the Sweet Pea have usually two and three-flowered sprays; four flowers on a stem, I believe, is rare in ordinary cultivation. The newer Spencer (waved) varieties have added permanently, as it were, a flower to the spray, threes and fours being almost as frequent as twos and threes are in the grandifloras. The waved varieties have increased vigour, and the extra flower is probably owing to this, and is not, at any rate, due to a diminution in the size of the individual bloom, as the Spencer flower is distinctly larger on the whole. Sprays with more than four flowers are, I fancy, fairly often met with in waved varieties, especially under high cultivation. The only instance, however, which has come to my notice of a spray with seven flowers occurred on a plant of Earl Spencer. This is one of the salmon varieties, which are not noted for great vigour. The cultivation given to the row in which this plant occurred though good was not of an overstimulating order; neither was the removal of lateral shoots practised. Blooms were merely cut off for indoor decoration and pods were not allowed to form. The Earl Spencer plants were growing in the least sunny part of the row and showed less vigour than the other varieties. Consequently this single seven-flowered spray could hardly be attributed to strong growth, but is rather to be regarded as a freak or bud variation—a partial mutation, perhaps, since another spray on the same plant produced five flowers. Otherwise on this and the other plants of this variety twos and threes were usual, fours being scarce. This seven-flowered spray had its blooms close together, arranged somewhat in two whorls, the lower consisting of three and the upper of four flowers. The individual bloom of the latter was a little smaller than that of the former, but the flowers composing the whole could not be considered as much, if at all, undersized. They were all fully open together on August 24, when the spray was picked, photographed and pressed. Many-flowered Sweet Pea sprays can hardly be considered an advantage, unless, as in the above case, the flowers come clustered together on the upper part of the stalk and open in quick succession. In four-flowered sprays even the lowest bloom is occasionally some distance from the next, and may be withering when the uppermost is just expanding. *J. Parkin, The Gill, Brayton, Cumberland.*

Fruit and Flowers in South-Western Scotland I can add still another instance to those already published in these pages of Victoria Plums producing a second crop of fruit this season. The fruit crops have been for most part a disastrous failure this year, owing to the sunless character of the previous summer. On the other hand, the season, while thus adverse to successful cultivation of this description, was distinguished in many instances by the size, and especially by the splendid quality, of the flowers. Roses have seldom been more perfect in formation or more intense in colour than they were this year; such fine varieties as Madame Ravary, Le Progrès, Lady Hillingdon, Mrs. Charles Hunter, Countess of Gosford, Dorothy Ratcliffe, and Alice de Rothschild, being uniquely beautiful. Oriental Lilies were also in many regions florally impressive. When I recently visited Lochinch Castle the Viscountess Dalrymple, who is an enthusiastic horticulturist, showed me two magnificent specimens of Lilium giganteum—a native of the lower slopes of the Central Himalayas—one of which had 19 while the other bore 17 enormous flowers. They at least approximated in stature to their predecessor of last year in her ladyship's "wild garden," which, as previously recorded, reached a height of 13 feet. *David R. Williamson.*

The Recent Fruit Show.—In your report of the recent Fruit Show I was surprised to see you make especial comment of the three dishes of Plums that were awarded the 1st prize, because it was the opinion of many experts that those awarded the 2nd should have been 1st; also, your reporter was wrong in describing them as exceedingly good dishes, because in the second lot the dish of President was better than that in the first; while the dish of Monarch was not particularly good, and the Coe's Golden Drop was only fair; as one of the judges remarked, he had seen better passed over. The second lot contained, also, a superb dish of Grand Duke, and a very fair dish of Primate. Now, if those dishes had been judged by points the 2nd prize lot must have been placed first. *J. Hill, Kingston Lacy, Wimborne.*

SOCIETIES.

ROYAL HORTICULTURAL.

October 7.—The meeting on Tuesday last in the Vincent Square Hall, Westminster, was very successful. The whole of the building, including the two annexes, was filled with exhibits, and the attendance was satisfactory. The most important and largest exhibit was a collection of new trees and shrubs from China, shown by the Hon. Vicary Gibbs, Aldenham House, Elstree. The Floral Committee granted thirteen Awards of Merit, including four to Dahlias, these latter in conjunction with a sub-Committee of the National Dahlia Society.

The Orchid Committee recommended one First-class Certificate and three Awards of Merit.

The Fruit and Vegetable Committee made awards of Medals to four collections and granted one First-class Certificate and four Awards of Merit to seedling Apples.

At the three o'clock meeting in the Lecture Room Mr. E. A. Bunyard delivered an address on "The History and Development of the Strawberry."

Floral Committee.

Present: H. B. May, Esq. (in the chair), Messrs. G. Reuthe, John Green, Chas. E. Shea, Chas. E. Pearson, W. J. James, E. H. Jenkins, W. P. Thomson, Chas. T. Druery, W. J. Bean, William H. Morter, H. J. Jones, Chas. Dixon, Arthur Turner, J. T. Bennett-Poë, J. W. Moorman, J. F. McLeod, Wm. Howe, J. Jennings, George Paul, Thos. Stevenson, James Hudson, and E. A. Bowles.

The chief exhibit was a collection of trees and shrubs staged by the Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. E. Beckett), for which a gold medal was awarded. The group included some 600 species and varieties of Chinese plants collected by Mr. E. H. Wilson in China, the plants having been raised from seed sown since 1908. All the plants were grown in pots, and, so far, the majority have proved hardy at Elstree. The collection was especially rich in Barberries, Cotoneasters, and Ligustrums. We understand that anyone interested in new plants may inspect the collection at Aldenham, where many of the species are planted out, and have grown to a larger size than those shown.

The following is a list of the more promising plants for gardens:—Berberis Sargentiana, B. aggregata, B. subcaulialata, Acer lævigatum, Cotoneaster horizontalis var. perpusilla, C. brillata, C. salicifolia var. rugosa, Photinia Davidsoniæ (a fine evergreen), Cercis racemosa, Rubus Playfairianus (one of the best garden species of the genus), Jasminum No. 789 (a very free-flowering shrubby species), Cornus paucinervis, Juglans cathayensis, Ligustrum Pratii, Ailanthus Vilmoriniana (with very large leaves), Clematus Armandi, Salix magnifica (a grand plant), Populus lasiocarpa, Cercis chinensis, Liquidambar formosana, Berberis aggregata, B. Wilsonæ, Cotoneaster Dammeri, Rhus Henryi, Viburnum rhytidophyllum, Acer Davidii, Liquidambar formosana var. moticola, Catalpa Fargesii, Euptelea Franchetti, Alnus cremastogyne (a beautiful plant), Holboellia cariacea (a grand climber), Marlea platanifolia, and Emmenopterys Henryi.

Messrs. James Veitch and Sons, King's Road, Chelsea, were awarded a Silver-gilt Flora Medal for a collection of hardy Bamboos and ornamental grasses in some 40 species and varieties. Arundinaria nitida, Phyllostachys nigra, P. aurea, P. fastuosa, P. Boryana, Bambusa tessellata, Arundinaria auricoma (golden foliage) and A. Veitchii are a selection of the finer Bamboos. As a separate exhibit this firm showed numerous varieties of winter-flowering Begonias.

Mr. L. R. Russell, Richmond, showed pot plants of his strain of Celosia pyramidalis, in batches of dwarf yellow, tall yellow, tall crimson, dwarf crimson, scarlet, and amaranth. (Bronze Flora Medal.)

Messrs. J. Hill and Son, Lower Edmonton, showed a well-arranged exhibit of Ferns. The collection included fine specimens of Platycerium angolense, Marattia attenuata, Davallia retusa, D. repens, Gleichenias in variety and well-coloured plants of Adiantum macrophyllum bipinnatum. (Silver Banksian Medal.)

Messrs. H. B. May and Sons, Edmonton, ex-

hibited two groups of flowering plants. The one, arranged on the floor, was composed of Chrysanthemums and Veronicas of the V. Andersonii type, relieved with stove and greenhouse Ferns. The other collection was arranged on tabling and comprised a large number of Begonias of the Gloire de Lorraine type, Bouvardias in variety, Primula obconica grandiflora and Ericas, many of which were exquisite little plants in tiny pots. (Silver Banksian Medal.)

Messrs. H. Cannell and Sons, Swanley, showed bunches of Zonal-leaved Pelargoniums.

Mr. H. J. Elwes, Colesborne, Cheltenham (gr. Mr. Walters), exhibited numerous fine hybrid Nerines, the colours including shades of rose, crimson, red, scarlet and carmine, also Hippeastrum speciosum, and a richly-coloured form of the wild Lilium speciosum raised from bulbs collected by the exhibitor in Formosa.

Messrs. Ben Cant and Sons, Colchester, had stands of Roses, for which a Silver Banksian Medal was awarded. The blooms were sur-

Rose beds. This firm also exhibited sprays of trees and shrubs of an ornamental character. (Bronze Flora Medal.)

Messrs. Allwood Bros., Wivelsfield Green, Haywards Heath, brought many of the newer perpetual-flowering Carnations, which lend themselves admirably for effective grouping. Two new perpetual-flowering "Malmaison" varieties, named Majestic (old rose) and Exquisite (deep flesh pink) are recommended for winter blooming.

Messrs. Stuart Low and Co., Enfield, showed perpetual-flowering Carnations, including the new varieties, Salmon King and Satin Robe, the latter an improved Winsor.

Messrs. Carter Page and Co., 52 and 53, London Wall, had the best exhibit of Dahlias, having a selection of all the types of this flower except the show varieties. In the centre of the group was displayed the handsome cup presented by Mr. Reginald Cory and won by this firm at a recent meeting. Amongst the Cactus-

Fig. 96.—carnation yellow stone: petals yellow with white blotches.
(See R.H.S. Awards.)

prisingly fresh and good, but some, such as Mrs. John Laing, were not in character as regards colour; in the variety instanced the petals were almost a blue shade. But the small China Comtesse du Cayla was very pretty, and other good varieties were British Queen, Alex. Hill Gray (clear sulphur yellow) and La Tosca (light pink).

Messrs. Geo. Jackman and Son, Woking, Surrey, staged Roses, the exhibit offering opportunity to make a comparison of the best autumn bloomers. Richmond, as shown, gives fine flowers late in the season, and, taken all round, this variety is one of the very best of the red Roses; the bright, rose-coloured Ecarlate was also prominent, in company with Geo. G. Waud, Mme. Ravary and Lady Hillingdon. In addition to the Roses, this firm staged numerous hardy flowers, the most conspicuous being Aster Amellus Framfieldii, with blue flowers. (Silver Banksian Medal.)

Messrs. Paul and Son, Cheshunt, Hertfordshire, showed baskets of Roses of Polyantha varieties, suitable for indoor decorations as pot plants, or for planting around the borders of

flowered Dahlias were two good garden varieties, Lady Dudley (pink) and White Ensign. (Silver Flora Medal.)

Messrs. J. Cheal and Sons, Crawley, staged sprays of ornamental trees and shrubs and Dahlias. This firm always exhibits the single varieties finely, and on this occasion they had splendid bunches of Sunray, pale orange; Lady Bountiful, deep pink; Owen Thomas, crimson-scarlet, tipped with yellow; Miss Morland, crimson-scarlet; Mrs. Miller, coppery orange, shot with rose; and Mimima, maroon. (Silver Banksian Medal.)

Mr. J. B. Riding, Chingford, exhibited Collerette, Pæony-flowered and decorative Dahlias. The new Parisienne singles were also included in this well-staged collection. The blooms of this type have broad florets with a white ground and a deep picotee edge in various colours, the edges folding together in the form of a ridge. Henri Farmer and Giant of Lyons (new), crimson with lemon collar, are two choice Collerette varieties. The largest Pæony-flowered variety was Meyerbeer, the colour purple suffused with crimson. (Bronze Flora Medal.)

Messrs. Dobbie and Co., Edinburgh, again showed a selection of choice varieties of Collerette Dahlias, for which a Silver Banksian Medal was awarded.

Mr. S. Mortimer, Rowledge, Farnham, Surrey, staged 96 well-grown blooms in 80 distinct varieties of show and fancy Dahlias. (Bronze Flora Medal.)

Dahlias were also exhibited by Mr. W. A. Manda, St. Albans; and Messrs. A. H. Cole, Ltd., Swanley, Kent.

Messrs. W. Wells and Co., Merstham, Surrey, showed Chrysanthemums and Carnations. Novelties amongst the former were seen in Lennox, a yellow Japanese variety of exhibition size; Queen Mary, one of the finest of the large-flowered white varieties; Yellow Firebrand, a sport from Firebrand; and Golden Diana, a sport from Diana. (Bronze Flora Medal.)

The Misses G. C. Price and A. B. Fyfe, Lee, showed varieties of Chrysanthemums and border Asters.

Messrs. W. Cutbush and Son, Highgate, staged miscellaneous indoor flowering plants, including the bright-coloured Coleus Cordelia, Ericas of sorts, Lilies in variety, Polyantha Roses in pots and three splendid Hydrangeas—Avalanche, with immense trusses of pure white flowers; General de Vibraye, another large truss, but of pink colour; and the fine white Mme. Mouillère. This firm also arranged a fine floor group, with large masses of Michaelmas Daisies, tall epergnes of Helenium Riverton Gem, Solidago semperflorens and here and there vases of choice Carnations. In the foreground were miscellaneous border flowers, including the lavender-blue coloured Erigeron Quakeress. (Silver Flora Medal.)

Messrs. T. S. Ware, Ltd., Feltham, showed Asters and Dahlias, making a pretty display with these showy border flowers. They had also the tall-growing Helianthus orgyalis, which makes a splendid plant for the back of a hardy herbaceous border. (Bronze Banksian Medal.)

The Wargrave Hardy Plant Farm, Twyford, Berkshire, showed border Asters. The most striking variety was A. Amellus Schöne von Ronsdorf, a new sort with lilac-pink flowers of exceptional size; Mrs. M. Mathew, white, with a yellow centre; Fairfield, of the Novæ Belgii section, with white, star-shaped flowers; Climax, a well-known blue sort; and Ringdove, rosy-lavender, are others of merit. (Bronze Flora Medal.)

Messrs. H. J. Jones, Ltd., Hither Green, Lewisham, were awarded a Silver Banksian Medal for Chrysanthemums and Michaelmas Daisies. The group was amongst the prettiest in the hall, yet the arrangement was simple. At the back were tall epergnes, filled, but not crowded, with such beautiful Asters as Climax, a fine shade of blue; Henry Adams, a little deeper blue; Micky Adams, faintly flushed with lavender; and Silver Queen. Chrysanthemums Moneymaker, Cranford Yellow, Betty Sparks, and Framfield Early White were arranged in front of the Asters.

Mr. Geo. Reuthe, Keston, Kent, exhibited rare Alpines and uncommon shrubs. The deep blue Gentiana Andrewsii, known in Canada as the closed Gentian; Viola cornuta purpurea, Salvia patens, with lovely blue flowers; Crocus speciosus alba, and hybrid Nerines, were all attractive.

Mr. James Box, Lindfield, was awarded a Bronze Flora Medal for hardy flowers. All the subjects displayed were in splendid condition.

Messrs. Whitelegg and Page, Chislehurst, showed many border Asters, of which we admired most Nancy Ballard, violet-purple; Moonlight, lavender; Lady Lloyd, rose-pink; and Glory of Colwall, rosy-lilac. In the centre of the exhibit, trailing over stones, were plants of Potentilla Miss Willmott, the perfectly-shaped blossoms being a fine shade of rose colour.

Messrs. Pipers, Bayswater, showed how well suited for decorative purposes are the large bloomed, Pæony-flowered Dahlias. Their imposing group was arranged in a corner, where it showed to advantage, the tall stands being beautifully arranged with these flowers and relieved with sprays of Michaelmas Daisies and coloured foliage. This firm also showed miniature Japanese gardens in earthenware trays. (Silver Banksian Medal.)

Messrs. Thompson and Charman, Bushey, Hertfordshire, filled a table in the annexe with a rock-garden exhibit. Amongst the plants we noticed the new Primula Juliæ and the dwarf Rosa pumila rosea, which, we were informed, had bloomed continuously all through the summer.

Messrs. Barr and Sons, King Street, Covent Garden, showed varieties of Gladioli; several handsome Nerines, two of which received Awards of Merit; Lilium sulphureum, the dwarf Kniphofia Macowanii, with orange-red flowers; numerous showy Asters, and border Chrysanthemums.

Mr. Ernest Ballard, Colwall, Herefordshire, was awarded a Bronze Flora Medal for seedling Michaelmas Daisies.

Hardy flowers were also exhibited by Mr. G. Gibson, Bedale, Yorkshire; Mr. C. W. Chantler, St. Mary Cray, Kent; Messrs. G. and A. Clark, Ltd., Dover; and Mr. A. Ll. Gwillim, Sidcup, who also staged blooms of tuberous-rooted Begonias.

AWARDS.

First-class Certificate.

Symphoricarpus mollis.—This beautiful Snowberry has already received the R.H.S. Award of Merit (see *Gard. Chron.*, October 15, 1910, p. 287, and Supplementary Illustration, February 18, 1911). It does not differ greatly in general appearance from S. occidentalis, but the berries are more numerous, hanging in such profusion from the ends of the shoots as to weigh the branches down. The plant also appears to be better furnished with foliage than the common Snowberry, and is a decided improvement in all respects. Shown by Hon. Vicary Gibbs (gr. Mr. Edwin Beckett).

Awards of Merit.

Tithonia speciosa.—Shown under its synonym Helianthus speciosus, this old garden plant attracted considerable notice as being a fine "red" Sunflower. The plant is a native of Mexico, and was introduced to this country in 1833. The flower heads consist of about a dozen ray florets of rich red colour, and an orange-coloured disc. The plant grows about 4 feet high. (Shown by Mr. Batchelor, Towcester.)

Nerine Giantess.—A hybrid of N. Bowdenii and N. coruscans major. The truss is exceptionally large and the individual flowers in proportion, but the head is rather lax in consequence. The colour is bright rose, showing, in transmitted light, a suffusion of purple.

Nerine Glory of Sarmia.—A rich, scarlet-hybrid of N. coruscans major and N. Fothergillii major. These two shown by Messrs. Barr and Sons.

Nerine Salmon Queen.—A fine, deep-salmon variety, with bold truss measuring 6 inches in diameter. Shown by Mr. H. J. Elwes.

Paulownia imperialis lanata (syn. tomentosa).—This handsome foliage plant bears a moderate resemblance to the species. Like the type, its leaves are very large and entire, but not so ovate, being irregular. Those on the plant exhibited were 13 inches long and as much broad, and clothed with a fine, dense tomentum. The plant is said to be fairly hardy in the Southern Counties, but the specimen was shown as a bush, and we suspect that, as so often happens with the species, a moderate amount of frost would cut back the shoots.

Tricyrtis stolonifera.—This species of Toad Lily was collected in Formosa by Mr. Elwes, who exhibited specimens in bloom. The flowers and foliage have a superficial appearance to those of T. hirta, but the inflorescence is more spreading and grows 5 feet tall. All the segments are purplish, with darker spotting, and at the base of the flower are three double-pouched nectaries.

Carnation Yellow Stone (see fig. 96).—A bright yellow variety of American origin, probably the best of its colour in the perpetual-flowering section. The petals have a few patches of white, which are a slight defect. Shown by Messrs. Allwood Bros.

Carnation Queen Alexandra.—A salmon-pink, perpetual-flowering variety, said to be a sport from Scarlet Glow. Plants were exhibited to show the vigorous growth and freedom of flowering. Exhibited by Mr. Geo. Clark, March.

Dahlias.

The following varieties of Dahlia were awarded the A.M. of the R.H.S. and the F.C.C. of the National Dahlia Society:—

Dahlia The Quaker (*Cactus*).—A fine exhibition variety of the most refined type. The florets are long and pointed, with a good "filbert" centre. They are white, suffused with mauve on the outer florets. From Messrs. Jas. Stredwick and Son.

Dahlia General de Sonis (*Collerette*).—A bright scarlet flower, with a well-defined golden collar, borne on a stiff stem.

Dahlia Carl Bechstadt (*Collerette*).—A scarlet variety, edged with gold, with a zone and collar of golden yellow. The stems are erect and rigid.

Dahlia Offenbach (*Decorative*).—Clear yellow, in colour, with fine, erect stems. The variety may be described as a yellow form of Princess Juliana. These three from Mr. J. B. Riding, Chingford.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, R. B. White, S. W. Flory, W. H. White, A. Dye, J. E. Shill, W. H. Hatcher, J. Charlesworth, W. Cobb, C. H. Curtis, A. McBean, T. Armstrong, R. G. Thwaites, Stuart Low, F. J. Hanbury, F. Sander, R. A. Rolfe and Sir Harry J. Veitch.

The first October meeting brought quite a revival in the Orchid section of the Show, and there were some excellent groups and a fair proportion of novelties to go before the committee.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver-gilt Flora Medal for a group in which the prominent features at the back were the graceful sprays of Oncidium incurvum, with a fine selection of Odontoglossums. Colour was given by a good display of the orange-scarlet Epidendrum vitellinum and some very handsome scarlet Odontiodas, the best of which was a new variety of the handsome O. Brewii (Charlesworthii × Harryanum) named callistoglossa, which had the large and finely-formed flowers of a rich red colour, and the new O. Brunette (Odontioda Bohnhoffiæ × Odontoglossum Harryanum), with a blackish-purple flower. Lælio-Cattleya Colmanii and other Lælio-Cattleyas, and hybrid Cattleyas were well shown; a selection of Cypripediums had a pretty cross between C. glaucophyllum and C. Fairrieanum, and among others noted were the yellow Phaius Ashworthianus, Angræcum Buyssonii and Pescatorea Roezlii.

Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, were awarded a Silver Flora Medal for an attractive group of hybrids specially rich in yellow-petalled forms, and which included Lælio-Cattleya Sandhurstiana (L.C. Norba × C. aurea, a very handsome flower closely approaching C. aurea, and with creamy yellow sepals and petals, and violet-crimson lip with gold lines; L.-C. Mrs. Donald MacMaster, Orchidhurst variety (L.C. luminosa × C. aurea) of very remarkable colour, the sepals and petals being dark primrose-yellow tinged with purple, and the lip intense maroon-purple with delicate gold lines at the base; and L.-C. Thyone, another good yellow. Other good Lælio-Cattleyas of the L.-C. Geo. Woodhams class were also shown, and among hybrid Cattleyas some good C. Lord Rothschild, a good selection of C. Iris and C. Adula, and some finely-coloured C. Fabia. A good specimen of Cœlogyne pandurata and one of the singular Bulbophyllum Ericssonii were also noted.

Messrs. Sander and Sons, St. Albans, staged a group for which a Silver Flora Medal was awarded. A specially handsome selection of Cattleya Fabia included C. F. Prince of Wales, the best dark form (see Awards), Cattleya Iris, C. Lord Rothschild, a very pretty light variety of C. Mrs. J. W. Whiteley; the new and pretty C. Mrs. Pitt variety, Golden Dawn, with handsome blush-white flowers and finely crimped lip, the greater part of which is bright yellow; a good dark Lælio-Cattleya Phœnix, and other Lælio-Cattleyas.

Messrs. Stuart Low and Co., Bush Hill Park, were awarded a Silver Banksian Medal for an effective group of Oncidium varicosum, Vanda cœrulea, Dendrobium Phalænopsis, D. superbiens and other popular Orchids, the hybrids including Cattleya Iris, Brasso-Cattleya Pocahontas alba, and B.-C. Digbyano-Warscewiczii. A specially rare plant in the group was Lælia Dayana delicata, white, tinged with lavender, and with violet lines and markings on the lip.

Messrs. Hassall and Co., Southgate, secured a Silver Banksian Medal for a good group of well-grown plants, among which were several Cattleya aurea, C. Harrisoniana alba, C. Adula, C. Iris, good forms of C. labiata, C. Thurgoodiana, some finely-flowered Odontoglossum grande and Lælio-Cattleya Hera (L.-C. Issy × C. Hardyana), a very attractive flower.

Messrs. Flory and Black, Orchid Nursery, Slough, showed a small group of good hybrids, including the very handsome Brasso-Lælio-Cattleya Morna superba (B.-C. Mad. Chas. Maron × L.-C. Bletchleyensis), a charming large flower of fine shape and substance, of a delicate blush-rose tint, the broad lip having a fringed margin; Brasso-Lælio-Cattleya Eric (B.-C. Mad. Chas. Maron × L.-C. Violetta), an exceptionally large and finely-shaped flower, white delicately tinged with Peach-blossom colour; B.-C. Ilene (Mad. Chas Maron × C. Dowiana), rose-pink, with a fine yellow disc to the fringed lip. Others noted included a pretty Primrose-yellow Lælia with purple lip, resulting from crossing L. tenebrosa Walton Grange and L. purpurata, and a very distinct Cattleya Atalanta.

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed the fine Cattleya Rhoda illuminata and the white Lælia pumila alba.

R. G. Thwaites, Esq., Chessington, Streatham, showed a small group of Cattleya Iris, C. Fabia, etc.

W. Waters Butler, Esq., Southfield, Edgbaston (gr. Mr. Jones), sent Cattleya Dietrichiana Southfield Variety, and a very beautiful white-petalled C. Hardyana, near to C. H. albens, which was given a First-class Certificate, Nov. 10, 1903.

Messrs. J. and A. McBean, Cooksbridge, staged a small group in which the novelties were Brasso-Cattleya Iris (see Awards); Cattleya Lord Rothschild albescens McBean's variety, a charming and perfect flower of a delicate blush-white, with yellow centre to the lip; and the bright little Odontioda Minerva (Odontoglossum Edwardii × Odontioda Bohnhoffiæ), the branched spike bearing small, deep-red flowers. O. Euterpe, O. Diana, O. Lambeauana and other Odontiodas were also shown.

Pantia Ralli, Esq., Ashstead Park, Surrey, showed Lælio-Cattleya Maqueda (L.-C. Geo. Woodhams × C. Lord Rothschild), a very handsome and bright flower, with purplish-rose sepals and petals and glowing ruby-crimson lip; Odontonia brugensis Distinction, in which the flowers were white, with the inner halves deep violet; and the handsome Odontoglossum Crawshayanum superbum (see Awards).

Sir John Edwards Moss, Roby Hall, Torquay, sent a flower of the first cross with Cymbidium erythrostylum, and which was obtained by crossing C. giganteum with that species. The parentage was evident, C. erythrostylum predominating.

Mr. E. V. Low, Vale Bridge, near Haywards Heath, sent Cattleya Iris Prince Arthur, with bronzy sepals and petals and rose-purple lip.

E. H. Davidson, Esq., Orchid Dene, Twyford, showed the pretty Odontoglossum Smithii and other Odontoglossums, etc.

AWARDS.

First-Class Certificate.

Cattleya Adula Glebe variety (*Bicolor* × *Hardyana*), from C. J. Phillips, Esq., The Glebe, Sevenoaks. A very remarkable variety, with large, broad-petalled flowers of a rich bronzy-yellow colour, with large, deep-crimson lip.

Awards of Merit.

Odontoglossum Crawshayanum superbum (*Hallii* × *Harryanum*), from Pantia Ralli, Esq., Ashtead Park, Surrey. Flowers large, in form resembling O. Hallii. Sepals and petals pale

green, blotched with chocolate-purple; lip large, white, with purple spotting around the crest.

Cattleya Fabia Prince of Wales (*labiata* × *Dowiana aurea*), from Messrs. Sander and Sons, St. Albans. One of the best and largest of the dark forms. Flowers bright magenta-rose, with crimson front to the lip.

Brasso-Cattleya Iris (*Cattleya Iris* × *Brasso-Cattleya Thorntonii*), from Messrs. J. and A. McPean, Cooksbridge. A pretty change in colour among Brasso-Cattleyas, the finely-formed flower being bright rose, with some white showing at the base of the segments, the broad lip mottled with purplish-rose, the disc pale yellow.

Fruit and Vegetable Committee.

Present: Jos. Cheal, Esq., in the chair, Messrs. E. Beckett, Owen Thomas, H. Markham, A. Grubb, Wm. Pope, G. Reynolds, J. Davis, George Kelf, A. R. Allan, P. D. Tuckett, C. G. A. Nix and A. W. Metcalfe.

Messrs. J. Veitch and Sons, Ltd., sent from their Langley Nurseries a collection of model little Apple bushes, averaging 3 feet in height, and each bearing freely. These young trees had been lifted from the open ground and placed in large flower-pots. The fruits, and especially of such culinary varieties as the Rev. W. Wilks and S. T. Wright, which latter variety received a provisional Award of Merit, were of fine quality and size. Others of special merit were Gascoyne's Scarlet Seedling, Landsberger Reinette, and Cox's Pomona. (Silver Knightian Medal.)

J. A. Nix, Esq., Tilgate, Crawley, Sussex, contributed a meritorious collection of Grapes, Pears and Apples. Many of the Grapes Madresfield Court, Gros Maroc and Mrs. Pince were shown in good-sized bunches of Sloe-black berries, and that difficult variety, Prince of Wales, was better finished than is usual. The Pears included Williams's Bon Chrêtien, Louise Bonne of Jersey, Emile d'Heyst, and Doyenné Bussoch, whilst amongst the Apples we noted American Mother, The Queen, Norfolk Beauty, and Egremont Russet as being the best of a good collection. (Silver-gilt Knightian Medal.)

L. H. Potter, Esq., Pond's Farm, Old Malden, Surrey, exhibited 20 dishes of excellent Apples. Such culinary varieties as Peasgood's Nonesuch, Striped Beefing and Queen Caroline were of first-grade size and quality, whilst the dessert fruits, as represented by Scarlet Nonpareil, Ribston Pippin, King of the Pippins and Yellow Ingestre, were of good moderate size and well coloured. (Silver Banksian Medal.)

From the Purfleet School Garden was sent many dishes of hardy fruit grown by boys whose ages vary from 11 to 14 years. Apples and Pears, such as Potts's Seedling, Gascoyne's Seedling, and Golden Spire of the former, and Durondeau, Conference, Fertility, and Emile d'Heyst Pears showed the good results of the garden education the boys receive.

AWARDS.

First-class Certificate.

Apple Guelph.—A large, round Apple of beautiful colouring. The calyx cavity is shallow and saucer-shaped, and the segments of the calyx are very short, as also is the stem, which is rather deeply inserted. It is of the Charles Ross type, and on the sunny side the rich yellow is heavily flushed with crimson. This Apple may be used either for dessert or for culinary purposes; its flavour is first-rate and suggestive of Cox's Orange Pippin. Shown by Mr. Wm. Pope.

Awards of Merit.

Apple Peacemaker.—This is another Charles Ross type of Apple very like the former. The fruits are also large and round, but not quite so regular in outline, and the calyx segments are long and pointed, and the colour is much paler, albeit it is also a handsome fruit. A culinary variety. Also shown by Mr. Wm. Pope.

Apple S. T. Wright.—An immense culinary variety, similar in appearance to the variety Rev. W. Wilks, except that it is more prominently ribbed and lightly striped with deep red. It is a cross between Peasgood's Nonesuch and Bismarck. The award was made subject to the variety proving to be of good cooking quality. Shown by Messss. J. Veitch and Sons.

Apple Cliveden Prolific.—A medium to large oblong-shaped culinary Apple of pale green colour, lightly flushed and striped with deep red, and occasionally with heavier colour. This valuable, firm-fleshed Apple was shown by Mr. W. Camm, Cliveden Gardens.

Exhibition of British-Grown Fruits.

(*Concluded from page* 245.)

DIVISION VI.

Single-dish Classes.

The customary classes for single dishes (of six fruits) of the various named varieties of Apple and Pear, all of which the Society consider to be excellent and worthy of general cultivation, brought together an enormous quantity of Apples and many more Pears than might have been anticipated.

DESSERT APPLES.

Adams's Pearmain.—Of the thirteen exhibits, the best was shown by the Earl of Suffolk; 2nd, Mr. Bankes. *Allington Pippin.*—There were nineteen exhibits, and the great majority were of exceptional quality. 1st, W. Castle, Esq., Barton Mills, Suffolk (gr. Mr. J. Reynolds); 2nd, J. Copp, Esq., Ferndale, Teignmouth. *American Mother.*—There were eleven dishes of this valuable variety, and the Rev. F. McMurdie, Woburn Park, Weybridge (gr. Mr. A. Basile), won the 1st prize with almost perfect examples; 2nd, G. H. Landon, Esq. *Barnack Beauty.*—1st, Mr. C. Crooks; 2nd, Rev. F. McMurdie. *Belle de Boskoop.*—1st, Captain Reid; 2nd, F. J. B. Wingfield Digby, Esq. *Ben's Red.*—Nearly all of the eight dishes were of splendid quality; 1st, C. H. Berners, Esq.; 2nd, Captain Reid. *Blenheim Pippin.*—All of the nineteen dishes were of moderate, dessert size, and most of them of good shape; 1st, J. Walter, Esq., Bearwood, Wokingham (gr. Mr. J. T. Tubb); 2nd, Rev. J. R. Leigh, Yalding Vicarage, Kent (gr. Mr. G. Johnson). *Charles Ross.*—Many of the nineteen dishes of this beautiful Apple bore high colouring, and the prizewinning fruits were exceptionally fine; 1st, Rev. H. A. Bull, Westgate-on-Sea (gr. Mr. F. King); 2nd, H. St. Maur, Esq., Newton Abbott (gr. Mr. G. Richardson); 3rd, F. Paget Norbury, Esq. *Christmas Pearmain.*—1st, Rev. F. McMurdie; 2nd, Captain Reid. *Claygate Pearmain.*—All of the sixteen dishes were of unusually good quality; 1st, C. Gurney, Esq.; 2nd, J. B. W. Digby, Esq. *Cockle's Pippin.*—1st, H. C. Combe, Esq., Cobham Park, Surrey (gr. Mr. A. Tidy); 2nd, the Earl of Devon, Powderham, Exeter. *Coronation.*—There were only three dishes of this comparatively new variety, but they were all commendable; 1st, H. St. Maur, Esq.; 2nd, G. H. Landon, Esq. *Cox's Orange Pippin.*—Twenty-two exhibitors showed this indispensable variety, and many of them staged excellent fruits; 1st, H.R.H. the Duchess of Albany, Claremont, Esher (gr. Mr. J. S. Kelly); 2nd, F. Paget Norbury, Esq. *Duke of Devonshire.*—1st, Captain Reid; 2nd, the Duke of Wellington. *Egremont Russet.*—1st, G. H. Landon, Esq.; 2nd, Captain Reid. *Houblon.*—There were no entries. *James Grieve.*—F. P. Norbury, Esq., showed the best dish; 2nd, Captain Reid. *King of Tompkins County.*—The five exhibits showed a great variety of size and colouring; 1st, C. H. Combe, Esq.; 2nd, the Duke of Newcastle. *Lord Hindlip.*—1st, the Earl of Suffolk; 2nd, G. H. Landon, Esq. *Mannington Pearmain.*—Only two dishes were shown, and these were of good quality; 1st, Mrs. Bankes; 2nd, I. Lewis, Esq., Pedgebury Park, Goudhurst (gr. Mr. J. Smith). *Marqil.*—Of the nine dishes the best was shown by Rev. F. McMurdie; 2nd, I. Lewis, Esq. *Reinette du Canada.*—The only exhibitor, H. St. Maur, Esq., was awarded the 1st prize. *Ribston Pippin.*—Nearly all of the twenty dishes were exceptionally good; 1st, Colonel Harbord; 2nd, H. C. Combe, Esq. *Rival.*—The eight dishes were so good that the judges recommended an extra prize; 1st, C. H. Berners, Esq.; 2nd, the Earl of Suffolk; 3rd, Captain Reid. *Scarlet Nonpareil.*—The five dishes were so poor that the 1st prize was not awarded. *St. Edmund's Pippin.*—J. Walker, Esq., showed the best of the six dishes; 2nd, F. J. B. W. Digby, Esq. *St. Everard.*—The two dishes were of only moderate quality; 1st, J. B. Fortescue, Esq.; 2nd, G. H. Mould, Esq., Papworth St. Everard, Cambridge. *Wealthy.*—Most of the fifteen dishes were of good typical fruits; 1st, Rev. F. McMurdie; 2nd, J. Walter, Esq., 3rd, Captain Reid. *William Crump.*—No award was made. *Any Early Variety Not Named; Eight Fruits.*—This class provided excellent competition. 1st, Right Hon. J. W. Lowther, Campsea Ashe, Wickham Market (gr. Mr. A. Andrews), who showed excellent fruits of Worcester Pearmain; 2nd, Colonel Harbord, with beautiful fruits of Benoni; 3rd, Sir M. Turner. *Any Late Variety Not Named: Eight Fruits.*—There were fifteen exhibits, and although all of them were not of quite the same high quality as in the preceding class, most of them were very good indeed; 1st, H. St. Maur, Esq., who showed splendid fruits of Ballinora; 2nd, J. Walter, Esq., for Ross's Nonpareil.

COOKING APPLES.

Alfriston.—1st, C. H. Combe, Esq., 2nd, Captain Reid. *Annie Elizabeth.*—Captain Reid had the best of the seventeen dishes; 2nd, J. B. W. Digby, Esq. *Beauty of Kent.*—Five dishes of this noted variety were shown; 1st, Colonel Harbord; 2nd, J. B. Fortescue, Esq. *Bismarck.*—1st, Captain Reid; 2nd, E. E. Pearson, Esq. *Blenheim Pippin.*—Of the twelve dishes, the best was shown by H. Edgell, Esq., Hickling, Norfolk; 2nd, the Duke of Wellington. *Bramley's Seedling.*—E. G. Mocatta, Esq., Addlestone (gr. Mr. T. Stevenson), won the 1st prize with excellent samples; 2nd, E. E. Pearson, Esq. *Byford Wonder.*—No award. *Crimson Bramley.*—No entry. *Dumelow's Seedling.*—1st, H. St. Maur, Esq.; 2nd, the Duke of Wellington. *Ecklinville.*—1st, Rev. F. McMurdie; 2nd, J. B Fortescue, Esq. *Edward VII.*—1st, Hon. J. W. Lowther; 2nd, Captain Reid. *Emneth Early.*—The two exhibits were of average quality; 1st, I. Lewis, Esq. *Emperor Alexander.*—1st, E. E. Pearson, Esq., Bickendonbury (gr. Mr. W. Stephenson); 2nd, Hon. J. W. Lowther. *Encore.* — No entry. *Gascoyne's Scarlet.*—1st, the Duke of Wellington; 2nd, the Earl of Suffolk. *Golden Noble.*—1st, Hon. J. W. Lowther; 2nd, the Earl of Devon. *Grenadier.*—1st, the Earl of Bessborough; 2nd, J. B. Fortescue, Esq. *Hambling's Seedling.*—1st, J. B. Fortescue, Esq.; 2nd, H. St. Maur, Esq. *Hector Macdonald.*—The two exhibitors, J. Copp, Esq., and C. B. Broad, Esq., won the prizes in the order named. *Hormead Pearmain.*—1st, Captain Reid, who showed fine examples; 2nd., J. B. Fortescue, Esq. *King of Tompkins County.*—1st, Capt. Reid; 2nd, C. H. Combe, Esq. *Lane's Prince Albert.*—1st, E. E. Pearson, Esq.; 2nd, G. H. Landon, Esq. *Lord Derby.*—Many of the dishes were especially fine; 1st, Rev. J. R. Leigh; 2nd, Colonel Petre. *Mère de Ménage.*—The leading dishes were of deeply-coloured and shapely fruits; 1st, H. St. Maur, Esq.; 2nd, Colonel Petre. *Newton Wonder.*—1st, Captain Reid; 2nd, F. J. B. W. Digby, Esq. *Norfolk Beauty.*—The best of the three dishes was from Hon. J. W. Lowther; 2nd, Colonel Harbord. *Peasgood's Nonesuch.*—1st., Hon. J. W. Lowther; 2nd, H. St. Maur, Esq. *Rev. W. Wilks.*—There were four dishes of this handsome Apple; 1st, H. W. Henderson, Esq.; 2nd, Sir W. Greenwell. *Potts's Seedling.*—1st, Captain Reid; 2nd, F. J. B. W. Digby, Esq. *Royal Jubilee.*—1st, Hon. J. W. Lowther; 2nd, J. Walter, Esq. *Stirling Castle.*—1st, F. P. Norbury, Esq.; 2nd, Earl of Devon. *The Queen.*—The chief fruits were large and nicely striped; 1st, Hon. J. W. Lowther; 2nd, G. H. Landon, Esq. *Tower of Glamis.*—1st, C. H. Combe, Esq.; 2nd, Hon. J. W. Lowther. *Warner's King.*—Most of the fruits were of very large size and of good appearance; 1st, H. St. Maur, Esq.; 2nd, Rev. A. Bull. *Any Variety Not Named: Eight Fruits.*—1st, Earl of Bessborough; 2nd, Rev. J. R. Leigh.

DESSERT PEARS.

Beurré Alexander Lucas.—The four exhibits were of more than average quality; 1st, F. J. B. W. Digby, Esq.; 2nd, H.R.H. the Duchess of Albany. *Beurré d'Amanlis.*—1st, Lord Foley, Ruxley Lodge, Claygate (gr. Mr. H. C. Gardner). *Beurré d'Avalon.*—No entry. *Beurré Bosc.*—Of the seven dishes, the best was shown by F. J. B. W. Digby, Esq.; 2nd, Rev. F. McMurdie. *Beurré de Naghin.*—No entry.

Beurré Dumont.—The best of the two dishes was decidedly that of the Rev. F. McMurdie. *Beurré Hardy.*—1st, C. H. Berners, Esq.; 2nd, Rev. A. Bull. *Beurré Perran.*—Most of the fruits bore the russet typical of this variety and were of good shape; 1st, Colonel Harbord; 2nd, F. J. W. Digby, Esq. *Beurré Superfin.*—The seven dishes of this fine variety were nearly all characteristic and of fair quality; 1st, F. J. W. Digby, Esq.; 2nd, C. H. Berners, Esq. *Blickling*; 1st, Colonel Harbord, who was the only exhibitor. *Charles Ernest.*—There were eight dishes of this handsome Pear; Colonel Petre won the 1st prize with particularly good specimens; 2nd, F. J. W. Digby, Esq. *Comte de Lamy*—1st, C. H. Combe, Esq.; 2nd, J. B. Fortescue, Esq. *Conference.*—The best of the eight dishes, which were of the typical long shape, was shown by Colonel Petre; 2nd, F. R. Rodd, Esq. *Directeur Hardy.*—F. Bibby, Esq., the only exhibitor, was awarded the 1st prize. *Doyenné du Comice.*—Colonel Petre won the 1st prize with splendid fruits; 2nd, F. J. W. Digby, Esq. *Durondeau.*—Many of the thirteen exhibits were particularly handsome; 1st, Colonel Petre; 2nd, Colonel Harbord. *Easter Beurré.*—1st, Colonel Petre; 2nd, C. H. Combe, Esq. *Emile d'Heyst.*—1st, C. H. Berners, Esq., who showed luscious-looking fruits; 2nd, Colonel Petre. *Fondante d'Automne.*—1st, Colonel Harbord; 2nd, W. Castle, Esq. *Fondante Thirriott.*—1st, C. H. Berners, Esq.; 2nd, J. B. Fortescue, Esq. *Glou Morceau.*—The greenish fruits were of medium size, but perfect shape. 1st, Colonel Petre; 2nd, Rev. F. McMurdie. *Jersey Gratioli.*—There were only two dishes, and the 1st prize was awarded to Colonel Harbord. *Joséphine de Malines.*—The best fruits were from F. J. W. Digby, Esq.; 2nd, Mrs. Bankes. *Le Brun.*—1st, F. R. Rodd, Esq., Launceston (gr. Mr. A. Bellinger); 2nd, Rev. F. McMurdie. *Le Lecteur.*—E. G. Mocatta, Esq., showed large and shapely fruits; 2nd, Mrs. Bankes. *Louise Bonne of Jersey.*—There were nine exhibits. 1st, G. H. Landon, Esq.; 2nd, Colonel Harbord. *Marie Benoist.*—No award. *Marie Louise.*—1st, Colonel Petre; 2nd, Colonel Harbord; both exhibits were of good quality. *Nouvelle Fulvie.*—1st, Colonel Petre; 2nd, Mrs. Bankes. *Olivier des Serres.* — 1st, F. J. W. Digby, Esq.; 2nd, Captain Reid. *Pitmaston Duchess.*—Ten exhibitors staged this variety, and the winning dishes were of magnificent golden fruits. 1st, Colonel Petre; 2nd, M. Fraser, Esq., Teignmouth. *Santa Claus.*—No entry. *Souvenir du Congrès.*—1st, Rev. F. McMurdie; 2nd, W. Castle, Esq. *Thompson's.*—1st, The Duke of Newcastle; 2nd, Colonel Harbord. *Triomphe de Vienne.*—There were only two exhibits, and the 1st prize was won by Colonel Petre. *Winter Nelis.*—1st, F. J. W. Digby, Esq.; 2nd, Lord Foley. *Any Early Variety not Named Above: Eight Fruits.*—There were 17 dishes of very good fruits. 1st, Colonel Harbord; 2nd, Hon. J. W. Lowther. *Any Late Variety not Named Above: Eight Fruits.*—Of the 11 dishes the best was from F. J. W. Digby, Esq.; 2nd, Colonel Harbord. A Silver Hogg Medal was awarded to Mr. Geo. Pyne, Topsham, Devon, for a dish of Apple Rev. W. Wilks, "of quite exceptional cultivation." These magnificent Apples averaged 15 inches in circumference, and were of splendid shape and appearance.

NORTHERN COUNTIES.

Fruit Show and Congress at Kendal.

(*Continued from page* 242.)

September 24 and 25.

The Mayor of Kendal (Mr. J. R. Illingworth) opened the proceedings, and after some remarks by Mr. Jas. Hudson and Mr. J. Cheal, Mr. Harper, a Manchester wholesale merchant, spoke on the methods of preparing fruit for the market. He was surprised to see such a good show. Most of the Apples were exceptionally well packed and a great credit to the growers. He enlarged on the need of good packing for the market, so that people could open a parcel, ask the price, and buy several packages knowing they were all equally good. One of the greatest needs of the English grower was to learn how to pack and grade well. In England we grew as good produce as anywhere in the world, but we still kept to the old-fashioned way of putting a few of the best and biggest fruits on the top. That did not pay. He spoke of the systematic methods of Canada in grading first and second class fruits, and of the recognition the Canadian Government gave them. France and Holland, too, had made great strides in the matter of packing. It would indeed surprise them if they went within thirty or forty miles of Rotterdam to see the vast quantities of produce sold.

A congress was held on both days, when the following papers were read:—

Wednesday.—(1) "The Organisation of the Fruit Industry in Westmorland, with special reference to Damsons." Chairman, Lord Henry Bentinck, M.P. Speaker, Mr. C. J. R. Tipper, B.Sc., Secretary to the Westmorland Education Committee, Kendal.

(2) "Fruit Insect Pests," Woolly Aphis or American Blight, Big Bud, the Codling and Winter Moths. Chairman, W. D. Crewdson, Esq. Speaker, Mr. R. A. H. Gray, M.A., M.Sc., Adviser in Agricultural Zoology, Armstrong College, Newcastle.

Thursday.—(3) "Land Tenure and Fruit Culture." Chairman, F. W. Crewdson, Esq. Speakers, Mr. W. F. Emptage and Mr. Cecil Hooper.

(4) "Potato Culture." Chairman, J. C. Hamilton, Esq. Speaker, Mr. G. P. Berry, Chief Instructor of the Horticultural Branch of the Board of Agriculture.

(5) "Diseases of Potatos." Chairman, Mr. W. Cuthbertson. Speaker, Mr. W. B. Mercer, B.Sc., Lecturer in Agricultural Botany, Armstrong College, Newcastle.

The Potato Conference was held on the Thursday. The Conference Hall was filled on each occasion. Mr. G. P. Berry introduced the subject of "Potato Culture" in a thoroughly practical address, and was followed by Professor Seton, of Leeds University, and Mr. Cuthbertson, Edinburgh, with able speeches from their points of view. At the evening meeting Mr. W. B. Mercer, B.Sc., lectured, with the aid of a capital series of lantern illustrations on "Diseases of Potatos." Professor Seton and Mr. Mayhew both addressed the meeting at considerable length on this subject. At all the lectures the audience followed the subjects with the keenest interest, a number taking part in the discussion, some by giving their experience and others by asking questions.

Competitive Classes.

Lord Henry Bentinck, M.P., formally opened the show in a brief speech. He spoke of the need of more up-to-date methods of work, and stated that in his opinion the longer they retained old methods the worse for the grower. There was an enormous future for fruit-growing and they could see what a fine show of Apples could be grown in the North of England. It was evident that there would be more progress if proper scientific methods of growing were adopted. He instanced the wonderful revival of the agricultural industry in Denmark, and in Ireland, but it was always a question of scientific applications and co-operation—they must in England rely more and more on co-operation for the prosperity and happiness and wealth of this part of the country.

The schedule included classes for Damsons, which are grown largely in the district; also for Apples packed in cases, as for market. The Apples included first-rate samples of Bramley's Seedling. Classes were also provided for bottled fruit and vegetables, as well as for honey.

The 1st prize in an open competition for a dish of Apples was won by Mr. J. Millican, of Scotby, Mr. D. Stewart, of Hexham, being placed second. Mr. W. D. Crewdson presented a cup for the best exhibit in the Show, which was won by Lady Nunburnholme for a display of fruit. The same lady (whose gardener is Mr. Jordan) won the Royal Horticultural Society's Gold Medal. In a competition for a 20lb. box of Apples (open to market gardeners only), the 1st prize was awarded to Mr. J. Millican, and the same grower also won the prize for a 40lb. box. For Damsons, Mr. H. Dobson, Crosthwaite, was placed first and Mr. W. Routledge, Levens, second.

J. H. Straker, Esq., offered a challenge cup for the amateurs' class for dishes of hardy fruits. This was won by Mrs. Clayton, of Hamshaugh. For three dishes of Plums (two varieties), Mr. J. P. Bewley, of Rosley, was successful in gaining the first prize; for one dish, Messrs. H. Britten and Sons, Langwathby, were awarded first place. For three dishes of Pears, Mrs. Clayton was placed first; and for one dish, Mr. F. W. Chance, of Morton. The classes for bottled fruit and vegetables produced some creditable exhibits. In the open class for twelve bottles, Mr. E. Halloway, of Carlisle, was placed first. In the cottagers' class, Mrs. Holliwell, of Witherslack, gained the first prize for three bottles.

Potato Classes.

This section of the Show was held under the auspices of the North of England Horticultural Society. There were several competitive classes, which were very well filled considering that the competition was restricted to growers in the four northern counties.

In the class for twelve dishes, the prizes were given by Messrs. Sutton and Sons. Mr. W. Carr, Staveley, was placed 1st with fine, even tubers, his best varieties being Duchess of Cornwall, Snowball, British Queen, Snowdrop, Windsor Castle and The Factor; 2nd, Mr. John Holliday, Milnthorpe, who had the best dish of Potatos in the Show with the variety Golden Wonder; 3rd, Messrs. Barrie and Son.

In the class for six dishes, the prizes offered by Messrs. Dobbie and Co., the 1st prize was won by Mr. T. C. Atkinson, Lambrigg, his best varieties being The Factor, Scottish Triumph and a seedling named Capt. Cook; 2nd, Mr. R. Bousfield, Kirkby Stephen; 3rd, Mr. R. Galbraith.

The principal winners in the smaller classes were Mr. W. Wightman, Bowston Bridge; Mr. J. Stilling, Kendal; and Mr. Thomas Robinson.

Some of the non-competitive exhibits were very fine, especially those of Messrs. Sutton and Sons, Reading, and Messrs. Dobbie and Co., Edinburgh. The Board of Agriculture had a stand displaying a large number of leaflets on fruit and Potato culture; also specimens of the Black Wart and other diseases of Potato. From the Wisley Laboratory of the Royal Horticultural Society was displayed a series of illustrations, by Mr. A. S. Horne, of obscure diseases of Potatos. A large case showing actual specimens of Potato diseases, chiefly collected locally, was put up by Mr. W. B. Little, of Carlisle.

Messrs. Little and Ballantyne, Carlisle, had a dozen baskets of Potatos, seed size, two recent Irish introductions being prominent.

Mr. Clarence Webb, Kendal, showed 24 varieties, representing the leading standard sorts.

Mr. J. R. Airey, farmer, Patton, had 36 baskets, mostly useful seed-sized tubers of well-known sorts.

Non-competitive Exhibits.

The following Awards were made to non-competitive exhibits:—

Gold Medal of the R.H.S. and *Silver Cup* to Lady Nunburnholme, Water Priory, York (gr. Mr. F. Jordan), for a collection of choice dessert fruits.

Silver-Gilt Knightian Medals to Messrs. Sutton and Sons, Reading, for Potatos; and Messrs. Dobbie and Co., Edinburgh, for Potatos.

Silver-Gilt Banksian Medal to Messrs. Little and Ballantyne, Carlisle, for a collection of Apples and Pears, of varieties specially suitable for Northern Counties.

Silver Knightian Medal to Mr. C. Webb, Kendal, for Apples and Pears and bottled fruits.

Silver Flora Medal to Messrs. G. Fairbairn and Co., Carlisle, for cut flowers, including Dahlias, Sweet Peas and Carnations.

Silver Banksian Medals to Mr. J. R. Airey for a collection of market garden produce, including Potatos, representing the market garden industry of the district; to the Preston Patrick Schools for school garden produce; Mrs. Clayton, The Chesters (gr. Mr. Cocker), for a collection of Apples and Pears grown on wall trees; and Mr. Little, Horticultural Instructor to the Cumberland and Westmorland County Council, for Apples and Pears grown in the County Experimental Gardens.

Bronze Knightian Medals to Messrs. Dickson and Robinson, Manchester, for Onions.

Bronze Banksian Medal to Mr. G. W. Miller for Apple Red Victoria.

Bronze Flora Medals to the Lakeland Nurseries, and Mr. E. Fairbairn.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

September 25.—*Committee present* :—Rev. J. Crombleholme (in the chair), Messrs. J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, D. McLeod, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, and H. Arthur (secretary).

Large Silver Medals to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), for a mixed group of Cattleyas; A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); Messrs. Cypher and Sons, Cheltenham; and Messrs. Charlesworth and Co.

Silver Medals to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), for a group of Cypripediums, Messrs. Sander and Sons, St. Albans, and Messrs. Hassall and Co.

Bronze Medal to O. O. Wrigley, Esq., Bury (gr. Mr. Rogers), for Epidendrums.

AWARDS.

First-Class Certificates.

Cattleya Rhoda Variety Queen Alexandra, one of the best flowers of its type, shown by R. Ashworth, Esq.

Coelogyne Moorcana, a white flower with yellow throat, borne on an upright stem, from Messrs. Sander and Sons.

Award of Merit.

Sophro - Cattleya Blackii Odontoglossum Xanthotes Ashlands Variety, *O. eximium Xanthotes Ashlands Variety*, and *O. crispum Tetrarch*, all from R. Ashworth, Esq.

NATIONAL CHRYSANTHEMUM.

October 1 and 2.—The early autumn show of Chrysanthemums, which was held in the transept of the Crystal Palace on the above dates, was one of excellent quality, but the competitive exhibits were rather fewer than usual. The flowers were of excellent quality, and with the customary addition of plants lent by Mr. G. L. Caselton, from the Crystal Palace Company's Gardens, made a noteworthy display. The Floral Committee awarded three first-class certificates to new varieties.

Open Classes.

groups of chrysanthemums.

Only two groups were set up in Class 1, which provides for a semi-circular space of 14 by 7 feet. The 1st prize contribution from Mr. N. Davis, Framfield, Sussex, was conspicuous for the tall stands filled with very large blooms, the bright yellow Hon. Mrs. John Ward and with Mrs. L. Thorn, which dominated the groundwork of the smaller flowered border varieties; 2nd, Messrs. John Peed and Son, Upper Norwood, who included excellent specimens of Caladium, but these stove plants did not altogether harmonise with the Chrysanthemums, of which Bob Pulling, Master James, and Evangeline were very good indeed.

cut blooms.

Twelve Blooms of Japanese.—E. G. Mocatta, Esq., Woburn Place, Adlestone (gr. Mr. T. Stevenson), the only exhibitor, staged an excellent collection. The regulation show-board did not allow sufficient space to properly display the charms of his magnificent blooms; the outer florets overlapped, but as the colours were artistically arranged the effect was not unpleasant. The back row blooms were Francis Joliffe, Mrs. A. T. Miller, D. B. Crane, and Lady Talbot. Along the centre were Marie Loomes, Mrs. T. Stevenson, Master James, and Joan Stratton; while the front row contained Hon. Mrs. John Ward, Mrs. R. Luxford, White Queen and Japan.

Six Blooms of Japanese.—There were four exhibits in this class, where Miss Langworthy, Gay's House, Holyport (gr. Mr. T. J. Broom), was an easy winner of the 1st prize, with six exceedingly good blooms. The very best of this set were Master James, White Queen, and Henry Perkins; 2nd, A. T. Miller, Esq., Emlyn House, Leatherhead (gr. Mr. G. Mileham).

Twelve Bunches of Pompons.—The only exhibitor, Mr. J. Smellie, Pansy Gardens, Bushy, Glasgow, arranged 12 excellent bunches of these dainty varieties in bright and fresh condition. The most striking varieties were Scarlet Gem, White St. Coutts, Flora, Canarii, and Gladys Grey, the last being three good yellows.

Twelve Bunches Distinct.—Grown in the open and not disbudded, Mr. J. Smellie won the 1st prize with an imposing collection of first-rate trusses. Favoured by grand weather the white varieties, Caledonia and Roi des Blancs, were unusually clean and pure. Of the Crimson and Golds Crimson Polly was delightful; as also were Mrs. Wm. Sydenham (deep red), Elstob Yellow and Cream Perrier; 2nd, Mr. J. Emberson, Grove Road Nursery, Walthamstow.

Twelve Bunches Distinct.—Grown in the open and disbudded. Here, again, there were only two exhibitors, and the 1st prize collection was of exceptional quality. E. G. Mocatta, Esq., showed such varieties as Debutante and Framfield Early (whites), Almirante (orange red), Emperor (deep red, gold reverse), and Betty Spark (mauve); 2nd, A. Henson, Esq.

Six Bunches of Japanese or Decorative Varieties.—Disbudded and arranged with Chrysanthemum foliage. E. G. Mocatta, Esq., continued his triumphs by winning the 1st prize with a splendid exhibit. The vases of Soliel d'Octobre, Edraco, Emperor, Debutante, were admirable; 2nd, Mr. A. Henson.

The class for one vase of three Japanese blooms was well contested. E. G. Mocatta, Esq., won the 1st prize with excellent blooms of the Hon. Mrs. John Ward; 2nd, Mr. George Mileham, who showed good blooms of White Queen.

Amateurs' Classes.

Six Bunches of Early-flowering Japanese Varieties.—In the class for disbudded blooms Mr. A. Henson, who showed excellent bunches of such sorts as Almirante, Countess, and Cranford Pink, won the first prize. Mr. H. Dunkley was a very good second. Mr. A. Henson also won the 1st prize for a similar number of undisbudded blooms, of which he showed charming sprays of Improved Polly, Gaacher's Crimson, Roi des Blancs, etc.; 2nd, Mr. H. Dunkley.

Six Bunches of Pompons distinct.—Mr. D. B. Crane, Highgate, who was the only competitor, received the 1st prize for dainty trusses of Yellow Lefort, Little Bob, Bronze Anastasia, Anastasia, Madame E. Lefort, and Toreador. The best three vases of naturally-grown early-flowering varieties were shown by Mr. H. Dunkley, who included very good vases of Roi des Blancs and Fée Parisienne; 2nd, Mr. C. Fox; 3rd, Mr. A. Henson.

Decorative Classes.

Dinner Table Decorations.—As seven of the eight tables were decorated with bronze and yellow Chrysanthemums and autumn foliage, they naturally presented a monotonous appearance. The 1st prize was awarded to Mr. T. W. Stevens, gardener to W. H. Stone, Esq., Donnington, Sydenham, for a light and attractive arrangement in which the centre piece was disproportionately tall; 2nd, Mrs. W. C. Roelink, Markhouse Avenue, Walthamstow.

Three Epergnes of Chrysanthemums.—The value of this class is doubtful, and none of the four exhibits was of noteworthy character. The exhibits in Class 10, for a single Chrysanthemum, were of average merit; 1st, Mr. J. Smellie; 2nd, Mr. W. Newton, gardener to Mrs. McDonnell, Little Heath Woods, Potter's Bar. The 1st prize for a Hand Basket of Autumn Foliage and Berries was exhibited by Mr. R. Bugden, Gipsy Hill, Upper Norwood. The 1st prize Hand Basket of Chrysanthemums, by Mr. J. Emberson, was too elaborate, albeit bright and attractive; 2nd, Mrs. A. Bide, Highlands, Farnham.

The only Dinner Table exhibit in the amateurs' section was arranged with the inevitable bronze and yellow Chrysanthemums, and the 1st prize was awarded to Mrs. W. C. Roelink, who used single-flowered varieties effectively. The arrangement of epergnes showed more taste than in the open class. Mrs. A. Robinson won the first prize with a charming arrangement of deep red, bronze and yellow blooms; 2nd, Mr. T. W. Stevens.

F.C.C. to New Varieties.

First-class Certificates were awarded in respect of the following varieties:—

Mrs. Richard Hamilton.—An exceptionally good rich yellow, large-flowered Japanese variety. The compact bloom is of medium size and has plenty of stout, broad incurved florets; the foliage is of a rich dark green, and of good substance. Shown by Messrs. Low and Shawyer.

Golden Diana.—A splendid border variety which bears well-furnished trusses of small, deep yellow flowers.

Yellow Moneymaker. — A primrose-coloured sport from Moneymaker, which, like the white variety, has broad, drooping florets with incurving tips. It is a decorative variety, but the foliage appears to be prone to mildew. Shown by Messrs. Cragg, Harrison and Cragg.

Non-Competitive Exhibits.

A considerable number of non-competitive exhibits were staged, but our space will only permit of reference to the Chrysanthemums.

Messrs. Cragg, Harrison and Cragg, Heston, Middlesex, arranged a novel and attractive exhibit of Chrysanthemum blooms of market varieties. The whites were represented by Framfield White, Mrs. Scott and Miss Collier. The best of the yellows were J. W. Streater, Cranfordia, Cranford Yellow and Heston Yellow. Pink Princess, Juliet, Dolores and Almirante are the names of a few of the brighter coloured varieties in this excellent display. (Gold Medal.)

Messrs. W. Wells and Co., Merstham, filled a large space with a splendid collection of Chrysanthemums and border flowers. (Gold Medal.)

Messrs. W. Cutbush and Sons, Highgate, had a monster display of Michaelmas Daisies, with a good sprinkling of cut Chrysanthemums most artistically arranged. (Gold Medal.)

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending October 8.

The wettest week for over a twelvemonth.—Another warm week, and the third in succession. The days were not very unseasonably warm, but the night temperatures were all more or less above the average, and on the warmest night the exposed thermometer did not fall below 47°. The ground is at the present time 2° warmer than is seasonable, both at 1 and 2 feet deep. Rain fell on five days, and to the total depth of 1½ inches—making this the wettest week for over twelve months, as we have to go back to the last week in September, 1912, in order to find a week with as much rain. Of that quantity five gallons has come through the bare soil percolation gauge, but this rainfall has not yet affected the gauge on which short grass is growing, through which there has been no percolation at all since the middle of May. The sun shone on an average for 2¼ hours a day, which is more than an hour a day short of the average duration at the same period in October. Calms and light airs alone prevailed. Four consecutive days were singularly calm—in fact, the average rate of movement of the air at 30 feet above the ground during those four days and nights was less than half a mile an hour. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by as much as 15 per cent.

SEPTEMBER.

Rather warm, very dry, and remarkably calm.—Taken as a whole, this was a rather warm September. If anything, the nights were, as a rule, rather more unseasonably warm than the days. On the warmest day the highest temperature in the thermometer screen was 76°, and on the coldest night the exposed thermometer fell only to the freezing-point, making this the highest extreme minimum temperature recorded by that thermometer in September for twelve years. Rain fell on eleven days, and to the total depth of 1¼ inches, which is little more than half the average quantity for the month. The sun shone on an average for 4½ hours a day, which is about a quarter of an hour a day short of the usual duration for the month. This proved the calmest September during the 28 years over which my records at Berkhamsted extend. Strange to relate, the two previous months, July and August, were also respectively the calmest July and August I have yet recorded here. In no hour did the mean velocity of the wind exceed ten miles—direction S.S.W. The average amount of moisture in the air at three o'clock in the afternoon exceeded a seasonable quantity for that hour by 4 per cent.

THE SUMMER RAINFALL.

During the summer half of the present drainage year, ending September, 9½ inches of rain fell, which is 4¼ inches in defect of the average quantity for the same six months in the past 57 years. With the exception of April, all the months were more or less dry, while the three summer months and September were very dry. *E. M., Berkhamsted, October 8, 1913.*

MARKETS.

COVENT GARDEN, October 8.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.
Acacia (Mimosa) per bunch	1 0	—
Arums, per doz.	2 0-	3 0
Camellias, per doz.	2 0-	2 6
Carnations, per dozen blooms, best American varieties	1 3-	1 6
— smaller, per doz. bunches	9 0-	12 0
— Carola (crimson), extra large	2 0-	2 6
— Malmaison, per doz. blooms:		
— — pink	6 0-	8 0
Chrysanthemum:		
— Almirante Bronze, per doz. blooms	0 9-	1 3
— Countess, per doz. blooms	1 3-	1 6
— Cranford Pink	1 0-	1 6
— Cranford Yellow, per doz. blooms	1 6-	2 0
— Débutante, per doz. blooms	1 3-	1 6
— Delores, per doz. blooms	1 0-	1 6
— Market Red	1 0-	1 6
— Money Maker	2 0-	2 6
— Mrs. Beech, per doz. blooms	0 9-	1 0
— Mrs. Roots	2 0-	2 6
— Mrs. Scott	1 3-	1 6
— Sunshine	1 6-	2 0
— white and coloured, p. bunch	3 0-	5 0
Eucharis, per doz.	1 6-	2 0
Gardenias, per box of 15 and 18 blooms	1 6-	2 0
Lapageria alba, per doz. blooms	2 0-	2 6
Lilium auratum, per bunch	2 0-	2 6
— longiflorum, per doz., long	1 9-	2 0
— — short	1 6-	1 9
— lancifolium album, long	1 0-	1 6
— — short	1 3-	1 6
— rubrum, per doz., long	0 9-	1 0
— — short	0 9-	1 0
Lily-of-the-Valley, per dozen bunches:		
— extra special	15 0-	18 0
— special	12 0-	14 0
— ordinary	9 0-	10 0
Marguerite, yellow, per doz. bun.	1 3-	1 6
Michaelmas Daisies, in variety, per doz. bunches	4 0-	6 0
Mignonette, per doz. bunches	2 6-	3 0
Orchids, Cattleya, per doz.	15 0-	18 0
— Cattleya Harrisonii	6 0-	8 0
— Cypripedium	2 6-	3 0
— Odontoglossum crispum	3 0-	4 0
Pancratiums, per doz.	2 6-	3 0
Pelargoniums, per doz. bunches, white	3 0-	4 0
double scarlet	4 0-	6 0
Physalis, per doz. bunches	6 0-	8 0
Roses: Catherine Mermet	0 9-	1 3
— Frau Karl Druschki	0 9-	1 6
— Kaiserin Augusta Victoria	1 0-	2 0
— Lady Hillingdon	1 0-	1 3
— Liberty	1 0-	2 0
— Madame A. Chatenay	1 0-	2 0
— Maryland	0 9-	1 6
— Melody	1 0-	1 6
— Mrs. John Laing	1 0-	2 0
— Mrs. R. G. Sharman Crawford	1 3-	2 0
— Niphetos	0 9-	1 3
— Perles de Jardin	0 9-	1 3
— President Carnot	1 6-	2 0
— Prince de Bulgaria	1 6-	2 0
— Richmond	1 0-	2 0
— Sunburst	1 6-	2 6
— Sunrise	1 0-	1 3
Scabiosa, mauve, per doz. bnchs.	3 0	4 0
Spiræa, per doz. bunches	6 0-	8 0
Statice, mauve, p. doz. bunches	2 6-	3 0
— white, per doz. bunches	2 0-	2 6
— yellow, per doz. bunches	2 0-	2 6
Stephanotis, per spray of 72	2 6	—
Stock, double white, per doz. bunches	3 0-	4 0
Tuberoses, per gross	4 0-	5 0
Violets, English, per dozen bunches	1 0-	1 6
— Princess of Wales per doz. bunches	2 6-	3 0
White Heather, per doz. bunches	4 0-	5 0

Cut Foliage, &c. Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, per doz. bunches	4 0-	5 0
Agrostis (Fairy Grass, per doz. bunches	2 0-	4 0
Asparagus plumosus, long trails, per half-dozen	1 6-	2 0
— medium, doz. bunches	12 0-	18 0
— Sprengeri	6 0-	12 0
Carnation foliage, doz. bunches	—	
Croton foliage, vrs., doz. bunc.	12 0-	15 0
Cycas leaves, artificial, per doz.	3 0-	12 0
Eulalia japonica, per bunch	1 0-	1 6
Honesty, per doz. bunches	10 0-	12 0
Moss, gross bunches	6 0	—
Myrtle, doz. bnchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0-	1 3

REMARKS.—The market is in a very unsettled state, and trade shows no improvement on last week. The stalls are glutted with Chrysanthemums, especially blooms, and at the close of the market last Saturday scores of large boxes, containing from three to six dozen blooms, according to size, had to be practically given away, as they would have been useless if held over until the following Monday. As the season advances better varieties are seen and there are fine blooms of Mrs. Roots, Cranford Yellow and Money Maker; the first-named is a pure white. A few blooms of Sunshine were on sale and these were purchased very quickly; there are also some beautiful medium-sized blooms of Bronze Juliet, Amber King, Mme. A. Nonin, pink, and Belle Mauve. Bunches of spray blooms, especially of white sorts, are selling better. Prices for Lily-of-the-Valley, Stephanotis, Carnations and Roses are lower, but Lilium longiflorum is no cheaper. Violets of the Princess of Wales variety are arriving in large quantities, but the blooms soon show the effect of the mild weather when the boxes are opened. A few large bunches of Parma Violets are arriving from the South of France, but the quality of these will not be good until the weather is cooler. Michaelmas Daisies are good and plentiful; there is also an abundance of foliage, such as Asparagus plumosus, A. Sprengeri, Smilax, Adiantum Fern, and the usual hardy foliage.

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, dozen	6 0-	7 0
Araucaria excelsa, per dozen	18 0-	21 0
Asparagus plumosus nanus, per dozen	10 0-	12 0
— Sprengeri	6 0-	8 0
Aspidistra, per doz., green	21 0-	30 0
— variegated	30 0-	60 0
Cacti, various, per tray of 15's	4 0	—
— various, per tray of 12's	5 0	—
Cocos Weddeliana, per dozen, 60's	6 0-	12 0
— larger, each	2 6-	10 6
Croton, per dozen	18 0-	30 0
Cyclamen, 48's, per dozen	10 0-	12 0
Cyperus alternifolius, per doz.	5 0-	6 0
— laxus, per doz.	4 0-	5 0
Chrysanthemums:— 48's, per doz.	5 0-	10 0
Dracæna, green per dozen	10 0-	12 0
Erica gracilis, per dozen	10 0-	15 0
— nivalis, per doz.	12 0-	18 0
— small, in bumbs, per dozen	4 0-	6 0
Ferns, in thumbs, per 100	8 0-	12 0
— in small and large 60's	12 0-	20 0
— in 48's, per doz.	5 0-	6 0
Ferns, choicer sorts, per dozen	8 0-	12 0
— in 32's, per doz.	10 0-	18 0
Geonoma gracilis 60's per dozen	6 0-	8 0
— larger, each	2 6-	7 6
Kentia Belmoreana, per dozen	5 0-	8 0
— Fosteriana, 60's, per dozen	4 0-	8 0
— — larger, per dozen	18 0-	36 0
Kochia tricophylla, 48's	5 0-	6 0
— 32's	9 0-	10 0
Latania borbonica, per dozen	12 0-	30 0
Lilium lancifolium rubrum, per dz.	12 0-	18 0
— lancifolium album	15 0-	18 0
— longiflorum, per dozen	12 0-	18 0
Lily-of-the-Valley	18 0-	21 0
— 48's, per dozen	21 0-	30 0
Marguerites, in 48's per doz., white	5 0-	6 0
Pandanus Veitchii, per dozen	36 0-	48 0
Phœnix rupicola, each	2 6-	21 0
Solanums, 48's per dozen	10 0-	12 0
Spiræa japonica, per dozen pots	6 0-	8 0
— pink	10 0-	12 0

REMARKS.—Ericas remain the leading line, and although the quantity has increased the market is generally cleared of these plants before 9 a.m. Chrysanthemums are not so plentiful, and their prices have advanced. There is no special demand for Cyclamens and Solanums. Trade in Ferns and Palms is very slow.

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes (Globe), per dozen	2 6-	3 0
Asparagus, Paris green	4 0-	4 6
— Sprue	0 10-	1 0
Aubergines, per dozen	2 6-	—
Beans, Guernsey, lb.	0 2·0	2½
— Scarlet Runners, per bushel	3 0-	3 6
Beetroot, per bushel	2 6	—
Cabbages, per tally	4 0-	6 0
Carrots, (English), bags	3 0-	4 0
Cauliflowers, per dozen	1 3-	1 6
Celeriac, French, per dozen	2 0-	2 6
Celery, per doz.	6 0-	10 0
Corn (Maize) per dozen	0 9-	1 6
Cucumbers, per flat	4 0-	5 6
Endive, French, per dozen	2 0-	2 6
Garlic, per strike	3 0-	4 0
Horseradish, 12 bundles	10 0-	12 0
Leeks, per dozen	1 6-	2 0
Lettuce, English, Cos, per score	0 6-	1 0
— English, round, per score	0 4-	0 9
Marrows, per tally	6 0-	8 0
Mint, per dozen bunches	2 6-	3 0
Mushrooms, cultivated, per lb.	10-	1 0
— Broilers	0 6-	0 8
— field, peck	2 0-	2 6
Mustard and Cress, per dozen punnets	1 0-	1 3
Onions, picklers, per ½ bushel	2 0-	2 6
— Dutch, bags	3 6-	4 0
— Spanish, cases	5 0-	6 0
Parsley, per dozen bunches	2 6-	3 0
Sage, per dozen	2 0	—
Sprouts, ½ bushel	2 6-	3 0
Tomatos, English, per dozen lbs.	2 3-	2 6
— seconds, per dozen lbs.	0 9-	1 6
— Guernsey, per dozen lbs.	2 3-	2 6
— Dutch, doz. lbs.	1 9-	2 0
Thyme, per dozen bunches	2 0-	6 0
Turnips (English), per bag	2 6-	3 0
Watercress, per doz.	0 4-	0 6

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, English Dessert, bushel	3 0-	5 0
— cooking, per bushel	3 0-	5 6
Bananas, bunch:		
— Doubles	8 6-	11 0
— No. 1	7 0-	8 0
— Extra	9 0-	10 0
— Giant	12 0-	14 0
— loose, per doz.	0 6-	1 0
— Red coloured, per dozen	1 3-	2 0
— Jamaica, p. ton	£18	
— Jamaica ordinary, per box (9 doz.)	4 6-	6 0
Blackberries, per peck	1 6-	2 0
Cranberries, Cape Cod, per case	12 0-	13 6
Figs, green	1 0-	3 0
— Italian box	0 9-	1 6
Grape Fruit, case: — 96's — 80's — 64's — 54's	20 0-	22 0
Grapes, English Black Hamburgh, per lb.	0 4·	0 10
— Black Alicante	0 6-	1 0
— second quality, black	0 4-	0 6
— Canon Hall Muscat	1 6-	6 0

Fruit: Average Wholesale Prices (cont.)

	s.d.	s.d.
Grapes *continued*:—		
— Belgian, Black Alicante	0 8-	1 0
— Belgian Gros Colmar	0 10-	1 3
— Dutch, Alicante, per lb.	0 6-	0 7
— Dutch, Gros Colmar	1 0-	1 3
— Gros Colmar	0 10-	1 6
— Muscat of Alexandria	0 8-	4 0
Lemons, Messina, per case	20 0-	22 0
— Murcia, p. case	16 0-	18 6
— Naples, per case	18 0-	25 0
Limes, per case	4 6-	5 6
Melons, English, each	1 6-	3 0
— French Cantaoupe, each	2 6-	5 0
— Guernsey	1 6-	3 6
— Spanish case	13 0-	14 0
Nuts, Almonds, bag	52 6	—
— Barcelona, bag	35 6-	36 0
— Brazils, cwt.	90 0-	100 0
— Chestnuts, ½bgs.	8 6	—
— Cob, per lb.	0 10-	1 0
— Cocoanuts, 100	18 0-	23 0
Nuts *continued*:—		
— Spanish, sack	40 0-	42 6
— Walnuts, Continental per lb.	0 7-	0 9
— English, per lb.	0 9-	0 10
Oranges, Denia, per case	26 0-	45 0
— Jamaica	13 0-	14 0
— Murcia	16 0-	23 0
— Naples	14 0-	15 0
— Natal Navels	27 6-	30 0
— Naartyrs, p. box	3 0	—
Pears, Californian, box	10 0-	14 0
— English, ½ bush.	4 0-	5 0
— America barre	28 0-	30 0
— stewing, per barrel	13 6-	14 0
Pineapples, St. Michael	3 0-	6 0
Plums, Californian, per case	8 6-	10 0
— German, Zwetschen, per ½ sieve	3 0-	4 0
— Damsons, per ½ bushel	8 0-	10 0
Pomegranates, per case	3 6-	4 6
Sloes, per peck	2 0-	2 6

REMARKS.—English culinary Apples are plentiful, the chief varieties being Warner's King, Lord Derby, Peasgood's Nonesuch, and Lane's Prince Albert. Of dessert varieties there are good supplies of Cox's Orange Pippin and Chas. Ross. Shipments of Apples from California consist of the variety Newtown Pippin, and from Nova Scotia Gravenstein, Blenheim Pippin, Ribston Pippin, and King of the Pippins. There is a short supply of English Pears, the varieties consisting of Doyenné du Comice, Williams' Bon Chrétien, Conference, etc. Californian Pears include the varieties Doyenné du Comice and Beurré Hardy. Large consignments of English and Continental Grapes are still arriving, and are selling more freely. There is a much better trade in English and Continental Melons. English plums are finished, and the Continental supplies consist of German Zwetschen, Californian Golden Drop, and Italian Prunes. There are supplies of Blackberries. Consignments of English and Channel Island Tomatos exceed the demand. Tomatos are already arriving from Teneriffe.—*Edgar H. Rides, Covent Garden, October 9, 1913.*

Potatos.

	s.d.	s.d.		s.d.	s.d.
Bedford, per cwt.	3 6-	3 9	Kent, per cwt.	3 9-	4 0
Blacklands	3 0-	3 3	King Edward	3 3-	3 9
British Queen	3 6-	4 0			
Evergood	3 0-	3 3	Up-to-date	3 6-	4 0

Obituary.

ROBERT LINDSAY.—The death took place at his residence, Kaimes Lodge, Murrayfield, on September 24, of Mr. Robert Lindsay, late Curator of the Royal Botanic Garden, Edinburgh. Mr. Lindsay had been in failing health for some years. Nevertheless he maintained his interest in horticultural matters to the last, and his garden at Kaimes was always full of interest for hardy plant lovers, amongst whom he had many personal friends. Mr. Lindsay's horticultural career may be said to have been almost wholly bound up with the Edinburgh Royal Botanic Garden, which he entered as a lad under the late Mr. James M'Nab. He passed through all the grades, and during the latter part of Mr. M'Nab's curatorship he became general foreman. In 1883, on the death of Mr. John Sadler, who had succeeded M'Nab as Curator in 1879, Mr. Lindsay was promoted to the Curatorship, Professor Alexander Dickson being then Regius Keeper, and he occupied the position for thirteen years, retiring in 1896. Mr. Lindsay possessed an excellent general knowledge of plants and their cultivation, and he paid particular attention to certain groups, among which may be mentioned the insectivorous and economic plants; but perhaps his greatest fondness was for rock and alpine plants, and to these he continued to devote most of his attention after his retirement from office. The shrubby Veronicas he studied very closely, and amongst the hybrids of these which he raised may be mentioned the beautiful pink-flowered V. Lindsayi. Mr. Lindsay was for many years a Fellow of the Botanical Society of Edinburgh, to the meetings of which he contributed many interesting communications, and he was elected to the Presidential chair in 1889, the subject of his address at the opening of the session being "The Genus Nepenthes."

He was also a member and ex-office-bearer of the

Royal Caledonian Horticultural Society, the Scottish Horticultural Association, the Royal Scottish Arboricultural Society, and the Scottish Alpine Botanical Club. Of the last-mentioned he was one of the most enthusiastic members, and formerly he took part in most of the excursions of the club in quest of rare plants. He was predeceased some years ago by Mrs. Lindsay, and he leaves no issue. A portrait of deceased was published in these columns July 6, 1896, p. 709, on the occasion of his receiving the Neill Prize.

ENQUIRY.

Wasps Attacking Dahlias.—Wasps have attacked my Dahlias this year; they swarm on the stem of the plants about six inches from the ground, eat the bark, and seem to get something from the sap which makes them "sleepy." We have killed thousands, but no sooner has one lot been destroyed than a fresh one takes its place. I have never known this happen before, and am unable to find a remedy. Perhaps some reader could help me. They have killed the majority of the plants. *Deerhurst.*

Answers to Correspondents.

Apple Laing's Prince Albert: *Gardener, Herts.* The condition is known as glassiness in Apples. Neither cause nor cure is known. See also the remarks of "Southern Grower" on "Glassiness in Apples," p. 247.

Asters: *Correspondent.* 1, Aster Amellus (type); 4, Novæ-Angliæ roseus; 6, N. A. præcox (type); 2, 3, and 5, Seedlings not worthy of naming.

Begonia Leaves: *Begoniaite.* The injury is caused by the Begonia mite. Sponge the leaves thoroughly with Quassia water.

Carnations: *H. J. A.* Carnation rust (Uromyces caryophyllinum) is the cause of injury. Sponge the plants with a rose-red solution of permanganate of potash.

Chrysanthemum Buds: *A. P.* It is not easy to determine the cause of the buds rotting, as decay sometimes occurs under widely different methods of feeding and cultivation generally. The complaint is very prevalent this season, as growth, up to a certain stage, was particularly hard, but afterwards during the latter part of August and September, the plants made very rapid, and consequently soft, growth. In some instances where the buds have commenced to open their florets, it is caused through the moisture getting thoroughly soaked into them before bursting, as in the case of the shoot of Thos. Lunt you sent. But where the buds rot off before the scaly florets have burst the trouble is due to exuberance of growth. We have known an accumulation of moisture to gather in the buds, and on the first hot day they have appeared as though scalded, and this trouble is much more prevalent in some varieties than others. In two instances this season we have heard of whole batches of the variety G. C. Kelly being thus affected, but we have not noted it in the varieties Thos. Lunt and F. Joliffe before. The presence of thrips in the buds is not likely to cause rotting, but tits hunt for the thrips, and in doing so damage the buds. Another season do not apply stimulants for a little time after housing the plants.

Chrysanthemum uliginosum: *H.* The abnormal, flattened growth of the stem and the double-faced flower heads are due to fasciation, a condition brought about by irregular growth at the apex.

Chrysanthemums: *E. C. N., Stowmarket.* Chrysanthemum rust (Puccinia chrysanthemi) is attacking your plants. Sponge them at intervals with a rose-red solution of permanganate of potash.

Correction.—In the class for twelve dishes of dessert Pears at the R.H.S. Fruit Show, the 1st prize was awarded to Major Powell Cotton (gr. Mr. J. Cornford).

Currant and Gooseberry Shoots: *Insignis.* Botrytis cinerea is the cause of the injury. Spray the bushes in the spring with the Bordeaux mixture at half the usual strength.

Eggs on Rose Branches: *E. Edwards.* The eggs which you have sent us for identification are those of a noctuid moth, but as the larvæ have already hatched from them, it is impossible to identify the species. Judging by the colour and structure, they are closely related to those of the common cabbage moth.

Ferns and Tomatos Diseased: *C. H. T.* The trouble is due to eelworm. Remove all the soil, wash the roots in water thoroughly, and repot the plants in fresh soil.

Ferns Unhealthy: *A. B.* Most of the fronds are infested with thrips, and others, with the transverse bands of dark coloured tissue, have been damaged by an excess of moisture on the foliage, a condition known by Fern-growers as water-marked. The thrips should be destroyed by dipping the fronds in an insecticide.

Gladioli Corms: *N. N.* Whether Gladioli should be lifted annually or not depends more or less upon the climate and nature of the soil in which the corms are growing. In gardens which are very wet in winter and the soil is cold, annual lifting is to be recommended. Where, however, the soil is fairly warm and well drained, and the climate not severe, Gladioli will often do well if left in the ground, but this should not be for more than two years, as otherwise the corms become too crowded, and the flowers, in consequence, deteriorate in size.

Iris for Bombay Garden: *Dr. S.* We do not know of any Iris likely to succeed in Bombay. The nearest plant is the Iridaceous Pardanthus chinensis (Belamcanda sinensis) which we believe flourishes in most parts of India.

Names of Fruits: *Mr. B.* 1, Hoary Morning; two numbered 2, the small fruit Whiting Pippin, green fruit Hormead Pearmain; 3, Worcester Pearmain; no number 4; 5, Winter Hawthornden; 6, Small's Admirable; 7, Ribston Pippin; 8, Northern Greening; No numbers for 10, 11, or 12; 9, Gravenstein; 13, Léon Leclerc de Laval; 14, Catillac; 15, Vicar of Winkfield; 16, Plum Monarch.—*A. S.* We think your Apple is a local variety.—*E. F.* Stirling Castle.—*F. A. A.* 1, Pitmaston Duchess; 2, Beurré Clairgeau; 3, not recognised. *F. W. T.* 1, Not recognised; 2, Ecklinville; 3, Bramley's Seedling; 4, Lord Derby. — *D. W.* 1, Doyenne Boussoch; 2, Beurré d'Amanlis; 3, British Queen.—*Pry.* 1, Mannington's Pearmain; 2, Newton Wonder; 3, Blenheim Pippin. — *Miss B.* 1, Allen's Everlasting; 2, Duke of Devonshire.—*H. R.* Beurré d'Amanlis.—*W. B.* and *Plumstone.* A very nice, juicy apple. Send six fruits to the R.H.S. Committee.—*W. H. M.* *a*, Worcester Pearmain; *b*, King of the Pippins; *c*, Fearn's Pippin; *d*, Blenheim Pippin; *e*, Cellini; *f*, Beurré Sterckmans.—*J. H. R.* 1, Hambledon Deux Ans; 2, Ronalds's Gooseberry Pippin; 3, Alfriston; 4, Dutch Codlin; 5, White Nonpareil; 6, Reinette præcox.—*F. H. C.* 1, Hormead Pearmain; 2, Lemon Pippin; 3, British Queen; 4, Lane's Prince Albert; 5, Potts's Seedling; 6, Northern Dumpling; 7, Alfriston; 8, Jubilee. —*Lucan.* 5, Beurré Superfin; 6, Williams's Bon Chrêtien.

Names of Plants: *E. F.* Quercus Cerris; Turkey Oak.—*C. B.* No. 1, Cupressus Lawsoniana var. gracilis; 2, C. L. var.; 3, C. L. var.; 4, C. L. var. glauca; 5, Taxus baccata var. adpressa.—*F. S. G.* Dahlia Cochineal, a decorative variety. The colour may be described as crimson, with deeper shading.—*Newtonian.* Oncidium incurvum.—*E. C. F.* Polygonum polystachyum.—*J. L. J.* Mirabilis Jalapa, Marvel of Peru.—*Lucan.* 1, Clematis Flammula; 2, C. viticella; 3, C. campaniflora; 4, C. graveolens.—*E. S., Gillingham,* 1, Alternanthera paronychioides (type); 2, A. paronychioides magnifica; 3, A. amabilis amœna; 4, amabilis (type).—*R. V.* 1, Acriopsis javanica; 2, Dendrobium hercoglossum; 3, Sophronitis cernua; 4, Broughtonia sanguinea. —*T. G.* 1, Catasetum splendens; 2 and 3, Begonia corallina; 4, Codiæum (Croton) variegatum. *W. B.* 1, Polypodium aureum; 2, Onychium japonicum.—*F. S.* Helianthus decapetalus multiflorus.—*H. P. M.* Abelia rupestris.—*F. H.* 1, Lastrea strigosa; 2, Dictyogramme japonica; 3, Onoclea sensibilis; 4, Asplenium viride.—*W. W.* Rose Duchess of Wellington.—*F. S. G.* Dahlia "Cochineal," a decorative variety. The colour may be described as crimson with deeper shading.

Oak Leaves: *D. M.* The galls on the undersides of the Oak leaves are caused by a mite, Neuroterus lenticularis. The galls are commonly known as Oak-spangles.

Packing Carnation Layers: *A Constant Reader.* It would not be advisable to pack the rooted layers in the manner you describe for shipment to Canada and to New Zealand —the damp moss would cause decay. It has been found that the best method is to send such plants dry. The layers should be wrapped separately in grease-proof paper, retaining the soil which is attached to the roots, and packed closely together in wood wool or in shavings. If, on arrival, the Carnation layers are potted and placed in a close and shady frame for a few days they will be but little the worse for the journey.

Pelargoniums (Geraniums) Unhealthy: *W. H. M.* The injury is caused by the fungus Hormodendron hordei. Spray or dip the plants in a solution of liver-of-sulphur at the strength of 1 ounce in 6 gallons of water.

Plants for a Flower Bed: *A. E. C.* Probably the best arrangement to meet the requirements laid down in your letter would be to plant the bed with Oriental Poppies and Anchusa italica Dropmore Variety, or Opal variety, and border it with Saxifraga cordifolia. You could then use Galtonia (Hyacinthus) candicans and Gladiolus hybrids between the Papavers and the Anchusas. Another scheme would be to fill the bed with Tree and herbaceous Lupins in place of the herbaceous plants above-named. A bed of evergreen Irises (I. germanica and I. sibirica, bordered with I. pumila) has much to recommend it, even though it would scarcely match the bed of Pæonies and Lilium auratum. Such a bed could be relieved by various Liliums or by the Galtonias and Gladioli.

Plants For Stone Urns: *G. M.* You cannot do better than fill the receptacles with dwarf, ornamental evergreen shrubs, of which there are many kinds suitable for the purpose. The golden-leaved Privet is unsurpassed for winter effect, and the plant has a more natural habit than most of the ornamental shrubs. Other plants suitable for your purpose are Euonymous, Hedera, Cupressus, Retinospora and Buxus. You could also plant small specimens of Laurustinus on the point of flowering. All the plants enumerated grow well in ordinary garden soil.

Plant For a Warm Room: *S. A. T. C.* You ask for the name of a "plant or small shrub which would flower for the greater part of the winter in a warm room, which receives only a little direct sunshine." It would be a matter of great difficulty to name such a plant for even the summer months. The most likely subjects which we can suggest to give a quantity of flower during the winter months are Cypripedium insigne, Begonia Optima (salmon), B. Elatior (rose), B. Agatha (rose), Erica gracilis (pink), and E. nivalis (white). We have had these Begonias in continuous flower in a sitting-room for fully two months in the winter, but gas must not be used. If your room is lighted by gas the Ericas should be tried, as they retain their beauty for a long time. Where coloured foliage is required, the golden forms of Euonymus japonicus have much to recommend them.

Communications Received—S. B.—Orchard—W. H. M., Chislehurst—W. B.—G. S.—A. B. H.—A. W. P. —G. K.—Anglia—W. S.—A. C. B.—E. G.—G. B. E.—T. H. C.—D. M. L., Tunbridge Wells—Colmar—L. E. M.—P. McL.—C. L.—J. A. B. (many thanks).—P. H. B., Zurich—F. J. C.—A. S., Chard—A. B. W. —H. T.—S. A.—P. A. B.—J. H. A.

Photograph by H. N. King.

DUCHESS'S GARDEN, EATON HALL, CHESTER.

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CONTENTS.

ILLUSTRATIONS.

A GLACIER MORAINE.

So much has recently been written in these columns about artificial moraines that a brief description of a real moraine and its vegetation may interest those who have never seen one.

It happened that in July, 1912, I made a careful study of the vegetation of the moraine below the Saleinaz glazier (Fig. 97), which is the most northerly of the several fine glaciers descending from the Mont Blanc *massif* into the beautiful Val Ferret. Val Ferret is a glorious and very floriferous valley leading southward from Orsières, on the Great St. Bernard Road, towards the Col Ferret (8,311 ft.) on the Swiss-Italian frontier. From the Col a track, afterwards developing into a road, leads down the wilder Italian Val Ferret to Courmayeur. Visitors staying at fashionable and crowded Champex, which they should never do except in May, June or September, can get to Courmayeur comfortably in one day's splendid walk. Next season an hotel will be opened high up in the Swiss Val Ferret, and should prove an excellent centre from which to explore this charming neighbourhood. Hitherto there has been only a very small inn at Ferret and but poor accommodation at the village of Praz de Fort, which lies in the warm, smiling valley some 1,400 feet below Champex.

It is not easy in a few words to define a moraine, especially as there are different kinds of moraines. The rocks and stones which fall from the cliffs and mountain sides that bound a glacier are accumulated in long and usually raised lines along each margin. They are carried slowly downward by the moving ice, and constitute a *lateral* moraine. When two glaciers meet, their "inner" lateral moraines unite to form a *medial*, or central moraine. Hence the number of medial moraines indicates the number of independent ice-streams of which a large glacier is composed. The stones and other débris unloaded at the snout of a glacier form what is called a *terminal* moraine. Owing to the fact that most of the glaciers of Central Europe have retreated of recent years, their terminal moraines are generally very long.

M. Correvon has explained (*Gard. Chron.*, Oct. 5, 1912) how sometimes even forests are found on old moraines; and it is well known that such moraines, often with extremely interesting floras, are found occasionally in districts quite remote from any present glacier. An important point which M. Correvon also emphasised is the fact that the sandy ground of a moraine is usually wet—at any rate, may I add, beneath the surface and in summer. It is curious that a famous geologist in his latest book seems to overlook this fact in a chapter on

Photograph by H. S. Thompson.

FIG. 97.—SALEINAZ MORAINE.

the vegetation of the Alps; for he mentions as growing "on the dry débris of moraines," three plants (Epilobium Fleischeri, Linaria alpina and Hutchinsia alpina) which happen to be especially fond of wet sandy moraines and of proximity to glacier streams.

The terminal moraine of the Saleinaz glacier covers several square miles, and has a greater number of Phanerogams and Ferns, and a more interesting vegetation generally, than any moraine I know. Though I have visited it several times my lists are not complete, and yet they comprise at least 180 species of flowering plants and Ferns, all of which grow in the chaos of sand and stones below the foot of the glacier. The Ferns and Fern allies are:—Polypodium vulgare, P. Phegopteris, P. Dryopteris, P. Robertianum (in very small numbers), Lastrea filix-mas, L. dilatata, Polystichum lonchitis, A. Filix-fœmina, Asplenium viride and A. Trichomanes (growing together), Allosorus crispus, Botrychium lunaria (very few seen), Lycopodium Selago, Selaginella selaginoides, and S. helvetica, sparingly. The apparent absence of Cystopteris fragilis in any form is noteworthy. Other interesting features in the vegetation are the large number of Twayblades (Listera ovata), with one specimen having a double flower on a pedicel; and a monstrous Cerastium in which all the petals were green (similar forms were found in two other places in Switzerland, and may perhaps be attributed to the very damp season). Species not often seen on moraines include Campanula glomerata, C. barbata, Malachium aquaticum, Chærophyllum Villarsii, Hieracium aurantiacum, H. intybaceum and Veronica Chamædrys, which was growing low down and also close to the snout of the glacier.

The rock of the immediate district is chiefly granite, and though no limestone was observed, not even on the moraine, such lime-loving plants were there as Dryas octopetala, Asperula cynanchica, Helianthemum vulgare, Gypsophila repens, and Polypodium calcareum.

The Saleinaz valley joins the Val Ferret a short distance above the village of Praz de Fort (3,660 ft.). Just outside this picturesque village were Herminium Monorchis, in dense clumps by the roadside, Herniaria glabra, at the foot of a wall covered with Sedum album, Sempervivum arachnoideum, Chelidonium majus, Campanula Trachelium and Colchicum alpinum. Truly a somewhat wonderful association! In or on the outskirts of the forest I saw Hepatica, Rubus cæsius, Veronica officinalis, V. spicata, Galium boreale, Asperula latifolia, Hieracium Pilosella (very large), Echium vulgare, Saxifraga cuneifolia, Astrantia minor (A. major adorns the flowery meadows in the main Val Ferret) and Prunella grandiflora. One large colony of Prunella had mauve and white flowers, but the normal rich purple blossoms, the colour of Orchis Morio, with madder-red calyx, were mostly in evidence. Probably if this quite handsome weed were not so common it would be more cultivated.

We then pass through one of the finest forests of Spruce Fir in the Valais. Several fallen trees were 2 ft. 6 in. to 3 ft. across, at 4 ft. from the ground, and of enormous length. Above the Ice Station (1,350 m.), where the stony moraine begins, the Spruce is dwarf and mixed with dwarf, stunted Larch. Such homely things as Nettles, Chickweed, Sorrel, Greater Plantain, Self-heal and Germander Speedwell dispute the sandy soil with a few more interesting subjects, such as Campanula glomerata and Dianthus sylvestris. We cross the glacier stream by a plank and work up the right or southern side of the valley, among the boulders.

On the opposite bank, descending to the storehouse, is a wooden ice-slide or channel 1,580 metres long, supported on piles, which takes blocks of ice from the foot of the glacier to the place where they are loaded in narrow carts for exportation. The pieces of ice descend by the force of gravity, and take 2½ to 3 minutes for the journey of nearly a mile. The foot of the glacier is now about 1,700 m. above the sea, so that the fall of the ice-slide is 350 m., or about 1,150 ft. Occasionally masses of white ice can be seen falling out of the channel when the friction has been too great.

The glacier snout is immediately below and south of the Portalet, the striking peak shown

in fig. 97. But the fine icefall and all the upper part of the glacier are hidden on the west by some smooth, chained rocks up which one has to climb to get to the Cabane de Saleinaz, some hours further on, at a height of 8,830 ft. Spruce and Larch ascend the cliffs above the chained rocks and below the Clochers de Planereuse to at least 7,600 ft. Between these cliffs and the moraine on which we are walking is a more definite moraine ridge, evidently the end of an old lateral moraine, from which the glacier has long since retreated. On the north side of the Saleinaz valley there are steep screes, with little vegetation, except clumps of Larch and Spruce leading to cliffs, up which the trees grow almost to the topmost ridge.

On the evening of the second day of my visit I met a guide, the guardian of the Alpine Club Hut above. He persuaded me to go with him, sleep in the Hut, one of the largest in Switzerland, in order next morning to ascend the Fenêtre de Saleinaz and Aiguille du Tour, and return to Champex by the Glacier d'Orny. The weather was fine, and the prospect too tempting to resist, though my last biscuit was eaten and I had nothing but a walking-stick with which to cross the glaciers.

Photograph by H. S. Thompson.

Fig. 98.—the viesch glacier from near jungfrau hotel.

I had again and again admired from safe distances the grandeur of the Aiguille du Tour. How often from the Col de la Forclaz had I seen those vast snowfields suffused with brilliant whiteness, soon to be melted into gold and the salmon pink with mauve shadows only seen at sunset among the snow-clad mountains. How often had I watched the sun disappear below the ridge across the Trient valley, and seen the exquisite *alpenglüh* as suddenly change into the cold but delicate green of evening. Naturally, I wanted to know if "distance lent enchantment" to that view, and now was the chance. I took it, and was not disappointed. *H. Stuart Thompson.*

(*To be concluded.*)

THE BULB GARDEN.

THE DAFFODIL GRUB.

Writing last year (see *Gard. Chron.*, October 19, p. 298) with regard to my experience of the Daffodil Grub I concluded with the opinion that "it should not be difficult to eradicate" where it was possible to take up and examine the entire collection of bulbs, adding that "with very little experience the bulb that has been entered by a Merodon can be quickly and almost certainly detected." I have to confess at once that I was wrong, or, anyway, that the statement needs qualification. This year I have found more than 70 grubs, or about twice as many as last year in proportion to the bulbs examined. Yet (for reasons I will give later) I think it is probable that many, if not most, of these grubs must have been in the bulbs when planted last autumn. If this is so, since I examined all the bulbs last year personally, and on two separate occasions, I can only conclude that the marks due to the entry of a Merodon, though so characteristic and almost unmistakable when visible, are not evident (except, perhaps, to an impracticably minute examination) until some time—four months or so—after the grub has entered the bulb. So that in the case of most bulbs entered by a grub between the beginning of May and the end of July there would be no sign of it visible to ordinary observation before planting in, say, September.

If I am not mistaken in this opinion, the conclusion of course is that the Merodon grub, under ordinary outdoor conditions in this climate, often, if not usually, takes more than one year to mature. (The only alternative would seem to be that it takes much less—only about six months.) Mr. Stocks, writing last year (*Gard. Chron.*, November 2, p. 331), was, I believe, the first to suggest that the larval period was approximately two years. One naturally hesitates to adopt a view so contrary to the generally received opinion, and it certainly needs a much more definite proof than I have to offer at present; but evidently the life-history of the Merodon has as yet been imperfectly observed, and since my experience, so far as it goes (and the experience of Mr. Stocks and of others is much the same), is equally if not more unaccountable on the basis of a one-year life-cycle, reconsideration and further investigation seem desirable.

My reasons for coming to this conclusion are as follows. I took up all my bulbs last year before the end of June, destroying all in which I found grubs, and replanted them here in quite fresh ground where none have ever been grown, and in a district where there are no Daffodils anywhere near. So either the grubs found this year were actually in the bulbs when planted—in which case, if the life-cycle was one year (or about ten months to pupation) they ought all to have matured and left the bulbs long before August this year (the contingency of late-season eggs being eliminated in this case); or some grubs that were in the bulbs must have matured, and the resulting flies must have laid eggs which developed into the grubs found. In the latter case they ought all to have been fairly small, whereas they were of every size, from ⅛-inch up to nearly full grown, the actual numbers of those recorded for size being—18 very small, ⅛ inch to 3-16 inch; 21 about ¼ inch; 7 ⅜ inch; and 11 full grown, or nearly, being about ½ inch or over. Beside this difference of size there was also a noticeable variation of habit. In some cases the grub, after entering, proceeds more or less directly towards the centre of the base and up into the main part of the bulb. In others the grub bores all round and about in the base before turning up (these latter were all small grubs). In these cases also there was some evidence that the grubs had not been feeding continuously.

This wide difference of size and habit is puzzling in any case, and it must be admitted that it is difficult to account for even on the supposition of a two-year life-cycle, unless the eggs (or grubs) can remain dormant for any length of time; this, however, Mr. Long states, is unlikely.* But it is still more impossible to ascribe it to eggs laid at intervals between the beginning of May and the end of July of this year—less than three months—and no satisfactory explanation on the basis of a one-year life-cycle has yet been offered. It might be suggested that some of the grubs mature very much earlier, pupating in, say, November, and develop into flies during a mild spell in January or February and lay eggs on the leaves at their first appearance above ground. I do not know whether this has ever been observed or recorded, or how far it may be considered possible. In this particular case it seems unlikely, for the weather here from the beginning of February to the middle of May was continuously wet and cold and very windy. Moreover, in the early spring I watched for blanks, and took up all which either did not appear above ground or seemed unhealthy. (I may have missed some.) None of these had grubs in them, but three taken up later, in May and July, appeared to have had grubs which had matured and left them. (Two of these had actually flowered.) There may therefore have been three or four flies about, and some of the grubs found may be due to them—four bulbs did appear to have been entered comparatively recently.

But with regard to all the rest, 60 or more, it was their condition which at first puzzled and finally convinced me that the grubs must have been in the bulbs for several months, or even a year. For in all of these the damaged area of the base was no longer sappy and spongy and undefined, as it is when the injury is recent, but dry and either corky, or else had decayed to a powdery condition. In many cases this dead portion scabbed, or came away clean from the surrounding tissue, which had already made a considerable healing growth, that could only have taken place during the growing season. The outer portions of the holes were often mildewy, and generally, though not easy to describe in detail, the condition of the bulbs pointed to the injury having originated long ago.

Two other suggestions occur to me to account for the difference of size of the grubs, which I give for what they are worth: (1) That the small grubs are not the same species as the larger ones, and that they are the "Small Narcissus Bulb Fly," Eumerus strigatus, mentioned in Mr. Long's article (*Gard. Chron.*, October 12, 1912, p. 278). (2) That the smaller grubs are from unfertilised eggs (parthenogenetic) which is not impossible if, as I understand, parthenogenesis is known to occur in allied genera.

There are two other points concerning the life-history of Merodon equestris which have been raised. First as regards the point of entry of the grub. If the eggs are laid on the leaves, and presumably hatched there, the question is, do they enter the bulb at the neck and travel down to the base *inside the substance* of the

* *Gard. Chron.*, October 26, 1912, p. 318.

scales, or do they crawl down on the surface? Beside the consideration of being able to recognise a grub-infested bulb, this point may be of importance in its bearing on the possible efficacy of spraying to destroy the eggs or the newly-hatched grubs. This year, as last, there was no doubt that in all cases but one the grub had entered at the base, and must have come down on the surface, and not within the substance of the bulb. But whether at the edge of the base plate or beneath it I am still uncertain. In most bulbs it seemed to be at the edge, but in a few the point of entry was certainly beneath. The one exception of a bulb entered otherwise than at the base, was a cyclamineus hybrid, which has a much thinner and softer skin.

That the entry at the base is the normal habit is now, I think, generally admitted, but several correspondents state that they have seen evidence sometimes of the grub having entered at the upper part. Among the first dozen bulbs in which a grub was found I came across one which showed a slightly discoloured defined strip in about the third layer from the outside, about one-eighth inch wide and extending from neck to base. At first sight this strip appeared to be the track of a grub having come down from the upper part inside the substance of the scale, but on removing this layer there was a corresponding strip in the next, and in the next, and through to the centre of the bulb, and it was evidently due to the destruction of a narrow portion of the base of the scales by the small hole bored across them. I found other bulbs precisely similar, and I think some such appearance as this may have been taken in at least some cases as evidence of the grub having entered at the neck. On the other hand, I selected five "single" bulbs with clean and semi-transparent outer skins which had grubs in them, and examined them carefully, dissecting them layer by layer. In none of these was there the faintest trace of the grub having come down from the top anywhere within the substance. In many, but certainly not all, cases of bulbs with offsets the grub appears to come down between bulb and offset, as the entrance at the base is very often at or near that point.

Secondly, as last year, I found but one grub in each bulb (though in two cases there was a grub in the main bulb, and one in the attached offset). This seems to me quite the most remarkable and significant feature of the habit of the Merodon. There was one exception—a very large bulb, in which there were two: they were quite apart, and were of different sizes, one quite small, and the other about half-grown. *A. J. Bliss.*

LILIUM AURATUM UNDER GLASS.

This photograph (see fig. 99) of the Golden-rayed Lily, sent by Sir Everard Duncombe, shows the species as grown in his large conservatory at Brickhill Manor, Bletchley. An exceptionally fine specimen may be instructive to many gardeners in charge of large conservatories where opportunity is afforded of planting out in borders this and other large-growing Lilies that thrive better under glass than in the open air.

Mr. Bloxham, the gardener at Brickhill, has sent the following note respecting this plant. He says:—"I planted the bulb in its present position about twelve years ago. The border in which it is growing is 2 feet broad and 2 feet in depth. The border is thoroughly drained, and every spring I give it a good surface dressing of turfy loam and sheep manure, and during the growing period it is well supplied with water. "The plant is in partial shade, and the average temperature is 50° night and day, and, of course, higher during the summer."

The illustration shows the large number of bulbs resulting from the parent bulb. Some of the stems are 8 or 9 feet high, and carry many flowers. The variety is the original narrow-leaved type, which seems to be less susceptible to disease than the broader foliage forms, though these would probably succeed better under similar conditions than in open borders. Under glass this Lily flowers earlier than in open borders, and during July and August forms a splendid feature; and before it flowers it has all the elegance of growth of a graceful Bamboo. L. auratum is a most capricious Lily grown outside, especially of late years, when so liable to disease, that under-glass culture really seems to be the most satisfactory for it and planting out in beds, as this specimen is, without disturbing the bulbs at all seems to be the most natural conditions for luxuriant and healthy growth.

Other Lilies, such as L. sulphureum, which flowers too late in the open air in this country, would thrive under similar conditions, as would also the beautiful L. Henryi, though it is one of the hardiest for the open border.

Some of the newer Chinese Lilies and those from sub-tropical localities would be more at home under conservatory culture. *W. G.*

Fig. 99.—Lilium auratum in the conservatory at Brickhill Manor.

FLORISTS' FLOWERS.

HOUSING CHRYSANTHEMUMS.

The large-flowered varieties of Chrysanthemums will by this time have been transferred into the houses. The period immediately following so marked a change in conditions is a critical one for the plants. The air in the house will naturally be drier than that outside, and the foliage is apt therefore to suffer. The roots must be kept well watered to supply this deficiency, especially if the pots are stored on a stage where there is a free circulation of air. The use of stimulants should be avoided for several days, until the plants become accustomed to their new surroundings, otherwise the florets are apt to "damp" off, especially among white and crimson varieties. Chrysanthemums have grown particularly well this season since the beginning of August, and the blooms will probably open freely. As soon as the florets begin to unfold they should be shaded from bright sunshine; very thin tiffany, stretched well above the blooms, will not only accomplish this purpose, but will also protect them from drip.

A frequent source of "damping" is a cold draught in the house, and as soon as the florets begin to develop care must be taken to prevent

a direct current of air from the front ventilators. In large houses, where the plants can be stood well away from the ventilators, there is very little danger of their suffering from draughts; but in the ordinary small greenhouse it is difficult to avoid them. During really dry, sunny weather the front ventilators must be opened in order to keep down the temperature; but if the air is cool and damp they should be closed. An exception may be made in cases where the hot-water pipes are in such a position that the air passing into the house must first pass over the pipes.

SOWING SWEET PEAS.

Many up-to-date growers of Sweet Peas rely to a great extent upon plants raised in the autumn, and success with autumn-sown Sweet Peas depends a great deal on the date of sowing. Sowing too early results in large plants that become pot-bound before the weather in spring is favourable for planting, whilst those sown too late do not make sufficient growth for them to winter in a thoroughly healthy condition. It is astonishing what a few days' difference only makes in this respect. From my experience and that of others who adopt this method of raising plants, from October 8 to 15 is the best time, and from such a sowing the plants make just sufficient root to ensure them growing steadily through the winter, which is essential, as it is not the first shoot that is made that is relied upon to produce the bloom, but rather the strong side growths which should break out just above the ground level during the month of February. Many growers pinch the young plants after they have made two or three leaves, but this check is not only unnecessary, but actually harmful, and necessitates sowing earlier as well as more care afterwards; moreover, there is always a tendency for certain of the plants to go blind after this early pinching, and in some instances they die. The best results of all are obtained by sowing one or two seeds in long 60 pots, which may be stood closely together, though sufficient air and light must reach the plants. Plenty of fresh air at all times is essential, and protection must be provided against severe frosts and heavy rains. Over-watering is the chief thing to guard against, and I have known the plants to grow right through the winter without once being watered. Varieties of Sweet Peas are legion, but the following newer sorts may be recommended:—King White, Florence Wright Spencer, Margaret Alter, Orchid, Ruby Palmer, La Belle Sauvage, King Alfred, Orange Perfection, Helena Williams, A. A. Fabius, Mrs. M'Ilwrick, Lord Nelson Spencer, Phyllis, and Royal Purple. Robert Sydenham, which is probably the most distinct novelty raised for several years past, will not be listed in the catalogues until the autumn of 1914. *T. Stevenson.*

THE ROSARY.

THE BEST RAMBLERS.

Now is the time for the Rosarian to select varieties for planting. In the case of those I shall name it will be generally admitted that they have obtained the appreciation of Rosarians. It may be noticed that a number of Wichuraiana varieties is included in the list, the reason for this preference being the highly ornamental nature of their foliage.

Dorothy Perkins (1902) is a Rose which I regard as one of the most useful we have. Its colour—a soft pink—is most attractive; and it does well even in somewhat adverse conditions, such as neglected pruning.

Excelsa (Walsh, 1909) may be regarded as a red Dorothy Perkins. It is the brightest of the Ramblers, and no Rose garden can be considered complete without it. It is free and compact in growth, and even freer in flowering than Dorothy Perkins.

Dorothy Dennison (Dennison, 1909).—This Rose is bracketed with Christian Curle and Lady Godiva by the N.R. Society, which regards the three names as synonymous. The colour is a pretty shell-pink, and the habit and freedom of flowering are all that could be desired.

Lady Gay (Walsh, 1903) is quite distinct from Dorothy Perkins, the flowers being larger, brighter and produced in longer trusses; the plant is also more vigorous in growth. The colour is cherry-pink, fading to a softer tone.

Hiawatha (Walsh, 1905) is a brilliant scarlet, single flower with yellow anthers. It is very effective, either trained over a pergola or pegged down in a bed, and invaluable in a garden where bright display is required.

Coronation (Turner, 1912) is a strongly-growing, freely-flowering variety. The colour is bright crimson, with a small white streak in each petal—a distinct and attractive flower.

Flame (Turner, 1912) is a bright salmon-pink variety, producing enormous trusses of flowers. It is one of the best of the Rambler type.

Ethel (Turner, 1912) is a semi-double variety, flesh-pink in colour and a sturdy grower; it is a seedling from Dorothy Perkins. A suitable Rose for decorative purposes.

Débutante (Walsh, 1903) is a delightful pillar Rose; the pink blossoms are best displayed in this form of training, being set rather widely apart.

Evangeline (Walsh, 1907) is a single variety, with large flowers, freely produced on huge trusses. The flower is white, the tips of the petals tinged with carmine pink, the effect being very beautiful.

Francois Juranville (Barbier, 1906) has the advantage of being a perpetual flowering variety. The plant in my garden has been continuously in flower ever since it opened. The colour is a bright salmon-pink, with a base of orange-yellow. The flowers, which are often produced singly, are four inches in diameter; the foliage is dark and glossy.

Sweetheart (M. H. Walsh, 1903) is certainly in the front rank of Ramblers as regards freedom of flowering, lasting properties and purity of colour. The buds are bright pink, but the mature flower is white; the habit of growth is compact.

Minnehaha (Walsh, 1905).—This variety maintains its freshness of flower perhaps longer than any other. The crimson flowers are closely double, widely set on long, panicle-like trusses. A pillar is the best support for this most attractive variety.

White Dorothy (Paul and Sons and B. Cant, 1908).—This variety does not meet with universal favour, owing chiefly to a slight want of purity in the flower, many of the blooms being splashed with pink. It should, however, find a place in every collection, as it lasts a long time in flower and is late in blossoming.

American Pillar (Conrad, 1909) may be described as the most showy of the climbing Roses. The large clusters of flowers are freely produced over the dense green foliage, the colour of the blossoms being rose-pink, with a clear, white eye. One of the plants in my garden grew last year to a height of sixteen feet and flowered profusely from base to summit.

Blush Rambler (B. R. Cant and Sons, 1903) is one of the most lasting varieties. It grows freely and flowers profusely; the perfume also is very pleasing. The colour is a rich blush, lighter in the centre.

Electra (Veitch and Sons, 1901) is one of the earliest to flower, and the blossoms form huge clusters. The buds are yellow, but fade on maturity almost to white.

Tausendschon (Schwartz, 1906).—This is a universal favourite, though not very robust in growth. The flowers are maintained in fresh condition over an extremely long period; when fully expanded they resemble the blossoms of an Oleander in form and colour. When first opened they are pink, but develop into rosy carmine.

Mrs. F. W. Flight (Flight, 1905) is a freely-flowering, semi-double variety, rich pink in colour with a white centre. The blooms last a long time in a fresh condition; the colour seems to deepen a little with age.

Madame Alfred Carriere (Schwartz, 1879) is one of the best of the early-flowering pillar Roses. The pale-pink buds open to pure white; the flowering is exceptionally free.

Tea Rambler (Paul and Son, 1902) is coppery-pink with a salmon flush. The growth is pendulous, and the deep-green foliage is suitable for training to a pillar.

Eliza Robichon (Barbier Bros., 1901) belongs to the Wichuraiana class. It flowers freely, and the blossoms are semi-double, of a rose colour, shaded with pale yellow.

Gardenia (Soupert and Notting, 1900) is one of the earliest to flower. The blossoms are yellow in the bud, changing to pure white on maturity. The flowering continues until November. The fact that the variety is almost an evergreen adds to its attractiveness.

Crimson Rambler (Turner, 1893).—This magnificent variety caused quite a sensation when first introduced. It has many points, but is unfortunately so liable to attacks of mildew that its appearance is often spoiled. *E. M.*

NOTICES OF BOOKS.

Propagation and Pruning.*

The propagation of cultivated plants is a big subject to treat adequately of which would require a volume to itself. And so of pruning, perplexingly difficult and made more difficult to the inexperienced because of the diversity of opinion that exists regarding methods. A newly-planted Rose or Apple tree has been the occasion of a wasteful effusion of ink, whether to prune or not to prune, and if to prune, when? There is even more disagreement about root-pruning. Many moderns who root-prune fruit trees occasionally would hesitate to cut back the roots of pot-grown fruits at rest, Azaleas, specimen Fuchsias or Allamandas, as was the usual practice of a former generation. In this volume of 224 pages the author not only attempts the solution of these vexing questions, where he attacks them at all, but provides a learned and very well-written chapter on Plant Physiology; one on transplanting; another on manuring, and several chapters on various sections of cultivated plants, in which their propagation and the methods of pruning adopted by the author are touched upon. The better chapters are those in which fruit trees are discussed, but the author seems to have erred in not being so definite in his instructions as a learner would look for, and there is also need for condensation and greater clarity in many of the directions. It would almost appear as if the latter portion of the book had been hastily composed and left unrevised, else why should Ledum palustre appear among stove and greenhouse plants and Sweet Chestnut among flowering trees? There are also very obvious mistakes in nomenclature and looseness in construction of sentences that proper revision ought to have corrected. There are 57 full-page plates. *R. P. B.*

Plant Chemistry.†

The fact that there is a very essential difference between plant chemistry and the chemistry of plant products is, as a rule, imperfectly appreciated by the chemist, with the result that chemical science is not so much utilised by the botanist as it ought to be. In their new book Messrs. Haas and Hill follow the usual procedure, with the result that, although they have collected in one volume a valuable storehouse of

* *The Propagation and Pruning of Hardy Trees, Shrubs and Miscellaneous Plants. With Chapters on Manuring and Planting.* By J. C. Newsham. (London: Crosby Lockwood & Son.) Price 5s.

† *An Introduction to the Chemistry of Plant Products.* By P. Haas, D.Sc., and T. G. Hill. Pp. xii. and 401. Longmans, Green & Co. Price 7s. 6d. net.

facts relating to the occurrence of certain compounds in plants and have added a full description of their chemical properties and behaviour, the reader will probably finish the book without greatly advancing his understanding of plant processes. Chemistry must be made somewhat more real, more stimulating, if it is to be of use in plant physiology, and although a knowledge of chemistry and its experimental technique are a necessary part in the equipment of the trained botanist, it is better that he should get a general idea of chemical laws and theories than acquire a limited and mechanical knowledge of a few compounds.

Apart from these criticisms of principle we have every praise for the book itself. It contains a large amount of information which will be of the greatest use. It is quite up to date, some of the most recent work being included, although, as is inevitable, other researches of considerable importance are omitted. The treatment is thorough and includes sections on colloids and enzymes, in addition to those in the various organic constituents of plants. The enzyme section contains an able summary of this important subject, of which the full bearing has yet to be appreciated by plant workers. Generally speaking, the authors follow the views of Bayliss, and regard enzymes from a physiological rather than from a biological aspect. This view may have to be modified as knowledge increases.

The section on colloids shows the development of this newest branch of chemistry. Its importance will not be denied when it is remembered that passage from cell to cell takes place through colloidal membranes, and that the cell fluids are often colloidal solutions.

Lastly, the book reflects the increasing amount of attention which is being directed to plant chemistry, and although the immediate practical outcome of the work may not be obvious to all, we can claim that an explanation is being found for many horticultural practices, and at least an indication given for new practices.

Plant Life.*

This little book is the work of a master hand, and should be read not only by everyone who wishes to learn something of modern Botany, but also by all—and they appear to be many—who undertake the writing of popular books on Natural History. The keynote of many of these latter productions is futility; that of Professor Farmer's little work is vigour. Only too often the reader who wants to know discovers that the popular book is made up of Just-So stories in Natural History without—need it be said—the literary grace of Kipling's masterpiece. In such books sundry pretty episodes in plant life are paraded, and subjects which are difficult and not apparently picturesque are avoided. Writers of this class treat the plant as though it were on an everlasting bank holiday, describing its finery and ignoring the painful labour of its workaday life. Not thus does Professor Farmer treat of plant-life. He looks at that life and sees it whole. He goes straight on his course, appealing only to the reader who is willing to think as well as read, and to him he illuminates the path along which plants have passed from the simple to the complex. Having shown us plants in the making, he gives us a glimpse of the flowering plant at work. Then follow chapters on the changes undergone by those species which find themselves obliged to live in abnormal situations—in water, on trees, and so forth. After the grandeur of the plant comes its decadence, and in later chapters the parasites and saprophytes are described. Lastly, an excellent account is given of the process of fertilisation whereby the old prepare the new generations which shall replace them. We recommend this little book very warmly to gardeners young and old, and can promise them that if they will read it with attention they will derive no small amount of profit therefrom.

* *Plant Life.* By Prof. J. B. Farmer, F.R.S., Home University Library. Williams and Norgate. 1s.

DESTRUCTIVE INSECTS AND PESTS
SCHEDULED BY THE BOARD OF AGRICULTURE AND FISHERIES.

XVI.*—THE CHERRY FRUIT FLY.
(*See Coloured Plate.*)

Among insects which attack cultivated fruits one which is very troublesome in some Continental countries is the Cherry fruit fly (Rhagoletis cerasi, L.), known also as Tephritis cerasi, Ortalis cerasi, or Spilographa cerasi. The general appearance of this fly and its maggot and pupa are shown in the Coloured Supplement. The little two-winged fly, about one-fifth of an inch long, is glistening black to brown-black, with tawny or yellowish head and legs. The wings are glassy, and bear very characteristic markings, consisting, roughly, of four black or brownish-black to brownish bars across the wings, and these practically serve to identify the fly. One bar may be short and small.

Various authorities differ as to the manner or position of egg-laying, but it would appear that eggs may be deposited on the blossom or fruit, principally, perhaps, the fruit. The following represent different statements: "The female lays her eggs on the blossom, and the larva which develops bores into the young fruit, of which it devours the pulp."† "It lays one egg on each Cherry near the stem of the ripening fruit."‡ "The Cherry fly appears very early in the year, usually from May onwards, and flies till the end of June. Generally it occurs in our Cherry orchards when the Cherries begin to colour. About this time also pairing takes place, and thereafter the female, with the aid of the ovipositor already referred to, deposits her eggs in the fruits, and in general lays only a single egg in each fruit."§ "The female punctures the skin of the Cherry obliquely, and lays her egg in the flesh, some say near the stalk, and that the maggot penetrates into the fruit on hatching."‖ It would appear that the eggs are principally laid on the well-grown and ripening fruits, and it is stated that sweet-fruited Cherries are chiefly affected, acid varieties being but rarely attacked. Lüstner (*loc. cit.*) says that the wound made by the ovipositor quickly heals over, and leaves no trace that an egg has been deposited.

The eggs hatch in a few days, giving rise to whitish or yellowish, elongated, footless maggots, which feed on the flesh of the Cherry near the stone for as much as three or four weeks, attaining full size (about one-fourth to one-third of an inch long) by the time the Cherries are fully ripe. The attacked Cherries may fall, or the full-grown maggots drop to the ground, and the maggots pupate just in the surface soil—about an inch deep, according to Ewert—the flies appearing in the following spring. The puparia are light brownish and barrel-shaped, with two short horn-like processes at the end.

The attacked Cherries are, of course, damaged, and may in the course of time become rotten. Nevertheless, Cherries with grubs within are extensively marketed, and so are doubtless eaten. English Cherries do not appear to have ever been attacked; there are at least no records known to the writer, though the Cherry fly has been known on the Continent for a long period. Affected Cherries are constantly imported into England from the Continent, and this aspect of the case is so important that I reproduce at the end of this article a statement made by the Board of Agriculture and Fisheries a year or two ago (see note). There would appear to be some unknown reason why this insect is unable to establish itself in England.

Theobald wrote of this pest (*loc. cit.*): — "Should this insect, which may be British, but which in any case is very rare, *and which is imported in foreign fruit*, become noticeable in any plantation or garden, it would be wise to forego any crop by having all the fruit destroyed to prevent damage another year and the possible spread to other plantations near, and so, perhaps, over the whole southern part of the country." Regarding the importation of fruits, the same authority remarks: "Fortunately, we do not peel or cut Cherries in two; the result is that the maggots, as a rule, are eaten with the Cherries. This, if nasty, is to the benefit of the home grower."

The Cherry fly may be combated by the collection and destruction of affected Cherries; giving poultry the opportunity to pick up fallen Cherries and maggots, as well as pupæ in the soil; surface cultivation in autumn and winter, to expose the pupæ to birds and the rigours of weather, should be regularly practised; deep digging in winter to bury the pupæ deeply is a useful measure. *H. C. Long.*

Note.—The passage above referred to, in the *Ann. Rept. Intel. Div., Bd. Agric. and F.*, Cd. 5.470, 1911 (1909-10), is as follows:—"As there is no external mark on the fruit, the presence of these grubs, even if suspected, does not deter the growers from gathering the fruit and consigning it to the English market. Consequently large numbers of these pests are introduced every year into this country. The Cherries are brought into England from about the middle of May to about the end of June, when the English fruit is put on the market. The packages arrive by the thousand, chiefly from France. The earliest are sent, of course, from the southern Departments, but as the season advances Cherries grown in more northern Departments, more especially in Picardy, are consigned to this country. A smaller amount is also sent from Germany. In both these countries the Cherry fly is very common. Enquiries made in France have revealed the fact that it is known in most places where the fruit is grown, though it does not appear to have caused much damage or to have been the subject of many complaints. Similar enquiries made in Germany elicited the information that it was very common there, but varied in prevalence in different years. In both countries it appears that the attacked fruit is sold as sound, though it is stated that when the fruit begins to rot it is sold cheaper. It is undoubted that large consignments of infected Cherries have reached this country not only in 1909, when several reports reached the Board from such widely different localities as London, Evesham, and Cambridge, but also in 1908, when complaints were received from places as far north as Durham. It is equally certain that fruit affected in a similar way has been introduced in previous years, since the importation of foreign Cherries is a trade of long standing, and the fly is so well known in France as to form the subject of a proverb. It is the more remarkable, therefore, that not a single case of the appearance of the adult fly in England has been recorded, not a single complaint of English Cherries being attacked by the grub. The conditions under which this country has so long remained apparently free are not understood. It may be connected with the weather that prevails in these islands in the spring and early summer, it may be associated with the kinds of Cherries grown here, or even possibly with the relatively greater abundance of wild birds, or other creatures which may prey upon the fly. For the present it is sufficient to say that the greatest care should be taken in watching for and reporting the first appearance of the pest among English orchards, as it is impossible to say when the unfavourable conditions, whatever they are, may fail to prove strong enough to keep out what would then prove a very troublesome pest."

* The previous articles appeared on September 27, October 12, November 2, and December 7, 1912; and on February 1, March 1, March 15, April 26, May 3, May 24, June 7, August 16, September 6, September 13, and October 4, 1913.

† *Ann. Rept. Intel. Div., Bd. Agric.*, Pt. II., Cd. 5470, 1911 (1909-10).

‡ *Die Krankheiten der Obstbäume.* Prof. Dr. Ewert, 1913.

§ *Die wichtigsten Feinde der Obstbäume.* Dr. G. Lüstner, 1907.

‖ *Insect Pests of Fruit.* F. V. Theobald, 1909.

GERMANY.

THE MUNICH CONFERENCE ON AGRICULTURAL ACCIDENT INSURANCE INSTITUTIONS.

The Conference of professional agricultural accident insurance associations, held at Munich from September 28 to October 10 of last year, was of special interest because it was the last held under the imperial law of 1900, before the coming into force of the new regulations on agricultural accident insurance embodied in the imperial ordinance of July, 1911. Forty-eight German professional associations for insurance had sent to the above-mentioned conference one or more representatives, and the Imperial Insurance Office also took an active part in the proceedings.

Of these proceedings, recently published, the essential points are enumerated in the April number of the *Bulletin of Economical and Social Intelligence*, published by the International Institute of Agriculture in Rome. In this periodical there is a clear account of the principal reports sent in and of the most important conclusions as to the various present-day problems of agricultural accident insurance.

Dr. Kauffmann, President of the Imperial Insurance Office, said at the conference that though much has been already achieved by professional associations with regard to provision for agricultural labourers, in a spirit of self-sacrifice and with lofty humanitarian aims, yet the work cannot be considered complete. It is especially necessary to second insurance by prevention, and the speaker insisted that money laid out on preventive measures ought to be considered a profitable investment, considering that such outlay would be almost balanced by a diminution in the amount paid as compensation. This statement is confirmed by the experience of professional industrial associations: owing to efficacious preventive measures many forms of accident have either entirely ceased to occur or have become much less frequent. This subject of prevention was thoroughly discussed at the conference. Experience having shown that some of the preventive regulations in force were difficult of application, the conference decided on a revision of these regulations, and proceeded to lay down uniform rules for the prevention of accidents in connection with the use of agricultural machinery, to define clearly the duties of technical employees appointed to inspect individual undertakings, and to establish special rules for the prevention of accidents connected with electrical works.

Another subject which was fully discussed was that of the necessity and the efficacy of medical care during the first thirteen weeks after an accident. Theoretically the best means of insuring the speedy cure of an injured man would be to send him immediately after the accident to a hospital where all the resources of science would be available, but how great are the difficulties in the way of the adoption of this plan! At present the institutions on which the German professional associations may count for the care of their invalids have at their disposal about 250,000 beds; the speaker on this subject at the conference maintained that, in the interest of the agricultural and forestry associations, 30,000 more would be required. He added that it is not always easy to convince the invalid and his family of the desirability of his being placed in a hospital, and he reminded his audience of the mistrust with which many doctors, especially in country districts, regard sanatoria, considering them of little use and injurious to their interests.

Other important questions discussed were the insurance of gardeners' labourers against casualties, the representation of professional agricultural associations in the higher insurance offices, and the procedure with regard to elections to fill posts in the agricultural associations themselves.

The Week's Work.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Hydrangea hortensis.—The cuttings of Hydrangea rooted in boxes of sand are ready for shifting into 4½ or 5-inch pots, according to the strength of the individual cuttings. The soil should consist of three parts rich loam and the remainder decayed cow manure, coarse sand, wood ashes and leaf-mould in equal parts, adding a little fine bones. Pot firmly, and after soaking the soil with water, place the plants, on an ash bottom for preference, in a house or pit where the atmospheric temperature is 50° to 55°. As soon as the plants root into the new soil afford water liberally, and if an early batch is required the selection may be made by determining which have the hardest and largest buds The selected plants should be moved into a warmer house or pit and stood near to the roof-glass. Old plants that were cut back when the flowering was over should be attended to and either top-dressed with rich soil containing some concentrated manure and soot, or, if large plants are required, potted on into larger receptacles. Young plants that were struck last season and produced one inflorescence in 4½ or 5-inch pots should next season produce four or more heads of flower. Older plants should be potted on or tubbed as required. The soil should be similar to that employed for the smaller plants, but more manure should be used. Care must be taken that green fly, thrip and other pests do not injure the plants, which should be either fumigated or syringed with an insecticide. As the plants advance into growth secure the shoots to stakes and thoroughly syringe them. Such plants in 4½ or 5-inch pots that give no promise of flowering, if not needed for stock purposes, should be thrown away.

Chrysanthemums grown as bushes should be disbudded, and where there is plenty of space batches should be moved into warm houses as required for decorative purposes. Watch carefully for the appearance of mildew and green fly, and directly these pests are detected take measures to combat them. Sulphur on the hot-water pipes will destroy mildew, and fumigation will get rid of the aphides. The later varieties that are just showing their buds should be fed regularly with manure and manure-water, and given a liberal supply of water. This also applies to plants in 5-inch pots. Those advancing into flower should have no manure, as there will be no gain by giving stimulants at this stage, and the flowers will not last so long when cut, but plenty of pure water should be afforded. Exhibition varieties should be watched for the presence of green fly; plants in flower should be grown in a cool, dry atmosphere, so that the flowers may last for a long time.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Miltonia.—The Brazilian species, M. spectabilis, M. Moreliana, M. virginalis, M. candida, M. Russelliana, M. Peetersiana, M. Regnellii and the rare M. Lubbersiana are passing through their flowering season. As the blooms fade keep the plants on the dry side until growth recommences. These Miltonias grow best in a shady part of the intermediate house. When exposed to much light the leaves become far more yellow than is desirable, and may drop prematurely. Plants of the Columbian M. vexillaria that were repotted in August are well rooted and need an increased amount of water. Such beautiful and distinct hybrids as M. Bleuana, M. Hyeana and M. Charlesworthii, now in full growth, need a similar treatment. M. Phalænopsis, M. Roezlii and M. Endresii may be repotted at this season, provided that these Miltonias have been rested during the summer in a cool house. Grow the plants from now onwards in a light position in the intermediate or Cattleya house. M. Roezlii and M. Endresii prefer a rather shady position at all times. At this season small yellow thrips are generally troublesome to the young growths of these Miltonias, and measures must be taken to destroy them either by vaporising the house periodically or dipping the plants in a mild insecticide, such as is formed by mixing about 2oz. of Gishurst's compound in one gallon of hot water, adding about a tablespoonful of the XL All insecticide. Dip the plants in the wash whilst it is still warm, say at about 90° to 90°. Afterwards well rinse the foliage with clear, tepid rainwater. See that none of the insecticide gets into the potting material or the roots may be harmed.

Cool House.—Thrips multiply very rapidly in the cool houses when an extra amount of sunlight is admitted at the end of the season; but they may be easily destroyed by using some safe vaporising compound. Previous to fumigation of the house, which is always best when done late in the day, the top and bottom ventilators should be closed, and the bare spaces well damped. In a moist, warm atmosphere the insects will emerge from their hiding-places and disport themselves on the leaves, when they will be the more easily destroyed by the nicotine vapour. It may be necessary to fumigate again early the next morning, or on two successive evenings. Shade the plants lightly for a day or two after the operation.

Oncidium.—Such cool-growing Oncidiums as O. macranthum, O. monachicum, O. undulatum, O. Loxense, O. serratum, O. superbiens, O. zebrinum and O. lamelligerum require at this season a plentiful supply of water at the root, still shading them from strong sunshine. The rare O. Cæsianum and O. corynephorum thrive best when the base of the plant is kept on the dry side; but it is advantageous to moisten the aërial roots by spraying them occasionally. The yellow O. cheirophorum, one of the prettiest of the smaller growing Oncidiums, is growing and rooting freely, and may be repotted if necessary. Grow the plant in a shallow pan filled with a very thin layer of finely-cut Osmunda-fibre, and during the winter place them close to the roof glass at the warmer end of the house. The plant requires but little water at any time, and it will suffice if the surface of the soil is kept just moist only. Prevent water from lodging in the young growths, as they are very liable to damp off.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Planting Spring Flowers.—In the absence of frost certain of the summer bedding subjects may continue to present a bright appearance for some time to come, and in consequence there may be a temptation to allow the plants to remain for an indefinite period; but it must be remembered that unless spring flowering plants are put into the beds sufficiently early to become well established before severe frosts occur, there is great danger of a large percentage of them dying. Therefore it is imperative to make a start with the spring bedding at once. If circumstances permit let the beds be manured liberally when digging them, as this will save the need for applying manure in the summer when work is more pressing. Plants which may be put out now include Wallflowers, Forget-Me-Nots, Polyanthus, Aubrietia, Double Arabis, Alyssum, Canterbury Bells and Pansies. It is important that the ground be in a proper condition for planting, to allow the plants to be set firmly as a protection against wind and frost. Mixed beds and borders are popular nowadays, and there is nothing more suitable for this system of planting than spring flowers. A long, narrow border in these gardens filled last year with Wallflowers in various heights and colours was a very pleasing feature. Wallflowers are more effective when employed in this manner than when massed in separate colours. Another very effective bed was planted with various species and interspersed with early and late-flowering Tulips. A few plants of each sort should be kept in reserve for filling blank spaces where

specimens have died. Some of the smaller beds near the dwelling may be made bright in winter by mixing dwarf-growing evergreen shrubs with the spring flowers. Retinosporas, Cupressus, Hederas, Euonymus, Buxus, Aucubas and Golden Privet are all suitable for the purpose.

Salvia patens.—This species is one of the choicer of the bedding Salvias; but, unfortunately, many of the plants die during the winter. The tubers, which are not unlike those of the Dahlia, should be lifted and placed together closely in boxes filled with sifted soil. The soil should be made fairly firm and should be neither wet nor dry. Place the boxes in a frost-proof shed for the winter and keep them quite dry.

Canna.—Before Cannas are lifted from the beds they should be correctly labelled preparatory to storing them for the winter. These plants are much over-rated as bedding subjects, and only the very best should be retained for another season. They may be wintered in a dry, frost-proof shed, covering the roots with dry soil.

General Work.—Before the bulk of the leaves fall from trees in the pleasure-grounds, the grass should be cut to facilitate the work of raking and gathering the leaves for storing. Leaves falling on grass must be swept up regularly, or worms will draw them into the ground, making the lawns appear untidy. Clip the grass edges and sweep the walks regularly, afterwards using the roller to promote a smart appearance.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Planting Operations.—It too often happens that planting operations rendered necessary by the exhaustion of old trees or proved unsuitability of particular varieties are deferred until another season on account of the difficulty there appears to be in getting the work done. This is an evil which should be provided against whenever possible, as the appearance of the garden not only suffers through the delay, but the culture becomes more or less unprofitable. In the case of wall trees it is an advantage to have trained trees at hand to replace those that have to be removed, and these can only be provided for by ordering a number of maiden trees from the nurseries each year. If older trees of the trained type are purchased they seldom can be moved with the immediate and successful results which attend the transplantation of smaller specimens, but it is easy enough to move trees of the larger sizes from one place in the garden to another as occasion may require, especially as the trees being under the care of the gardener they can be especially prepared for the shift. It will be found that on most walls there are vacant spaces where young trees can be cultivated, but if this is not so then most subjects, including Peaches, Nectarines, Pears and Cherries, can be trained very well in the open garden, in fact, nurserymen frequently rely on the open border system of training, which if successful in nurseries is all the more likely to be satisfactory in gardens. One point to recognise is that the earlier trees are purchased after this date, and the sooner they are planted after arrival the better.

Selection of Varieties.—A selection of varieties of Apples and Pears may be useful for less experienced planters, and taking Apples first—placed in the order in which they ripen—a very good dozen varieties are as follows:—Beauty of Bath, Irish Peach, Margaret, Lady Sudeley, Worcester Pearmain, King of the Pippins, Cox's Orange Pippin, Margil, Adams's Pearmain, Claygate Pearmain, Court-Pendû-Plat, Reinette du Canada, and Sturmer Pippin. Of culinary or kitchen varieties the following are to be recommended:—Keswick Codlin, Lord Suffield, Lord Grosvenor, Stirling Castle, Cellini, Ecklinville, Grenadier, Peasgood's Nonesuch, Stone's Seedling, Warner's King, Blenheim Pippin, Lane's Prince Albert, Tower of Glammis, Alfriston, Bramley's Seedling, Newtown Pippin, Norfolk Beefing and Northern Greening.

Selection of Pears.—The varieties of Pears printed in most catalogues are very numerous, and so far as my experience goes many of the varieties are not worth cultivation because of their poor flavour. Most of the very early varieties, such as Summer Doyenné (Doyenné d'Eté) and Green Chisel, are of this character. For general purposes the following dessert Pears will include sufficient variety for most gardens, and they are selected to give first-rate quality:—Jargonelle, Williams's Bon Chrêtien, Beurré d'Amanlis, Beurré Superfin, Comte de Lamy, Louise Bonne of Jersey, Marie Louise, Seckle, Conference, Doyenné du Comice, Glou Morceau, Thompson's, Easter Beurré, Knight's Monarch, Le Lectier, Winter Nelis, Beurré Rance, Nec Plus Meuris. Where, however, exhibitions have to be taken into account some varieties I have mentioned will not be suitable, and it will be necessary to substitute others of better appearance, even though they possess less table value, such for instance as Clapp's Favourite, Dr. Jules Guyot, Marguerite Marillat, Souvenir du Congrès, Triomphe de Vienne, and Pitmaston Duchess.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Tomatos for Spring Cropping.—Make a sowing of Tomato seed, if this has not been done, to raise plants for fruiting next spring. Sow in pans, cover the seeds lightly with fine soil, and stand the seed-pans on a gentle hotbed until the seedlings are well through the soil, when they should be raised to within a few inches of the roof glass, which must be kept perfectly clean. When the plants are large enough to handle, pot them singly in small, clean pots filled with a compost consisting of two-thirds sandy loam and one-third sifted leaf-mould. Grow them close to the roof glass, and when they begin to make fresh growth admit air in sufficient quantity to keep them from becoming drawn. Although ventilation is necessary, the plants must not be exposed to cold draughts or they may become stunted. Afford water with extra care until the pots are well filled with roots, when the stronger plants may be potted into 6-inch pots, in which they may remain until the first truss of bloom develops, at which stage they should be shifted into their fruiting pots. The plants will furnish supplies in April.

Forcing Vegetables.—The time is approaching when a start must be made with the forcing of such vegetables as Asparagus and Seakale, and although ripening of the roots may be somewhat delayed owing to the moist autumn, it is necessary in the meantime to clear out the forcing pits and have the walls whitewashed with hot lime. As soon as the roots are perfectly ripened a start may be made.

Potatos.—The latest varieties of Potatos are ready for lifting and should be dug up when the ground is dry. The tubers should become dry before they are stored for the winter; but, although it is necessary for the skins to become dry, too much exposure impairs the quality of the tubers. There is no better means of keeping late Potatos in a good condition than by placing them in pits where sufficient covering can be applied to keep them from frost. Fern fronds are excellent as a protective material and if kept dry are not likely to decay. A layer of about 9 inches of soil will be sufficient until sharp frost sets in, when further covering may be necessary. Seed tubers of late varieties may be treated in the same manner, for there is no place where they will keep better than in pits; but they will need overhauling early in the season before growth commences. If seed Potatos are allowed to develop shoots that have to be rubbed off, the prospect of a successful crop will be reduced. In selecting tubers for seed, choose only those which are quite ripe.

Lettuce.—Large-sized plants of Lettuce may be lifted from the open garden and planted carefully in cold pits; or, if lights are available, protection from heavy rains may be afforded by placing these over the plants where they are growing. The plants have made soft growth this season, and a few degrees of frost may harm them considerably if protection is not provided. Admit air freely by tilting the lights so that rain may not reach the plants. An excess of moisture causes damping in winter-salad plants, and should be guarded against.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Cucumbers.—Plants growing in a properly constructed house for supplying fruits during the winter should be treated with a liberal amount of ventilation during the present month, whilst the weather is fairly mild. The atmospheric temperature at night should range from 65 to 68°, never permitting it to rise to 70° except on very mild nights. If high night temperatures are maintained by fire heat, the leaves will become thin and suffer from attacks of thrips and red spider. In order to limit the amount of fire heat as much as possible, let the glass be covered at night with Frigi Domo or other material to exclude the cold. Little or no spraying should be done now as the necessary degree of moisture can be maintained by damping the paths and other surfaces. Stop the lateral growths at frequent intervals, and avoid overcropping at the commencement or the plants will become exhausted before the winter is through. Remove all male blossoms as soon as they are observed. If the bottom heat is obtained from fires care must be taken that the roots do not suffer from over-dryness. Later on when the plants have been bearing for some time and the roots are seen on the surface of the border, it will be necessary to supply a top-dressing of a rich compost of turfy loam and manure from a spent hot-bed; occasional light top-dressings of this description are to be preferred in winter to frequent waterings with liquid manure.

Strawberry Plants.—The Strawberry plants now standing on a trellis raised a little above the ground will require during the present month watering with manure water, the object being to keep the plants growing as long as possible in order to build up the crowns, and fill the pots with roots. Let every plant stand clear of its neighbour, and keep the pots free from weeds. If the weather becomes very wet towards the end of the month, the plants had better be moved into a cool frame or cool house, where they can be stored for the winter. By that time growth will have ceased, and the plants will require to be rested in a cool state, where heavy rains and hard frosts will not reach them. In places where glass coverings for winter cannot be provided, the pots must be placed on their sides, building them up layer after layer in ridges, packing ashes round and between the pots.

Tomatos.—Plants now growing in the house that yielded a summer crop of Melons should produce plenty of Tomato fruits for some little time longer. They need a little warmth from the water pipes and a dry, freely-circulating atmosphere. Let the roots be fed liberally with manure water, and remove all side growths as they appear. Winter-fruiting plants which were grown in pits or frames in their early stages should now be placed in moderately warm houses, in a dry, well-ventilated atmosphere. Whilst watering with manure water must be carefully attended to, the plants must be kept rather on the dry side during winter. Attend to the pollination of the flowers each day. Sow seeds of Tomatos at any time from the middle to the end of the present month to produce plants for fruiting early next spring.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Beans.—Late-sown Beans have done well this season, and the plants are freely set with fine pods. There are only two gatherings from this crop, the one early in October, and the other a fortnight later. The ground should afterwards be cleared of all the frames, which may be stacked for the winter, and the lights brought in the shed to be washed and painted during bad weather.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* EDITORS, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCTOBER 20—
Annual Meet. Nat. Sweet Pea Soc. at Hotel Windsor, at 2.30 p.m.

TUESDAY, OCTOBER 21—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by the Rev. Prof. G. Henslow on "The Evolution of Plants and the Directivity of Life as shown by the Reproductive Organs.")
Horticultural Club Dinner, 6.30 p.m.; lecture by Prof. Bottomley.

WEDNESDAY, OCTOBER 22—
Herefordshire Fruit, Root, Grain and Chrys. Soc. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 48.5°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, October 15* (6 p.m.); Max. 59°; Min. 53°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, October 16* (10 a.m.); Bar. 29.7°; Temp., 57°. *Weather*—Sunshine.
PROVINCES.—*Wednesday, October* 15, Max. 54° Preston, Min. 49° Glasgow.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY—
Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, TUESDAY, AND WEDNESDAY—
Twenty-first Annual Sale of Nursery Stock at Milford Nurseries, Milford, near Godalming, by order of Messrs. Maurice Young and Co., by Protheroe and Morris, at 12.

MONDAY, WEDNESDAY, AND THURSDAY—
Bulbs, Rose Trees, Shrubs, and Perennials, at Stevens' Auction Rooms, 38, King Street, Covent Garden, at 12.30.

WEDNESDAY—
Trade Sale of Bulbs, also Palms, at Protheroe and Morris's rooms, at 1.

THURSDAY AND FRIDAY—
Hollamby's Annual Sale of Nursery Stock at Groombridge, near Tunbridge Wells, by Protheroe and Morris, at 11.30.

FRIDAY—
Orchids, at Protheroe and Morris's rooms, at 12.45.

Oriental Pears and their Hybrids.

A recent bulletin of the Department of Horticulture (Agric. Exp. Station, Cornell University) prepared by Mr. Cox, under the direction of the late John Craig, deals with Pyrus sinensis, the Oriental Pear, and the hybrids between this species and the common European Pear, P. communis. The Oriental Pear, which grows wild in Mongolia and Manchuria, is cultivated in China and Japan, from which latter countries it was introduced into America. Although itself of little value as a fruit, P. sinensis has proved of considerable value for hybridising purposes. The hybrids between it and P. communis, although not yielding the best quality of fruit, are early, regular bearers, vigorous of growth, and adaptable and resistant to diseases and pests.

Cultivated Pears belong to one or other of three species—the two named above and P. nivalis, which is grown to some extent in Central Europe.

The Oriental Pear was introduced into Europe in 1820, at the instance of the Royal Horticultural Society, by John Peter Wilson, Captain of the *Cornwall*. Knight, who was President of the Society, grafted the species on an old Pear tree in his garden at Downton, and in 1823 he sent a specimen to the Society. P. sinensis differs from the common Pear very markedly. The leaves are almost evergreen and remain on the tree nearly all the winter. They are large, shiny, dark green, and the edges have sharp, bristle-like teeth. This Oriental, or sand Pear was described and named by Lindley. Introduced about 1840 into America, the Oriental Pear soon gave rise to hybrids, of which the first was Le Conte. Kieffer, named after the nurseryman who raised it, came next, and arose as a chance hybrid from a cross between the Oriental Pear and Bartlett; the latter being the American name for the European variety Bon Chrêtien.

The fact that the common Pear was not successful in the Southern States led to extensive planting of Le Conte, especially in Georgia, and the hybrid, owing to its vigour, high yield and beauty of fruit, became very popular. Like Le Conte in the South, the Kieffer hybrid came into favour in the North, and Mr. Cox avers that there are probably at the present time more Pears of this than of any other variety in the States.

Of the vast numbers of fruit produced by these trees, a very large proportion find their way to the canning factories, and after suitable treatment are apt to reappear as Bartletts.

The hybrids, such as Kieffer, are grown either on their own roots or on Oriental stocks, on common or French stocks, on Apple or on Quince stocks, and it is noteworthy that the hybrids may be propagated — albeit not very readily — by cuttings.

Extensive observations by Dr. Fletcher show that Kieffer is remarkably self-sterile and also that European varieties of Pear are better pollenizers for Kieffer than are the hybrids of the Oriental group. This self-sterility, however, appears not to be universal, for orchards of Kieffer planted solid are common in Delaware and seldom fail to set a full crop.

The Oriental hybrids are not immune to fire blight, that most serious bacterial disease of the Pear, but it is worthy of note that they seem very resistant to scab.

The bulletin, which is well illustrated, concludes with a list of the chief varieties of the Oriental and common Pear hybrids and with the observation that the Oriental Pear is likely yet to play an important part in the production of better varieties of the European Pear.

Storing of Seed Potatos.

So far as present reports can be trusted it appears certain that seed Potatos will be both scarce and dear when planting time comes round next spring, for the ravages of disease are more serious than usual. This prospect should have the effect of encouraging cultivators to make the very most of the tubers they select at the present time. We make no apologies, therefore, for reminding our readers that experiments in connection with the storage of Potatos have been carried out again and again by many different experts, for the purpose of testing the advantages of boxing the tubers. These experiments have invariably shown that storage in boxes is not only better than any other known system, but that it abundantly compensates the grower for the extra time, trouble, and storage-space rendered necessary. In these circumstances there is no room for doubt that every cultivator, whether large or small, should adopt the box system. The difficulty is that, while the larger cultivators are usually keen enough to look out for the best ways of doing things, and are glad to take advantage of properly attested experiments, many of the smaller growers imagine that the simpler ways are better adapted to their own use. They think that because they are dealing with small quantities in a small way, the use of a perfect process is unnecessary and even undesirable; all of which is very bad reasoning.

In the lifting of Potatos it should always be the first concern of the cultivator to secure the seed tubers for the following season—whether he intends to use them for his own planting, or (bearing in mind the fact that an occasional change of seed is not merely beneficial, but essential) he intends to dispose of them by sale. No doubt much can be done in the direction of improving stocks of Potatos by careful selection, provided that cultivators are sufficiently skilful to make a really effective selection. When the crop is being raised a look-out should be kept for those roots which give better crops than others and produce tubers of a uniform size and shape. All the tubers of such plants should be boxed at once for seed purposes. In other cases where the yield is intended chiefly for consumption it should be remembered that in selecting the seed from the larger produce it is best as a general rule to employ tubers weighing about four ounces. They should be placed in the boxes on end, with the eyes uppermost. The boxes should be kept in a light, well-ventilated situation for the present, and until severe frosts are likely to occur. This exposure will cause the skins of the tubers to become firm and to assume a slightly green colour; it is seldom found that tubers prepared in this way exhibit any signs of decay during the winter months. If early Potatos were put in the clamps (or "pies" or "hogs," as they are termed in different localities) they should be opened very soon and the seed tubers sorted out and boxed. Potato tubers do not need much warmth during the winter, but they should be protected

from frost. If they are kept too warm the result will be the growth of the shoots, and some of these will have to be removed before planting time, so that much of the benefit to be obtained from the boxing system will be lost. Any outside building will serve very well for storing the Potatos, provided that means are available for adequate protection against frosts. For instance, the boxes may be covered with mats or straw until open weather returns; or during intense cold, in addition to such covering, a paraffin lamp kept burning in the building will suffice to prevent damage.

Those who may have to purchase seed tubers will find it to their interest to obtain their stocks as early as possible, boxing the tubers as soon as they arrive. If, however, the seed can only be kept in boxes for a month or two before the planting season commences, beneficial results will nevertheless be secured. Special boxes, made for the purpose of storing Potatos, are procurable from sundriesmen. These boxes are very handy, as they can be stored one on the top of another to any height, without excluding the light or air from the tubers. Small growers could easily make suitable boxes for themselves; but the boxes must not be made too deep, and must be so constructed that air can circulate freely about the tubers. The tubers should remain in the boxes all winter, and carried out in them to the planting lines in spring. If anything more remains to be said to recommend this method of storing seed Potatos to ordinary cultivators, it is that large growers have stated definitely that they can secure an increased yield of two tons per acre by boxing their sets. Since this is the case with the large grower, the smaller cultivator could certainly secure a proportionate increase by following the example of the big man.

Royal Horticultural Society.—A meeting of the committees will be held on Tuesday, the 21st inst., in the Vincent Square Hall, Westminster. At 3 o'clock, in the lecture room, a lecture on "The evolution of plants and the directivity of life as shown by the reproductive organs" will be delivered by Rev. Prof. George Henslow.

National Sweet Pea Society.—We are asked to state that the annual general meeting of the National Sweet Pea Society will be held at the Hotel Windsor, Victoria Street, Westminster, London, S.W., on Monday, the 20th inst., commencing at 2.30 p.m. A conference will be held at 7 p.m., when Mr. J. S. Brunton will give a lecture entitled "The Sweet Pea Industry." Dinner has been arranged for 6 p.m.

Perpetual Flowering Carnation Society.—Arrangements have been made with the Bournemouth Horticultural Society for the Perpetual Flowering Carnation Society to hold its second provincial show in the Winter Gardens of this popular resort on April 29 and 30, 1914. The annual winter show will be held, as usual, at the R.H.S. Hall on December 3 next.

Gardeners' Royal Benevolent Institution.—We are informed that the Princess Royal has forwarded an annual subscription to the Gardeners' Royal Benevolent Institution, of which her Royal Highness is a Vice-President.

Mr. George Gordon, V.M.H., and the "Gardeners' Magazine." — We understand that Mr. George Gordon is about to retire from the editorship of the *Gardeners' Magazine*, a position he has filled since the death of the late editor, Shirley Hibbard, in 1890.

Ghent Exhibition.—Messrs. Sutton and Sons have been awarded a Grand Prix by the jury at the Ghent Exhibition for their Grass seeds. It will be remembered that Messrs. Sutton were recipients of a Grand Prix at the Franco-British Exhibition in 1908, and a Gold Medal at the Brussels Exhibition in 1910 for the excellent Lawns there produced from their seeds.

International Botanical Congress.—The fourth International Botanical Congress will be held in London in May, 1915. An organising committee has been appointed under the presidency of Lieut.-Col. Sir David Prain, Professor Bower and Professor Seward. The subscription (15s.) will entitle members to receive all its publications as well as to attend the meetings of the Congress. In addition to the general work in the various branches of botany, the Congress will continue the examination of questions of nomenclature, etc., left over from the last congress. The executive committee consists of the president, the treasurer, Sir Frank Crisp, the general secretary (Dr. A. B. Rendle), the foreign secretary (Dr. Otto Stapf), together with Prof. J. B. Farmer, Mr. A. W. Hill, Prof. F. Keeble, Prof. F. W. Oliver, Mr. A. G. Tansley, and Miss E. N. Thomas. A sum of £1,000 is required to meet the expenses of the Congress, and the committee has issued an appeal for subscriptions towards this sum. It is to be hoped that the appeal will meet with a ready and liberal response. Subscriptions should be directed to the general secretary, Dr. A. B. Rendle, British Museum, Cromwell Road, London, S.W.

A Distinguisheo Gardener.—Our contemporary *Jardinage*, in continuing its custom of dedicating each volume to a distinguished horticulturist, has chosen for the present year Charles Wood. Born in 1833, the son of John Wood, an English gardener who became naturalised in France, Charles Wood devised a method of heating glasshouses by the water of condensation from factories. He popularised the cultivation of Rhododendrons and introduced Poinsettia pulcherrima into France. A remarkably able grower, Wood lived to a great age (1833-1913), and it is fit that his devotion to horticulture should be commemorated in this graceful manner.

Genetics at the British Association.—During the recent meeting of the British Association at Birmingham members had an opportunity of visiting the Burbage experiment station and of observing the progress which Major Hurst is making with his numerous experiments in plant and animal breeding. Among the subjects of a botanical interest the experiments with Antirrhinums attracted most attention. The purpose of these investigations is to ascertain the nature of the "rogues" that appear constantly even in the best horticultural stocks—e.g., of culinary Peas, Sweet Peas and Antirrhinums. The experiments have led to interesting results with respect to the inheritance of minute variations. Thus it has been shown by single-plant cultures that many minute variations of tint, size and shape of flower, height and habit of growth, degree of earliness or lateness, are inherited, and that their inheritance follows the ordinary Mendelian rule. One example of these experiments may be given. In Antirrhinums the garden variety Aurora breeds true to its bushy and immediate habit of growth, its scarlet lips and ivory throat. Individual plants, however, show slight differences in habit, earliness, size and colour of flowers. These when bagged and self-pollinated gave the following results:—(1) Three grades of habit were selected, tall, medium and dwarf, and each plant bred true to its individual grade, while still retaining its bushy and intermediate habit. (2) Three grades of earliness were selected, early, medium and late, and each plant bred true to its individual grade. (3) Three grades of flower-size were selected, large, medium and small, and each plant bred true to its individual grade. (4) Three grades of the scarlet flower-colour were selected, dark, medium dark and light. Each of the light and medium dark plants bred true to its individual grade, while the dark plants both showed segregation. These results, together with others witnessed here in Antirrhinums, Sweet Peas and Culinary Peas, seem to be significant, inasmuch as they show that many presumed unit-factors can be analysed into several sub-factors which themselves behave as units. The question arises, are we to regard these sub-factors, A1, A2, A3, as representing different states or powers of the original unit-factor A, or must we raise them to factorial rank, B, C, D? In any case it is evident that these minutely continuous variations are strictly discontinuous in their inheritance.

Potatos in Germany.—The Board of Agriculture has received a report from Berlin, dated September 26, stating that, from information received from the Prussian Chamber of Agriculture, favourable reports of the Potato crop are being received from all parts of the country, and the damage caused by the bad weather in August appears to have been greatly exaggerated in all preliminary estimates. It is not yet possible, however, to determine with any certitude the quality of the crop; some disease will undoubtedly be found, and unfavourable weather at this juncture would do much to impair the prospects in this connection.

Distribution of Surplus Bedding Plants.—The surplus bedding plants at the London County Council parks and gardens will be distributed to the public on Saturday, the 18th inst. Persons desiring to participate in the distribution should make personal application at the parks or gardens. The distribution will commence at 9 a.m., and terminate not later than 11 a.m. Plants will not be handed to children under the age of 14 unless they present a note from their parents or teachers.

A New Hybrid Tea Rose.—Herr Koloman Szepessy has raised a new and promising hybrid Tea Rose, which he has named Minister Daránvi, after the Hungarian Minister of Agriculture. The novelty, which has been brought out by Gustav Heinemann, of Miskolcz (Hungary), is the result of a cross between White Lady and La France. It is described in the Austrian *Garten Zeitung* (10, 1913), as of a delicate rose colour on a yellow ground. The buds, at first rounded, become somewhat pointed as they mature, and the open flower is of good form and strongly scented. The flower possesses long-lasting qualities which should prove of great value in commerce. The foliage is sturdy, clean, and is said to resist mildew.

Larch Canker on Corsican Pine.—The occurrence of Larch canker—due to the fungus Dasycypha Wilkommii—on the Corsican Pines on Mr. H. J. Elwes' estate at Colesborne is recorded by Mr. A. D. Hopkinson in a communication made to the *Quarterly Journal of Forestry* (October, 1913). The plantation in which the disease occurs was formed in 1902, and of 100 trees which were examined 90 proved to be affected. Of this number of cankered Pines 16 were dead or dying, 12 looked unhealthy, and the remainder showed no sign of impaired vitality. Mr. Hopkinson suggests that an excessive growth of grass round the trees was one of the predisposing causes of the outbreak.

The Orchios of German New Guinea.*—The earlier parts of this work, as well as J. J. Smith's contributions to the Orchidology of

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* *Die Orchidaceen von Deutsch Neu-Guinea.* Von Dr. Rudolf Schlechter. Repertorium Specierum novarum Regni Vegetabilis. Fedde, Beihefte. Band I. Hefte 1-13, 1911-13.

New Guinea, have been noticed in these columns, and attention directed to the extraordinary richness of the New Guinea flora in Orchids. On the whole they are, perhaps, not so showy as the Indian or tropical American species, but the concentration of genera and species probably exceeds that of any other part of the world. So far Dr. Schlechter has reached the 76th genus—Bulbophyllum, of which he essays a new classification; and, as he limits the genus, it comprises, he estimates, upwards of 700 species, not including Cirrhopetalum, but including Megaclinium, Bulbophyllaria, Epicrianthes, and a number of other species held to be generically different by some other botanists. There is no doubt that the task of classifying this group of Orchids is an exceedingly difficult one, and a classification that will meet with general acceptance has probably not yet been attained. But the author has had the advantage of examining more species than any other writer on the subject. He subdivides the genus into 42 sections, and so far he characterises 164 species from German New Guinea. What the total will be we have no means of knowing, as there is no general key to the species. Dendrobium is among the genera already elaborated. This is subdivided into four sub-genera, based on vegetative characters, and 41 sections. Schlechter describes 256 species of Dendrobium from German New Guinea, including a large number previously undescribed, and he puts the total number of species of Dendrobium now known at about 700! There is very much in this descriptive account of the Orchids of New Guinea deserving of study, as the author has critically examined an immense lot of fresh material and made drawings of a large proportion of the species. Since the foregoing was written Hefte 11, 12 and 13 have appeared, and we find that the number of species of Bulbophyllum described runs up to 329! Tæniophyllum follows with 63 species, and Phreatia with 75 species. These three later parts contain descriptions of the following proposed new genera:—Calymmanthera, Chamæanthus, Chilonanthera, Codonosiphon, Dactylorhynchus, Dryadorchis, Hymenorchis, Malleola, Microtatorchis, Monosepalum, Porphyrodesme and Ridleyella. These were, perhaps, not all described for the first time, but the names will all be new to the horticultural world.

The Flora of Algeria: Native and Exotic.*—This book, written by an English physician in the French language, is a useful addition to existing literature on the Flora of Algeria chiefly on account of the illustrations, which are excellently reproduced photographs. The descriptions are cast in a popular form, but between the two, the pictures and the descriptions, amateurs will be able to name many of the plants coming under observation. A novelty is the "Index des Feuilles," a sort of rough classification of the plants based on the shape of the leaves, which may also be helpful. The index begins with: Leaves, lanceolate-oblong, illustrated by a diagram, followed by a list of the plants having leaves of this shape; and goes on through the various forms, simple and compound.

Eucalypts of Tasmania and their Essential Oils.—Messrs. R. T. Baker and H. G. Smith, Curators of the Technological Museum, Sydney, whose classical works on the classification, chemical properties and economics generally of the genus Eucalyptus and the "Pines" of Australia are well known, have issued an original account of the Tasmanian Eucalypts under the above title. The collaboration of the botanist and chemist is a happy one and the results valuable. According to this revision twenty-two species of Eucalyptus are known to inhabit Tasmania, and the authors are of opinion that others remain undiscovered, as "much country is still unopened." So far as known, twelve of the species are endemic and three new species, E. Rodwayi, E. tæniola and E. unialata, are here described and figured for the first time. It is interesting to note that the genus Eucalyptus was founded on Tasmanian specimens of E. obliqua, by L'Héritier, in 1788, and the familiar E. Globulus was also described from Tasmanian specimens. On the mainland of Australia this species extends as far north as Rylstone, N.S. Wales. The authors of the monograph under consideration state that "the botanical and chemical characters of E. Globulus never seem to alter, whatever hemisphere it may be planted in." The same authors have also published a paper on some New England Eucalypts and their Economics—*Journal* and *Proceedings of the Royal Society of New South Wales*, vol. xiv. The species dealt with are:—E. acaciæformis, E. Andrewsii, E. Bridgesiana, E. lævopinea, E. nova-anglica, and E. campanulata—all additions to those included in Bentham's *Flora Australiensis*. Four out of the six are locally known as "Peppermints," though only one, E. Andrewsii, contains piperitone. The ground covered by this paper includes botanical remarks, descriptions, chemistry of the oils, and general economics. Mr. R. T. Baker has issued independently an account of the Cinnamomums of Australia. Hitherto there has been much confusion and diversity of views with regard to their identity and specific limits. Mr. Baker recognises four species, namely, C. Laubatii, C. Oliveri, C. virens and C. propinquum. The first three have penniveined camphor-yielding leaves, and the last has trinerved non-camphoraceous leaves. Mr. Baker states that the theory set up by himself and colleague (Mr. H. G. Smith) in a research on the Eucalypts that the leaf-venation indicates the chemical constituents of the leaf is now found to hold good for Cinnamomums in the species examined. We may add here that part xviii. of Mr. J. H. Maiden's *Critical Revision of the Genus Eucalyptus* is just to hand. It contains descriptions and figures of Eucalyptus macrocarpa, E. Preissiana, E. megacarpa, E. globulus, E. Maidenii and E. urnigera; plates 77-80. This is particularly interesting, and it is good to know that E. macrocarpa is not so near extinction as was feared in this country.

New Uses for Rubber.—In the number for August 30 of the *Agricultural News* of Barbados, which is one of the official publications of the Imperial Department of Agriculture for the West Indies, the leading article, under the title of "New Uses for Rubber," deals with the subject in a very wide and comprehensive manner, and the whole article is one that commends itself to the consideration not only of the planter but also to the large and increasing public with whom rubber in some form or another is almost a daily necessity of life. Things have changed considerably since 1770, or thereabouts, when rubber was described as a new and important discovery for "wiping from paper the marks of a blacklead pencil," and was to be obtained only at one place in London at the price of three shillings for a cubical piece of about half-an-inch. Matters have also progressed considerably since 1873, when the necessity of increasing the sources of supply was taken up in earnest by the authorities at Kew, and plants and seeds of the several kinds of rubber-producing plants were widely distributed to our oversea possessions, where climatic conditions prevailed of a suitable nature to promise their successful culture. The rubber boom of two or three years ago, together with the extraordinary development of the trade in rubber and the consequent lowering of prices, are the outcomes of the foresight of Kew, and of this cheapening the writer of the article in the *Agricultural News* says: "The current topic in the rubber industry is the fall in the price of plantation Para, and the contemplation of the effects of the greatly increased supply in the near future. Two main points are at issue, and they must be clearly differentiated. There is first the contention that the difference between the price of fine hard Para—the Brazilian product—and the price of plantation Para—the Eastern, and chiefly British-grown commodity—is artificial.* The second point is—provided plantation Para is given fair recognition on the market, can the higher prices which would result be maintained in years to come? These important questions can be best dealt with separately. In regard to the lower value of plantation rubber, there are, it appears, as in every question, two sides. The buyer, on his part, maintains that plantation rubber, seemingly of first-grade quality—in so far as rough and ready but experienced examination by the dealer can show—does not always prove to be such when subjected to the practical test of manufacture. The Brazilian product, however, is seldom deceptive in this way. To what the difference is due, chemical examination is unable to show, though there seems to be no reason why an accurate examination of the physical properties of the rubber should be unreliable. The most satisfactory way out of the difficulty, and a way which has been advocated strongly in the Federated Malay States, is to establish standardising departments in rubber-producing countries." The various aspects of this question are further detailed by the writer, who goes on to consider the increasing developments in the uses of rubber, and mentions many probable applications to which it might be put if enlarged in production and cheapened in price. Thus, "In America," he says, "the safety of those who take part in the modern dizzy gyrations of the ballroom has lately been ensured by the introduction of a dancing shoe having a small rubber plug inserted near the middle of the widest part of the sole. Still more novel is the idea that, in view of the higher price of hides and the lower price of rubber, shoes should be constructed with pneumatic rubber soles," and, further, that rubber might be used with much advantage for covering the decks of vessels to allow of a firmer grip for the feet in rough weather. One of the results of the recent railway accident in Cumberland will, according to the evidence given at the enquiry, lead to a more extensive use of rubber in the manufacture of railway buffers.

Mr. J. Gurney Fowler.—We are asked to state that Mr J. Gurney Fowler, Treasurer of the Royal Horticultural Society, and Chairman of the Orchid Committee, has taken possession of his new estate, "Brackenhurst," Pembury, near Tunbridge Wells, Kent, and that communications should be sent to him there instead of to Glebelands, South Woodford. We understand that the fine new block of Orchid houses is almost completed, and that Mr. J. Gurney Fowler's famous collection will soon be removed to their new quarters.

Chrysanthemum Show at Ghent.—We have received the Schedule and Supplement of the last of the horticultural gatherings to be held in connection with the Ghent International Exhibition. This will take place on October 25 to 28, and will take the form of an exhibition of Chrysanthemums, other flowers, fruit and vegetables. There are nearly 300 classes; the prizes are, as usual, medals and works of art; the chief prize, for 250 pot plants of Chrysanthemums, consisting of a work of art of the value of 1,000 francs, with a gold medal value 500 francs as second prize In many of the classes there are three prizes, but in some only two. The sections to be represented are: I. Chrysan-

* *La Flore Algérienne Naturelle et Acquise.* Par le Dr. A. S. Gubb. Square 8vo, pp. xxiv. + 274, with about 200 figures. London: Baillière, Tindall & Cox, 1913. Price 6s. 6d. net.

themums (pot plants and cut blooms). II. Ornamental flowering plants and floral art. III. Hardy herbaceous plants. IV. Hardy shrubs. V. Orchids. VI. Fruit. VII. Market garden produce. In conjunction with this show the French Chrysanthemum Society has arranged to hold its annual Congress. This is the first time it has been held outside France. There is a varied and attractive programme for the members. Besides the formal meetings at which papers will be read and discussions upon the various subjects on the agenda paper take place, visits have been arranged to the chief places of interest at Ghent and Bruges. The party will also visit the principal nurseries in those towns, and will be entertained at tea by the Ghent Agricultural and Botanical Society, at an official banquet, and at a lunch given by M. Firmin de Smet.

Sale of Trees and Shrubs at the Coombe Wood Nursery.—An auction sale of exceptional importance took place this week at the Coombe Wood Nursery of Messrs. Jas. Veitch and Sons, five days being devoted to the disposal of a portion of the nursery stock. This nursery has long been famous for the richness and variety of its plants, consisting for the most part of hardy trees and shrubs. Although the auctioneers, Messrs. Protheroe and Morris, catalogued no fewer than 2,710 lots, the removal of this number will make but little apparent difference to the great masses of trees and shrubs of all kinds. The weather was bright and the ground dry on Monday morning, but the attendance was not quite equal to what might have been expected on the occasion of such an event. Nevertheless, the prices realised were fairly good. The principal buyers were amateurs or their representatives, who competed for the best of the lots with considerable keenness, but the trade was also well represented. Before the sale commenced Mr. Slade (of Messrs. Protheroe and Morris) made a few appropriate remarks respecting the winding-up of the Veitchian nurseries, giving particulars which have already been published in these columns. A part of the Langley Nurseries had been sold to Messrs. Sutton and Sons, and at the termination of the lease of the Coombe Wood Nurseries, on Lady Day, 1915, these latter would be closed. Everything would be cleared from the nursery before the expiration of the lease. Sir Harry Veitch also said a few words, and expressed how deeply he would feel the severance of his long connection with the nurseries. Monday was devoted to the sale of specimen Hollies, Yews, Elms, Acers, Conifers (including fine trees of Cedrus atlantica, Cupressus Allnmii, Cryptomerias, Taxodiums, etc.). Almost every plant was a fine, healthy example of its kind. On the second day the lots consisted chiefly of small plants, including Rhododendrons, which grow exceedingly well at Coombe. Various Coniferæ were also disposed of on this day, and a large number of new Chinese plants, notably Davidia involucrata, Berberis Wilsonæ, Viburnum Henryi, Rhododendron Yunnanense, R. concinnum, R. Harrovianum, R. sutchuenense, as well as some very fine plants of species of Rubus, Vitis, Deutzia, Spiræa, and Cotoneaster. Large numbers of what were termed "stool" plants—that is, plants set out for layering—were also sold on this day. The keenest bidding was for Lilacs, which are now preferred on their own roots, not grafted on Privet as hitherto. There were also "stools" of the rarer Acers, Davidias, Viburnums, Deutzias and Magnolias. The plants offered on the third day included a number of young trees, such as Scarlet Oaks, Red Horse Chestnuts, Purple Sycamores, Lucombe Oaks, specimens of Weeping Ash, American Ash, Willows, and Poplars. There were fifty large lots of Lilacs on their own roots, and a number of specimen Bamboos, and some good examples of Sciadopitys verticillata. The Junipers and Atlas Cedars disposed of at the same time were very fine specimens of their kinds. Named Rhododendrons—standards as well as dwarfs—many of them Chinese, and various hardy, well-known climbing plants, produced some keen bidding. On the fourth day Rhododendrons and Chinese plants were sold; there were also a number of plants in pots in lots of twelve. Friday's sale will be devoted chiefly to Chinese plants, Japanese Maples, Tree Pæonies, and a large and varied collection of Evergreens and Conifers of all sizes.

STANMORE HALL.

Stanmore Hall is a fine property, standing on high ground, at Great Stanmore, Middlesex, and overlooking a wide extent of picturesque country. The gardens and pleasure grounds possess many natural attractions, and are some of the most beautiful in the neighbourhood of London. The house was greatly improved twenty-five years ago by the present proprietor, Mr. W. K. D'Arcy, who has given considerable attention to the garden; but development has proceeded more rapidly since the appointment, nine years ago, of Mr. A. Taylor as head gardener. The gardens slope down naturally on each side towards a central valley. This valley was formerly a somewhat unattractive spot, chiefly occupied by a marsh; but some years ago it was transformed by Messrs. Pulham and Sons into a charming water-garden, the once stagnant pools now forming a dainty rivulet with fourteen cascades, spreading here and there into stretches of ornamental water, whose rocky beds accommodate a variety of plants. The slopes are adorned with masses of plants and shrubs, which give an air of pleasing variety to the prospect, and coloured Water-lilies and water plants of all kinds bloom at the margins of the pools. Here may be seen Menyanthes trifoliata, Ranunculus grandiflorus, Hottonia palustris, Acorus Calamus, Scirpus lacustris, and other marsh-loving plants, and large beds are filled with Iris Kæmpferi in all shades of colour. Along the banks of the stream the various species of hardy Primula find a home, among them P. japonica, P. rosea, P. Bulleyana, and other recently introduced Chinese species. Some of them have been raised from seed saved by Mr. Taylor, notably a very fine form of P. capitata, with globular heads of violet-coloured flowers. In a sheltered nook a large Fern rockery is established; in this moist, genial spot Osmunda regalis and Struthiopteris grow large and vigorous. Beyond this is a Heath garden, in which most

Fig. 100.—Stanmore Hall, the residence of Mr. W. K. D'Arcy.

of the species are well established; then a large clump of Berberis in various species, a stretch of scented plants, a patch of Spiræa palmata, some massive Gunneras, and, at the water's edge, a collection of Bamboos. Large numbers of rose-coloured Spiræa palmata, thickly massed, provide a warm glow of colour, relieved by the white plumes of tall Astilbes, towering above them. A charming arrangement of brightly-coloured Kniphofias, in which the colours blend without clashing, attracts attention; and large beds of Eremurus, of which the spikes are 8 feet in height, claims at least passing notice. There is a fine bank of Cotoneasters, among which C. rugosa, C. Henryi, C. applanata, and C. horizontalis are noticeable; above these is a pergola of ornamental vines, and rustic beds of Brambles and Honeysuckle provide a feast for the birds, for whom feeding- and nesting-boxes are placed here and there.

Fig. 101.—Rockery and water garden at Stanmore Hall.

The grounds are enriched by many fine old Oaks, Beeches and Limes. A collection of the rarer shrubs and trees has lately been added. The land in which these new trees have been established was formerly rough meadow, but the introduction of large specimens of Magnolia glauca, M. Hallii, Viburnum rhytidophyllum, V. Henryi, V. tomentosum, V. Mariesii (Halesii or tetraptera), Indigofera macrostachys, Clethra alnifolia, Enkianthus campanulatus, and many other fine trees, has worked a wonderful transformation, accompanied as it has been by improvements of all kinds. Variegated and flowering trees and shrubs, the old Sea Buckthorn, Arbutus Unedo, and also many handsome conifers are effectively placed.

In the rocky borders masses of lovely colour meet the eye. Every variety of mauve and blue Aubrietia is here; many species of Androsace, great patches of Campanula, especially C. abietina, C. carpatica in its various forms, C. garganica, C. Portenschlagiana, C. Hostii, C. pulla, C. persicifolia (white and blue); the different species of Alpine Pinks, Cimicifuga japonica, Crambe cordifolia, Erigeron aurantiacus; various forms of yellow and orange Hemerocallis, Meconopsis Wallichii, Lithospermum prostratum, Heuchera gracilis, Pratia angulata; Saxifragas, Sedums, Sempervivums, Alyssums, Violas and Veronicas. Cypripedium spectabile is well established, and many other of the rarer plants not usually grown in gardens with success seem to do very well. Roses appear everywhere, especially pillar Roses, though large beds of the dwarf kinds are also grown. The lawn tennis courts are enclosed by festoons and pillars of Hiawatha on one side and Carmine pillar and Viburnum plicatum, planted alternately, on the other. Beyond the courts are beds, each of one kind of Rose, notably Richmond, Killarney, Mme. Constant Soupert, La France, Lady Hillingdon, Mrs. Sharman Crawford, Betty, Duchess of Wellington, Lyon Rose, Le Progrès, and Prince de Bulgarie. One pretty bay is enclosed by pillars and festoons of Wichuraiana and other Roses, which are in July heavily laden with masses of flowers, Climbing Caroline Testout making a brave show among them. Similar arrangements appear in other parts of the garden, and seem to enhance the beauty of the other flowers among which they appear, as well as putting forth their own attractions. The old Rose Aimée Vibert, with its large bunches of white blooms, appears to the best advantage and grows with the utmost vigour. The main idea underlying the whole of the garden scheme is the planting of a large and varied collection of flowers and shrubs, either hardy, or which may with care be successfully brought through the winter, and the result is extremely satisfactory.

Most of the glasshouses are occupied in fruit-growing. The crops obtained are extremely good, both in quality and in quantity, and give no indication of the somewhat unfavourable nature of the site due to close proximity with the city. A long range of vineries contains good crops of Black Hamburgh, Muscat of Alexandria, and other standard Grapes, the principal kinds having each a house to themselves. A quantity of Peach and Nectarine trees have supplied large quantities of fruits for a considerable time, and many of the old trees, as vigorous and clean as in their youth, are bearing huge crops of the finest quality. A tree of the old Peach Royal George was especially noticeable. Strawberry, Melon, Cucumber and other fruit houses yield equally good results.

A large and lofty conservatory adjoins the mansion, and it is for the furnishing of this and for indoor decoration that the plant-houses chiefly exist. There is a range of stove-houses, in which fine specimens of Crotons, Dracænas, Aralias, and other plants are growing, all compact and ready for use. In one of the warm houses is a large batch of the scarlet Euphorbia jaquiniæflora, which is found useful for decoration, either as a plant or for dry cut flowers. Anthuriums, Caladiums, Amaryllis, and a selection of Ferns are grown; and although a collection of Orchids has not yet been attempted, the remarkable vigour of a large quantity of Calanthe Veitchii, C. vestita, C. Bryan, C. Wm. Murray and C. Harrisonii show that more could be successfully attempted in this line. Mr. Taylor has already had considerable experience with Orchids, and he was specially successful with Vanda cœrulea.

There are certain wayward Orchids which more often than not refuse to grow satisfactorily in places where Orchids are a speciality, but which may frequently be found in perfect condition where only a few Orchids are grown in the ordinary plant stove. The beautiful Oncidium Lanceanum (see fig. 102) is one of that class. In Orchid collections the plant, where found at all, is generally represented by unsightly specimens with the fatal brown spotting on the leaves; but at Stanmore Hall a perfectly healthy specimen, with its large, fragrant flowers, the sepals and petals honey yellow, densely spotted with dark red and showy deep rose labellum, is now in flower. *B.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Tricyrtis stolonifera and Paulownia.—In your report of the R.H.S. meeting of the 7th inst. I notice mention of two plants which received Awards of Merit about which more information will be valuable to the public. The first is Tricyrtis stolonifera, which I should never have thought of showing to the Floral Committee if I had been at home when it was sent up, as I am very doubtful of its hardiness and its habit

is so bad as a pot plant that I do not think it is worthy of an Award of Merit, though a new plant of much botanical interest. The second is a Paulownia, which I presume to be the plant shown from Aldenham in a pot, though your notice does not mention who was the exhibitor. This, I believe, is the same species that I raised from Wilson's seeds, and which I do not think can be named with certainty till it flowers. But whatever we may call it, it is the most wonderful hardy tree as regards its foliage that has ever been introduced to England, and the most rapid grower. In Vol. VI. of *The Trees of Great Britain*, p. 1492, note 2, I wrote of it:—"I raised seedlings from Mr. Wilson's seeds (No. 769, collected in 1908 in Western China) which appear at three years old to be hardier and more rapid in growth than those which I have raised from the common species. The seedlings of the latter were killed to the ground for three years after being planted out; whilst the West China form is now, at three years old, 14 feet high, of which 10 feet is the growth of 1911. This form seems likely to be a most ornamental tree even in the cold parts of England, but must be planted in warm, sheltered places, where its immense juvenile leaves, measuring 21 by 23 inches, will not be torn by wind." This was written in 1911. Now I am able to say that the tree, which in my garden grows under a north wall 12 feet high where the sun only shines for 4-5 months, and where frost may occur during every month in the year, is extremely hardy, and that now, on Oct. 11, after several frosts, not a leaf has fallen or withered, though the common Paulownia growing beside it is leafless. It is also extremely easy to propagate by root cuttings, and I have a number of nice young plants growing in the place where I lifted it two years ago. *H. J. Elwes, Colesborne, Gloucestershire.*

What is a Hybrid Tea Rose?—A more distinct definition is needed as to what constitutes a Hybrid Tea Rose, for at present almost any variety seems to be admissible under this heading. In nurserymen's lists we see varieties described as H.T.'s, and are led to believe such are a mixture of Tea and a H.P., this latter type possessing a stronger constitution than the ordinary Tea Rose. In this expectation we purchase new varieties, but very often, when the blooms develop, they prove to be nearly single, or with merely a double row of petals, as, for instance, the new Red Letter Day, which received a Gold Medal at the recent show of the N.R.S. as a H.T.; also Moonlight, another semi-double variety, which received a similar award. Take, again, older varieties, as Edu Meyer, Ecarlate, and Old Gold, as compared with Dean Hole, Edward Mawley, George Dickson, and La France, and we have a range of varieties altogether difficult to arrange in the same section. I have asked many well-known Rosarians to give their definition of a H.T., but each appears to have his own definition, which is of no service to such as myself. *M.*

Lifting Fruit Trees and Roses.—Owing to the late season and heavy rains following a prolonged drought, many fruit trees and other nursery stock will not be ready for moving at the usual time. Pears, Roses, Apples, etc., are at present date almost as green as in July, so that buyers will do well not to be in too great a hurry to commence planting, or impatient if their orders are not executed with the usual promptitude. *Chas. E. Pearson, Secretary to the Nursery and Seed Trades' Association.*

The Late Mr. J. Meredith's Grapes.—I can endorse all that Mr. Ollerhead states on p. 108 about the late Mr. Meredith and his famous Grapes at Garston. During the year 1870-71 I was a regular visitor to the vineyard at Garston, where Mr. Meredith so proudly pointed out his triumphs with such Grapes as Black Hamburgh, Mrs. Pince, Madresfield Court, and Muscat of Alexandria, and many a wrinkle I learnt from him about vine culture. I think it is safe to say that finer bunches of Black Hamburgh Grapes than those from his noted house with an eastern aspect have never been seen. Heavier bunches there may have been in plenty, but the quality and finish of Mr. Meredith's bunches were hard to excel. Mr. Meredith first brought into prominence the varieties Madresfield Court and Mrs. Pince. His bunches of the former variety were never very large, but they were noted for the size and finish of the berries. So much did he think of this Grape that his successors quickly allowed it to extend to another house. One vine then practically filled two houses; therefore the extension system as practised now is not at all a new method. I well remember the wonderful bunches of Mrs. Pince he grew in a pit-like house, with an all inside border, which this vine undoubtedly requires to put on that superb colouring characteristic to the variety in favourable conditions. *M.*

A Large Apple.—I enclose a fruit of Apple Nelson's Glory, which weighed, when gathered sixteen days ago, 24½ ounces. The tree was planted in my small back garden six years since, and has been subsequently removed four times. Last year it almost died, and made no new wood. *J. Blaber, Old Town, Eastbourne.* [On arrival at this office the fruit weighed 23½ ounces, and measured 15½ inches in circumference. Nelson's Glory is a local name for Warner's King, which is a large variety, a free bearer, and of first-rate quality. The original name was King Apple. In 1888 Mr. Robert Smith exhibited at the Ledbury Show a fruit of this variety which weighed just over 2 pounds, this being the largest Apple of which we have record.—Eds.]

Fig. 102.—oncidium lanceanum.

See note on Stanmore Hall, page 277.

Pear Fruiting on Main Stem.—I was interested in Mr. Astley-Corbett's Pear tree, illustrated on p. 224, as I remember seeing some trees which behaved in a similar manner. They were planted with others in a market garden at Vine Lodge, Peppard, Oxfordshire. One row of about twenty-five trees, variety Knight's Monarch, could not be induced to bear fruit, so it was decided by the then tenant to re-graft them higher up the stem. The variety used for this second operation was, to the best of my recollection, Marie Louise D'Uccle, which, I learned afterwards, did well as regards fruiting. I visited the garden some years later, when I was surprised to see fruits of both varieties on some, but not all of the trees. They had been neglected as regards pruning, and shoots were let grow below the second grafting. I saw clusters of fruit of the first variety on the stem, similar to that on fig. 80. Some had made long branches from the stem, but these, I noticed, bore no fruit, although the branches above of Marie Louise D'Uccle carried a fair crop. *Owen Moring, The Old House Gardens, Freshford, Somerset.*

The Plant and Its Environment.—The various views which the writer on the above subject in the *Gardeners' Chronicle*, Oct. 4, p. 239, offers in explanation of the origin of species have practically long since surrendered to the one and complete answer to the question—How do new varieties of plants arise? It is simply by the seedlings, in growing up to maturity, responding to the new external influences of changed conditions of life; whereby they acquire new characters in adaptation to them. Then if the plant lives for a sufficient number of generations under the same conditions, the acquired characters become relatively, or it may be, absolutely, fixed and hereditary. To take a simple case. The Greeks, Pliny tells us, discovered how to turn the Rape into the Turnip by sowing the seed in a stiff soil, both being of the species Brassica campestris. M. Carrière obtained both spindle-shaped roots and the turnip-rooted forms from seeds of the same wild Radish plant (Raphanus Raphanistrum) by sowing the seed in the alluvial soil near Paris and in a stiff soil in the South of France, respectively. What is the result? Turnip-rooted seed comes true and is "fixed" in any ordinary garden soil. It is relatively hereditary, but not absolutely; for by making a border with very light soil much mixed with sand I found 60 per cent. of the seedlings reverted to the wild form. As examples of absolutely hereditary acquired characters, such are seen in Cactus and their like when raised from seed in England They produce the same thick, fleshy stem, originally acquired in response to excessive drought in Mexico, etc., and cannot now change, as far as I know. It would be very interesting if the seeds of the fleshy Euphorbias of Africa reverted to anything like our common weeds, the Spurges, which are species of the same genus. This interpretation of evolution is Darwin's, though almost universally overlooked. It was not prominent in the first edition of the *Origin, etc.*, but he emphasised it in his *Variation of Animals and Plants under Domestication*, and abundantly in the sixth edition of the *Origin of Species;* of which I would invite attention to his complaint of this neglect on p. 421. *George Henslow.*

Gas Tar and Mealy Bug.—From time to time I have come across the recommendation of a mixture of six to nine parts of clay with one part of gas tar as a cure for mealy-bug on vines, and now I note that Mr. Whytock (see p. 219) advises the use of the same compound, mixed in the proportion of two parts stiff clay to one of gas tar. I do not know what results may have been obtained by others who have adopted this method, but I have myself twice used the mixture in the former proportions, both times with the result that the vines suffered as much as the bugs. I put down part of the damage to the preliminary cleansing of the rods; but the cleansing is essential, as it would be useless to apply the mixture to rough bark, which covers the nests of the bugs. I noticed that some young, vigorous rods, which I had treated myself, did not begin fruiting as early as they should have done. The mixture, of course, was not applied to the buds or young spurs. I have sometimes thought that Stockholm tar would perhaps be better for the purpose than gas tar. With regard to other methods, I was fortunate to be able to clear entirely some rods which were infested with mealy bug by washing them with strong Gishurst Compound several times during the dormant season. If this could be done each season, and the rods gone over several times in early spring, it is probable that they could be kept clean; but I find it impossible to do this in every case, owing to lack of time; there is so much other work to do in the spring. *A. Shakelton, Forde Abbey Gardens, Chard.*

Primula Poisoning.—I have several times seen in your journal references to gardeners who have been affected by plants of Primula obconica, and I wondered whether the same effect had ever been produced by P. sinensis. Until recently I have seen no records to that effect, so I thought my own experience might be of interest. I have plants of both varieties, and recently, after rearranging them, my hands became intensely irritated and broke out as if affected by eczema, becoming very painful. Thinking that it was the P. obconica which had caused the trouble, I left things as they were, but the pain and irritation, instead of decreasing, became worse. I then came to the conclusion that it was the result of handling the P. sinensis. I used an antiseptic to heal my hands and they

eventually recovered. Since then I have handled P. obconica with impunity, but immediately on touching P. sinensis the irritation returns. It would be interesting to know if others have had similar experience. *S. Gilthorpe, Liverpool.*

Wasps.—I read with interest the letter of Mr. Eden (p 224) on the destroying of wasps, and quite agree with him that it is well to dig out and burn or destroy the combs and their contents. I have destroyed 225 nests this season with cyanide in solution, putting in a little sulphuric acid after the cyanide, thus forming hydrogen cyanide gas. This was especially useful where the hole inclined upwards. Some of the nests were dug out soon afterwards, others being left for a week or more. It was found that where the combs were near the entrance the queens were all dead; but in cases where the nest was a long way from the entrance of the hole, about five per cent. of the inmates survived. After reading Mr. Eden's letter, I dug out a nest which had been treated with cyanide solution only. The combs were level with the entrance, about 18 inches away from it. A few of the wasps, about half the twenty queens, and nearly all the grubs were alive. I may say in passing that I was surprised to find so many queens, being under the impression that they left the nests at the end of the summer and hid in dry, sheltered places. With regard to the remarks of "F. G. S." on p. 235, I should like to add that we have taken about fifty nests on the banks of the River Axe, close by these gardens. The edge of the bank is some 6 or 7 feet above low water, but one day's and night's heavy rain causes the river to overflow during the autumn and winter. If there had been any wasps there last season (which we cannot ascertain, not having made any search), they would all have been drowned. *A. Shaketton, Forde Abbey Gardens, Chard.*

Michaelmas Daisy Beauty of Colwall.—About three years ago I planted in the garden here the double variety of Michaelmas Daisy known as Beauty of Colwall, and I was pleased with the fine, double flowers produced last year, but to my surprise this year all the flowers are single, and therefore no better than the ordinary varieties of that colour. Have others had similar experience? Double varieties are not worth growing if they are liable to revert in this manner. *A. J. Long, Wyfold Court Gardens, Reading.*

Roses and Long Names.—I think if our German Rose growers would give more simple names to the varieties they raise it would not be necessary to puzzle one's brain about the pronunciation. No doubt many readers have seen Messrs. Paul and Son's Rose catalogue. What do they think of Frau Oberburgermeister Piecq? Here we have a queenly Rose with 26 letters. Another one has this long name—Grossherzogin Victoria Melita—which goes one better, having 27 letters. If this goes on, really we shall want extra size labels for our trees. *A. J. L.*

The National Sweet Pea Society.—At the annual general meeting on October 20, members of this Society will have before them two sets of resolutions for alterations in the rules. For one set I am the sponsor, for the other Miss H. Hemus. Miss Hemus seeks to rob the trade of all influence in the society. I shall be glad if you will allow me to say that in my opinion such a step is not merely unnecessary, but is actually bad, and I hope that the members will defeat it. The influence and experience of the trade are valuable, and should be retained. It must be remembered that the society was founded in the main by the trade, and that a good deal of trade capital has gone to its maintenance. The principal trouble in the past has been the Floral Committee, but that can be remedied by a simple modification in the rules, and does not call for the elimination of the trade. It should be noted that my proposals are supported by the committee, and I hope that every member will vote for them. They embody a plan which was adopted with complete success at the International Trials, which absolutely insures justice being done and which effectually eliminates all legitimate ground for friction. If my proposals are adopted I believe that the operations of the society can be conducted with perfect efficiency and smoothness. On the other hand, I am convinced that Miss Hemus's proposals would, if adopted, do nothing but harm. *Walter P. Wright.*

Large-Flowered Sweet Peas.—More than four flowers on sprays of Sweet Peas have been very numerous in this neighbourhood this season. Eight well-developed blooms to the spray has been the maximum to come under my notice without any abnormal growth. This was on a spray of Etta Dyke. True, the flowers were rather crushed together, but otherwise there was no abnormal development. I had two sprays of Nubian with ten flowers to the spray. There were four well-developed flowers of good substances at the bottom, but the spray divided into two points, each with three rather small blooms on each, but well placed. The effect of these two sprays, the stem-length of which was 22 inches, was very decorative. I also had spray of Marks Tey with seven blooms well placed, but rather close; two sprays with six and several with five. More than four blooms on a spray of this variety is no advantage, as with me it did not give the same length of stem as other varieties grown in the same conditions. Unlike your correspondent (see p. 259), it has not been the prevailing case with me of the bottom flower on four or more bloomed spikes to wither before the top bloom has developed. It certainly is the first to go, but not before one has enjoyed the full spray for two or more days, even in very warm weather. *M. A. Kerry.*

The Recent Fruit Show.—Mr. J. Hill's statements (see p. 259) would have been more convincing if he had named only a few of the "many experts" who disagreed with the awards in the class for three dishes of Plums, so that your readers could decide whether their names inspire more confidence than those of Messrs. W. Allan, Turton and Vert, who were responsible for the awards. These are men of enormous experience in growing, showing and judging fruit, and they were unanimous in giving Mr. Hill the second place. Mr. Hill infers that the Plums were not judged on points, or he would have been first. Of this I have no knowledge, but surely he knows that the maximum number of points for dessert Plums is greater than that for the cooking varieties, and his 2nd prize exhibit, of which his *pièce de résistance* was the second-rate variety Grand Duke, did not include any dessert variety. With regard to Mr. Hill's opinion of the 1st prize collection, no doubt he means to be quite fair, but he is, in the circumstances, biased, or he would not have deprecated his opponent's exhibit. I have seen better Plums, but when I described the winning dishes as being exceedingly good I had in mind the general scarcity of Plums and the terrible ravages of wasps, which have made Plums so valuable that an exhibit which would be only second-rate in a season of plenty may justly be termed exceedingly good when this fruit is at a premium. *Your Reporter.*

Publications Received.—***Wissenschaftliche ergebnisse der Deutschen Zentral Afrika Expedition, 1907-1908.*** Unter Führung Adolf Friedrichs. (Leipsig: Klinkhardt & Biermann). Price M. 4.20.—***Handbuch der Pflanzenkrankheiten.*** Von Pr f. Dr. Paul Sorauer, Prof. Dr. G. Lindau, und Dr. L. Reh. Numbers 20 to 27. Price 3 Marks each.—***Cabinet Timbers of Australia.*** By R. T. Baker, Technical Education Series, No. 18. (Sydney: W. A. Gullick).—***Bulletin of the Department of Agriculture.*** Edited by H. H. Cousins. (Jamaica: Department of Agriculture.) Price 2s.—***Wall and Water Gardens.*** By Gertrude Jekyll. (London: Country Life, Ltd.) Price 12s. 6d. net.—***The Nation's Library: Canada as an Imperial Factor.*** By Hamar Greenwood; ***The Story of Trusts.*** By M. E. Hirst. (London: Collins' Clear-Type Press.) Price 1s. each.—***Bulletin of Miscellaneous Information.*** Royal Botanic Gardens, Kew. Price 4d.—***The Forest Flora of New South Wales.*** By J. H. Maiden. Vol. V. Part 10. Published by the authority of the Government of New South Wales. Price 1s. per part, 10s. per dozen parts.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

October 7, 1913.—*Present*: Mr. E. A. Bowles, M.A., F.L.S. (in the chair); Messrs. G. Gordon, H. J. Elwes, W. C. Worsdell, R. Hooper Pearson, E. M. Holmes, J. Fraser, A. Worsley, F. J. Chittenden (hon. sec.), and C. R. Scrase-Dickins (visitor).

Cycas revoluta.—Mr. E. M. Holmes showed the ripe seed of Cycas revoluta. It had been grown and ripened in England.

Uncommon plants.—Mr. H. J. Elwes showed a Hippeastrum with green flowers, which, it had been suggested, was a hybrid between Hymenocallis and a garden Hippeastrum, two genera which have hitherto resisted efforts to cross them. It was, however, evidently Hippeastrum calyptratum, a species remarkable in the genus, not only for the curious growth which obstructs the throat of the perianth, but also from its evergreen habit.

Tricyrtis stolonifera, a plant which Mr. Elwes had found in bamboo jungles in Formosa, where it reaches a height of about six inches only, while in England it grows four feet tall in gardens, still maintaining its underground creeping habit.

Mr. Elwes also showed a Lily which he had found growing in Formosa, where it flowered in March, bearing up to as many as forty flowers. It strongly resembled some of the forms of Lilium speciosum.

Mr. A. C. Bartholomew, of Park House, Reading, sent a number of interesting flowers, including Galanthus Olgæ, Gentiana Kurroo, Aspilia buphthalmiflora, Solanum sisymbrifolium, Anchusa myosotidiflora, Malvastrum lateritium, and others.

African Fruits, etc.—Mr. W. C. Worsdell exhibited fruits of a species of Eriodendron with its silky cotton-covered seeds, Areca nuts, and a leaf of Mango from Zanzibar covered with scale insects, which he said was the usual condition there.

Pelargonium citriodorum.—Mr. J. Fraser showed beautifully dried specimens of Pelargonium citriodorum and other forms from the Wisley collection, and commented upon the origin of these forms, mostly apparently from P. crispum. The results of Mr. Fraser's investigations will be published in the *Journal* of the society.

"Sporting" of Lilies.—Mr. C. R. Scrase-Dickins showed a most interesting series of specimens of Lilium Sargentiæ. A bulb had last year produced a stem part of which carried the foliage of L. Sargentiæ, part foliage similar to that of L. myriophyllum. This plant was grown from a bulbil, not from seed. This season offsets from it bore respectively foliage similar to that of L. Sargentiæ, L. myriophyllum, and partly of the one, partly of the other. The flowers were indistinguishable. It would seem that Mr. Scrase-Dickins had seen the passage of one species of Lily into another, or that the breadth of foliage which is constantly used as a distinguishing feature of these plants is a character of less importance than it is usually considered. Mr. Elwes drew attention to the remarkable variation to be seen between Lilies as one passes up the Formosan mountains, as though one species had produced forms adapted to the conditions under which they were growing, and regarded by botanists who had seen only collected plants as specifically distinct. Other characters in plants which had been used by herbarium botanists as a basis of classification were frequently variations of adaptation as seen in the field.

Linaria hybrid.—Mr. Bowles showed a Linaria which had appeared in his garden, and was possibly a hybrid between L. vulgaris and L. purpurea.

BRITISH MYCOLOGICAL.

FUNGUS FORAY AT HASLEMERE.

The seventeenth annual autumn fungus foray of the British Mycological Society was held at Haslemere, September 22 to September 27. On the former date the members arrived from far and near, the early arrivals indulging in a pre-

liminary foray in the immediate neighbourhood. Between forty and fifty members took part in the proceedings, this number being augmented by visitors of affiliated bodies and members of the Haslemere Natural History Society, which acted as mycological host for the occasion. On Tuesday an early start was made to the old Beech and Ash forest of Charlton, on the South Downs. Among the fungi found here were Helvella lacunosa, Amanitopsis nivalis, Lepiota metulæspora, L. alba, Mycena crocata, Marasmius alliaceus, Leptonia incana, Entoloma porphyrophæum, Eccilia griseorubella, Cortinarius porphyropus, Coprinus picaceus, Boletus candicans, Polyporus tephroleucus and Pilacre Petersii. In the evening the business meeting was held, and Professor A. H. R. Buller was chosen president for the ensuing year, Miss G. Lister vice-president, and Mr. Carleton Rea, as usual, honorary secretary and treasurer.

On Wednesday, Forked Pond and Longdown, Woolmer Forest, were visited. In these coniferous woods a totally different fungus flora was met with. The principal finds were Lactarius theiogalus, Russula virescens, Omphalia hydrogramma, an enormous Gomphidius roseus, Cortinarius bolaris, Entoloma Bloxami, Tremellodon gelatinosum, Rhizopogon rubescens, Coprinus stercorarius, Inocybe dulcamara, Sclerotinia baccarum and Podosphæra myrtillina. After returning home Mr. A. D. Cotton delivered his presidential address entitled "Some suggestions as to the study and critical revision of certain genera of the Agaricaceæ." Great stress was laid upon the value of certain microscopic characters, such as spore size, the presence or absence, size and shape of cystidia, and the structure of the gill edge. It was pointed out that the monographing of various genera was the only way in which our knowledge of this family could be satisfactorily advanced. Mr. F. T. Brooks afterwards gave an account of his cultures of certain Ascomycetes and Basidiomycetes. A point of interest to systematists was that a species of Coprinus gave rise to Ozoneum in pure culture; pure cultures of Chlorosplenium æruginosum incited some of the members to enquire very anxiously as to the present method of obtaining wood for Tunbridge ware.

On Thursday, Rodborough Common was visited. The important additions made here were Mycena Iris, Russula azurea, R. incarnata, Omphalia maura, Sparassis crispa and Pistillaria micans. In the evening Mr. Cotton illustrated by lantern some of the points of his presidential address, and afterwards Professor Buller gave a most interesting account (with lantern slides) of his analysis of the elements of the hymenium in the Basidiomycetes.

The last excursion was to Lynchborough Park and Brimstone Enclosure, Woolmer Forest. Here were met with the following additions to the previous finds:—Cordyceps ophioglossoides, Lactarius tabidus, Russula cœrulea, Paxillus atrotomentosus, Cortinarius gentilis, Craterellus pusillus, Hydnum melaleucum, H. Queletii, Polyporus Schweinitzii, P. tephroleucus, and Boletus pinicola. The last paper read was by Mr. J. Ramsbottom—"Some notes on the history of the classification of the Discomycetes." Afterwards a vote of thanks was passed to the various landowners for their kindness in allowing the society every facility; and also to Mr. E. W. Swanton, curator of the Haslemere Educational Museum (which was used as headquarters), for his zeal in making all the arrangements and carrying them out. A resolution was also carried that in the opinion of the society the museum should be preserved as a memorial of Sir Jonathan Hutchinson. The members dispersed on Saturday morning. Altogether over 400 species of the larger fungi were recorded. The microfungi have not yet been all worked out, but will probably bring the total number well over 500. The Myxomycetes, which included Licea pusilla, Hemitrichia clavata, Oligonema nitens and Diderma simplex numbered about 50. *J. R.*

NORTH OF ENGLAND HORTICULTURAL.

October 9 and 10.—The autumn exhibition of fruit, flowers and vegetables of the above society was held on these dates at the Corn Exchange, Leeds. The hall was completely filled with exhibits, notwithstanding the strike in progress, which interfered greatly with the transit of goods from the station. Some very large exhibits were staged, and many of them occupied hundreds of feet. That of Messrs. Dickson and Robinson, Manchester, was far in advance of anything arranged before under the auspices of the society. It was made up of a number of species and varieties of Michaelmas Daisies. Dahlias were used in the form of pillars arising out of the Asters, while the groundwork consisted of hardy Chrysanthemums. Some of the chief varieties of Michaelmas Daisies were Keston Blue, Moonstone, cordifolius albulus and Ideal, Climax, Horace, Star Shower, Rev. W. Wilks, Desire, St. Egwin, Ringdove, Fairy, Delight and Maidenhood. The group was awarded the 80-guinea Challenge Cup and the society's Gold Medal.

W. D. Cliffe, Esq., Meanwood Towers, Leeds (gr. H. G. W. Hague), showed a very large exhibit, consisting of 75 varieties of vegetables, amongst them 25 varieties of Potatos. Everything staged was of the highest merit. Chief amongst them was Premier Onion; and there were also fine specimens of Savoys, Silver Kale, Cabbage Leeds Market, Celery, Parsnips, Beet, Carrots and Curled Kale. (Gold Medal and Cup.)

Messrs. W. and J. Brown, Peterborough, showed a large stand of various types of Roses; large pillars arising from the stage made an effective display, and the exhibit was prettily bordered with the dwarf Polyanthus Rose Orleans. Other Roses used were Gladys Harkness, J. B. Clark, Mrs. Foley Hobbs, Hugh Dickson, Lyon Rose, Florence Pemberton and Ben Cant. (Gold Medal.)

Messrs. Harkness and Sons, Bedale, had a most attractive stand of hardy flowers. Their Verbascums were exceptionally fine, especially the new International, which had a tremendous length of spike. Other varieties were V. Beatrice Clark, Mrs. Arnott, and Rev. J. H. Pemberton. Michaelmas Daisies were represented by Ringdove, Royalty, Maidenhood, Perfection, Rev. W. Wilks and Climax. Collerette Dahlias also entered into the composition of this interesting group. (Gold Medal.)

Mr. Walter Allsop, Leeds, was awarded a Gold Medal for an artistically arranged stand of flowers and Palms adorned with statues. The cut flowers consisted of Roses, Carnations, Lilies-of-the-Valley, Chrysanthemums and Violets.

Messrs. Dobbie and Co., Edinburgh, showed some choice varieties of Collerette Dahlias. Some of the best were Goldstern, Queen Bess, Barra, Queen Mary, Parrot, St. Albo, Barmoral, Fascination and Meteor. (Silver-Gilt Medal.)

Messrs. Wm. Cutbush and Son, Barnet, showed many kinds of hardy flowers, such as Michaelmas Daisies, Delphiniums and Roses. Some good examples of Erica nivalis and E. gracilis were shown. All were well flowered and showed good cultivation. (Silver Medal.)

Messrs. John Forbes, Hawick, exhibited a large collection of named varieties of Pentstemons, Phloxes and Asters. (Silver Medal.)

Messrs. G. Gibson and Co., Bedale, showed many good specimens of hardy flowers. Among the Michaelmas Daisies were the varieties Climax, Rev. W. Wilks and Mrs. Hudson Morris. Hardy Chrysanthemums were shown in large numbers. (Silver Medal.)

An exhibit from the Lakeland Nurseries, Windermere, was made up of Liliums, Gladioli, Begonias, Ericas and Carnations. Amongst the latter were Carola, Windsor, Scarlet Glow and White Wonder (Large Bronze Medal.)

Messrs. Young and Co., Cheltenham, showed a representative collection of Carnations. (Silver Medal.)

Messrs. Dickson and Robinson, Manchester, had an exhibit of their well-known Onion, Premier, which was represented by some exceptionally fine bulbs. (Silver Medal and Cup.)

Messrs. Robt. Ker and Sons, Liverpool, showed some good Cyclamen on their stand, all well-flowered and in a healthy condition. The stove plants were well shown, and the Crotons highly coloured. (Silver Medal.)

Other exhibits which were awarded Bronze Medals included those of Messrs. T. H. Gaunt, Forsley, for Michaelmas Daisies; S. Broadhead and Son, Huddersfield, Alpines; Springfield Convalescent Home, miscellaneous group; Wm. Lawrence and Son, Yarm-on-Tees, Apples; T. H. Taylor, Esq., Chapel Allerton, Leeds, Apples; the Hon. Mrs. Maxwell Stuart, Tadcaster, Apples; and E. O. Simpson, Esq., Hazelwood Towers, Tadcaster, Begonias (who also received a Cup).

Orchids were shown by Messrs. Mansell and Hatcher, Rawdon, Yorkshire, who exhibited a number of well-flowered plants. The Odontoglossum crispums were exceptionally fine, and Lælia pumila alba was remarkably well grown. Other fine Orchids were Cattleya Mrs. J. W. Whiteley, Miltonia vexillaria and Cypripedium Harefield Hall Variety. (Silver-gilt Medal.)

W. P. Birkenshaw, Esq., Hessle, showed a small exhibit composed of the choicest plants, including Cattleya Queen Mary, Cypripedium Our Queen, C. Lord Ossulston, C. Maudiæ and Cattleya Rhoda conspicua. (Large Silver Medal.)

Messrs. Keeling and Son, Bradford, staged a small exhibit, for which they received a Bronze Medal, and John Hartley, Esq., Morley, received a Silver Medal.

Diplomas were awarded to Cattleya Hardyana Knowle var., shown by John Hartley, Esq., Morley, Leeds (1st class); Cattleya Rhoda conspicua, exhibited by W. P. Birkenshaw, Esq., Hessle, Hull (1st class) and Lælia pumila alba, exhibited by Mansell and Hatcher, Rawdon, Yorkshire. (2nd class.)

BIRMINGHAM GARDENERS'.

RELATION OF WILD BIRDS TO THE FARM AND GARDEN.

October 6.—At the Birmingham Athletic Institute Mr. Walter E. Collinge opened the autumn session of the Birmingham and Midland Counties Gardeners' Association with an address on "The Relation of Wild Birds to the Farm and Garden."

Mr. Collinge said that in order to remove any misunderstanding, he ought to state that those who were investigating the economic status of our wild birds, or the inter-relation of birds and agriculture, did not advocate any ruthless destruction of bird-life; indeed, they were quite as fond of studying, and were probably much more interested in, the subject than the individual who shot every rare bird that appeared, or whose one aim was to bring together a huge collection of eggs, skins, or stuffed birds.

No observant man or woman could deny the fact that birds played a very important part in controlling the ravages of various animal pests of our crops, and particularly so in the case of insects. Of the 384 species of British birds listed by Saunders, about 80 were exceedingly rare, each having only been recorded some half-a-dozen times, 66 others were more or less infrequent visitors, and 45 species annually made their appearance on migration or during the colder months, leaving 193 species, some seventy or more of which were aquatic or littoral in their habits, and a similar number fed exclusively upon insect life. This leaves us about three dozen species, whose food habits are of special interest to the farmer, fruit-grower, forester and gardener.

It is only during the last thirteen years that any serious attention has been paid to the subject of economic ornithology in this country, although splendid work has been accomplished in the United States and elsewhere.

After describing the methods employed in such investigations, Mr. Collinge dealt with the food of nestling birds, and the distribution of weed seeds by birds, advancing many new and interesting observations. Turning next to the commoner species of birds, he summarised the results of many years' work, which led him to conclude that the house-sparrow, bullfinch, sparrow-hawk, wood-pigeon, and stockdove were distinctly injurious, and none of them merited protection in any form; the missel-thrush, blackbird, greenfinch, chaffinch, starling, and rook were too plentiful, and consequently injurious; the blackcap was injurious, but not plentiful.

Referring to the subject of legislation, Mr. Collinge stated that none of the existing Acts considered at all the interests of farmers or fruit-growers, and none of them was passed in

their interests; on the contrary, they were framed and passed to satisfy the outcry of the bird-loving public, and have been set at naught and defied with impunity by bird-catchers, egg-collectors, bird-collectors and gamekeepers generally. Slowly we were realising that many of our most valuable birds were disappearing, and others equally injurious were increasing at a tremendous rate, in consequence of which the crops of grain, roots, fruit, etc., were being destroyed wholesale, and it was sincerely to be hoped that any future legislation would take into consideration the work of recent investigators, have a definite object in view, and also be subject to revision at stated times, and for definite parts of the country, according to varying conditions. The lecture, which was listened to by a large and appreciative audience, was illustrated by numerous lantern slides.

SCOTTISH HORTICULTURAL.

October 7.—The monthly meeting of this Association was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on this date. Mr. David King, the president, was in the chair, and there was an attendance of 100 members.

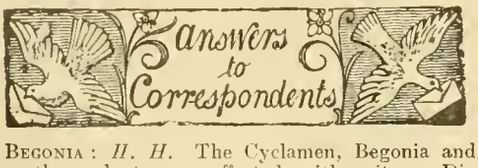
A paper was read by Mr. David Armstrong, Kirknewton House Gardens, Midlothian, on the cultivation of "Salvia splendens."

The exhibits were:—Collection of Collerette Dahlias and new early-flowering white Chrysanthemum Artemis (awarded a Certificate of Merit), exhibited by Messrs. Dobbie and Co., Edinburgh, who were also awarded a Cultural Certificate for the Dahlias: new early-flowering yellow Chrysanthemum Golden Diana (awarded a Certificate of Merit), and Chrysanthemum Framfield Early White, exhibited by Messrs. Todd and Co., Edinburgh; early-flowering Chrysanthemums, exhibited by Mr. John Downie, Edinburgh; Ficus sp., exhibited by the President; Canadian-grown Peaches, exhibited by Messrs. James Grieve and Sons, Edinburgh; Potato Irish Gem, exhibited by Mr. Wm. E. Sands, Hillsborough, Co. Down; Potatos Prolific, The Chapman and The Admiral, exhibited by Miss Burton, Polton, who was awarded a Cultural Certificate; Runner Beans Webb's Golden, Webb's White-seeded and Webb's Exhibition, exhibited by Mr. Walter Y. Staward, Aston Gardens, Oswestry, Salop; Cunynghame's Frost Predictor, exhibited by Messrs. Stewart and Co., Edinburgh.

At the meeting to be held on November 4, a lecture will be given by Dr. W. G. Smith, Edinburgh and East of Scotland College of Agriculture, on "The Influence of Drought on Plant Form."

Obituary.

John Papworth.—We regret to record the death of Mr. John Papworth, who died on October 8, at the age of 60 years. He was for 28 years employed as head gardener by the Corporation of Portsmouth. He had charge of the Victoria Park and all the open spaces and street trees.



Begonia: *H. H.* The Cyclamen, Begonia and other plants are affected with mites. Dip them in Quassia extract. No. 2 is a double flowering variety of Tropæolum; and 3, Cyathea dealbata.

Begonia Gloire de Lorraine: *H. R.* and *Anxious.* The rust on the Begonias is caused by a mite. Sponge the leaves with a solution of Quassia extract. The rust on Ferns is not due to a fungus or insect, but to the presence of an excess of atmospheric moisture during a time of low temperature.

Blight on Fruit Trees and Plants: *R. W.* Spray the Apple and Pear trees next spring with the Bordeaux mixture, the first operation when the leaves are just expanded, and repeating it when the blossom has fallen. The Celery is destroyed by bacterial rot. Plant in fresh ground next season, and treat the land where the diseased crop has grown with quicklime, or, better, with gaslime if this latter material is procurable.

Blotched Violet Leaves: *W. B.* Remove the diseased leaves, and spray the plants at intervals of four days with liver of sulphur, one ounce in four gallons of water. Keep them as dry and well ventilated as practicable.

Buds Dropping: *T. H.* If your plants of Althæa (or, to be correct, Hibiscus syriacus) are in good health, we should imagine that the dropping of the buds is due either to fog—which has an injurious effect on the buds and flowers of many plants, notably Salvias, or else to an excess of water at the root at the time of flowering. All varieties of Hibiscus require a warm situation and comparatively dry soil; but having regard to your district, we should be inclined to attribute the dropping to fog. All the Japanese Maples are hardy in this country, and especially the strongly growing coloured varieties.

Grapes Diseased: *Colmar.* The Grapes are suffering from a condition known as "shanking," which is generally the result of overcropping, or of the roots having got into a cold, badly-drained, or otherwise unsuitable medium. To prevent an attack next year you should remake the border, and prevent the vines from overcropping.

Grass Seeds for Lawn, Etc.: *Festuca.* The following lists will, we think, give you all the information you require:—1. *Ordinary Lawn.* Alopecurus pratensis, Dactylis glomerata, Festuca pratensis, F. duriuscula, F. elatior, Poa pratensis, P. trivialis, P. nemoralis, Cynosurus cristatus, Phleum pratense, Trifolium hybridum and T. repens. 2. *Tennis Court.* Alopecurus pratensis, Dactylis glomerata, Festuca pratensis, F. elatior, Poa pratensis, P. trivialis, P. nemoralis, Phleum pratense, Trifolium repens. 3. *Cricket Fields and Recreation Grounds.* Alopecurus pratensis, Dactylis glomerata, Festuca pratensis, F. duriuscula, F. elatior, Poa annua, P. pratensis, P. trivialis, P. nemoralis, Cynosurus cristatus, Phleum pratense, Trifolium hybridum, T. repens, Achillea Millefolium. 4. *Town Lawns.* Agrostis (species), Cynosurus cristatus, Festuca durinscula, Poa pratensis, Short Perennial Rye Grass.

Horticultural Education: *G. P. B.* Taking into consideration all the particulars you give us, we think your best plan would be to take a correspondence course of tuition. On page ii. or iii. of our advertising columns there are usually one or two advertisements of head gardeners and others who are willing to give such tuition, and we should advise you to write to one of these and ask his terms.

Horticultural Schools: *P. H. B., Zurich.* The following are establishments where you can obtain tuition in Fruit-growing and Horticulture; R.H.S. school at Wisley, Surrey; University College, Reading, Berkshire; Royal Botanic Society's School of Gardening, Regent's Park, London; South Eastern Agricultural College, Wye; University of Leeds; Swanley Horticultural College, Kent; Devon School of Gardening, Ivybridge.

Names of Fruits: *Briars, Chislehurst.* 1, Emperor Alexander; 2, Stirling Castle; 3, Beurré Dumont; 4, Dumelow's Seedling (Wellington).—*G. K.* 1, Barnack Beauty; 2, Melon Apple; 3, Curl Tail; 4, Lady Henniker; 5, Summer Golden Pippin; 6, Reinette du Canada; 7, Pine Golden Pippin.—*J. P.* 1, Mank's Codlin; 2, King of the Pippins; 3, Dumelow's Seedling (Wellington); 4, Warner's King; 5, Lady Henniker; 6, Beauty of Kent.—*S. B.* 1, Bramley's Seedling; 2, Flower of Herts; 3, Royal Russet; 4, King of the Pippins.—*Orchard.* 1, Ross Nonpareil; 2, Jolly Beggar; 3, Mannington's Pearmain; 4, Lady Derby.—*R. C. W.* Apple Blenheim Pippin; Pear Beurré Diel.—*E. G.* Potts's Seedling.—*I. J. R.* Reinette du Canada.—*A. C. B.* Cox's Orange Pippin.—*A. W. P.* Forge Apple.—*G. B. E.* 1, Peasgood's Nonesuch; 2, Allington Pippin.—*H. P. Southover.* Peach Yellow Admirable; Apple decayed, not recognised. — *Smythies.* John Apple.—*J. H. C.* The fruit is affected with Bitter Pip. Thought by some growers to be the result of canker; but this is doubtful.

Names of Plants.—*Sir A. B. H.* Vitis citrulloides.—*G. S.* Silene Burchella.—*W. S.* 1, Cryptomeria japonica var. elegans; 2, Cupressus pisifera var. plumosa aurea; 3, C. pisifera var. squarrosa; 4, Juniperus chinensis var. aurea; 5, Cupressus Lawsoniana var. lutea; 6, C. Lawsoniana var.; 7, Thuya dolabrata; 8, Cupressus Lawsoniana; 9, Cupressus nootkatensis var. albo-variegata; 10, Thuya Lobbii; 11, Cupressus pisifera var. filifera; 12, Juniperus chinensis; 13, Cupressus pisifera var. plumosa; 14, Cupressus Lawsoniana var. erecta viridis.—*W. H. A.* 1, Spiræa Anthony Waterer; 2, Olearia Forsteri; 3, Olearia macrodonta; 4, Podocarpus sp. probably nubigena; 5, Quercus acuta var. bambusæfolia; 6, Hedera arbora. 7, Caryopteris Mastacanthus.—*P. McL.* The stock is a variety of Rosa rugosa much used by Dutch growers.—*C. R.* Pleione Lagenaria. The Muscat berries are showing indications of shanking. See reply to another correspondent under that heading.—*R. Y.* 1, Oncidium crispum; 2, Odontoglossum Andersonianum; 3, Oncidium longipes; 4, Brassia Lanceana.—*T. A. B.* 1, Pteris longifolia; 2, Pteris geraniifolia; 3, Lomaria nuda; 4, Davallia bullata; 5, Pteris (Litobrochia) biaurita; 6, Lygodium scandens.

Pot Vines: *E. S.* If the growth on your vines appears strong enough to carry a fair crop of fruit next season we would advise you to keep them in the pots in which the roots are now contained. To encourage fresh roots carefully break the bottom of the pots and remove a portion of the drainage materials, filling the space with pieces of good fresh loam. When placing the vines in the forcing house make a bed of soil large enough to plunge the pots into. The vine roots will quickly find their way into the new compost, and will eventually take possession of it. The compost should consist of the best loam you can procure, a fair sprinkling of old mortar rubble, wood ashes and crushed bones. See that the soil is in proper condition in regard to moisture, so that you can make it quite firm by treading or ramming, and see that it is amply drained. Plunge the pots into the soil up to the rims, after removing a portion of the surface soil, and top-dress with some of the new compost. You must bear in mind that the pots now contain a mass of roots, and during the growing season they will require abundance of water. Any neglect in this matter would end in failure. We would remind you that it is unusual to attempt to crop pot vines for more than one season The usual method of growing Grapes in pots is to purchase two-year-old fruiting canes, discarding them as soon as the crop is cleared.

Sporting Carnation: *J. T. H.* The seedling Marguerite Carnation, which bears red-pink and white flowers on one stem, is an admirable example of a vegetative sport. A note on a similar specimen will be found in our issue for August 30, page 158, where the scientific explanation of the phenomenon—in so far as it is known—will also be found. The fact that the first flowers of the seedling should show such marked segregation of colour makes the specimen particularly interesting.

Tomatos: *J. R. W.* The appearance is due to the lack of potash salts in the soil. Treat the soil with sulphate of potash.

Communications Received.—W. E., Uckfield—H. B.—H. W.—A. E. B., Worcester—E. T.—S. C.—E. M.—Journeyman—E. M. S.—H. S.—W. H. P.—E. M.—T. D.—G. S., Preston—R. H. L.—Cuthbert—M. H. S.—G. U.—A. E. T. R.—C. B.—Firwood—Leek—S. A.—C. L.—G. H.—A. G. L.—P. L. H.—C. L.—A. C. B.—S. C.—G. P. S.—G. R.—L. K., Switzerland—R. W. and Co.—R. and J. F. and Co.—E. C., Versailles—L.—C. T.—B. and Sons.

CHERRY FLY (RHAGOLETIS CERASI, LINNÉ)

Fly, natural size and × 10; Above, pupa nat. size and × 10; Below, grub nat. size and × 10.

THE

Gardeners' Chronicle

No. 1,400.—SATURDAY, OCTOBER 25, 1913.

CONTENTS.

ILLUSTRATIONS.

THE TRADE A CENTURY AGO.

PROBABLY no class of printed matter is more despised and rejected than old-time directories, except by those who are interested in the bypaths of other days. And yet there are certain phases of history—at least of commercial history—which can only be studied in these meanly-printed directories, which, so far as London is concerned, commenced to appear regularly during the second half of the 18th century. Like many other ephemeral publications, the earlier issues have become very scarce, and if they are not worth their weight in gold they are at least worth much more than their published price. In compiling exhaustive catalogues of portraits painted by George Romney, by John Hoppner, and in many other ways, I have found these old London directories of incalculable value, and through them I have been able to identify many persons who would otherwise be mere names.

But their value in matters of much wider import becomes at once evident to those who take the trouble to scan their pages. They are the only reliable and authentic repositories of the names and addresses of men and women who were in business in London at particular dates; and they are almost the only basis upon which the accurate history of any one trade can be built up. Nearly every calling has had its historian, and some trades, particularly that of bookselling, have had an over-abundance of historians. But little or nothing has ever been done towards a History of the Nursery and Seed Trade in London. We know the names of our first printer and nearly every one of his long line of descendants, for they have all left imperishable records of their life and labours. But who can tell us the name of the first English seedsman or nurseryman? The earliest name which I have come across is that of "Mr. Crouch, a seedsman at the Golden Ball, without Aldgate," May 27, 1678, which occurs in Dr. W. A. Shaw's *Calender of Treasury Books*, 1676-9, in the Public Record Office.

The seedsman was an offshoot of the corn-dealer or factor, and during the greater part of the 18th and until well into the 19th century the two trades were often carried on together. Generally speaking, it may be doubted if the business in seeds and plants had arrived at the dignity of a trade much before a century and a half ago. In the *Complete Guide*, "to all persons who have any trade or concern with the City of London and Parts Adjacent," published in 1771, about 2,000 names of tradesmen and their places of business are registered; I have failed to find in this list a single nurseryman or florist, and I have discovered only 10 seedsmen, as distinct from corn-dealers and net-makers. This list seems to me to be so interesting that I do not think any excuse is necessary for transcribing it in full:—

Edward Cross, 152, Fleet Street.
Eddie* and Dupin, Strand.
John and John Field, 119, Lower Thames Street.
Stephen Garraway, 139, Fleet Street.
Ja. Gordon, 25, Fenchurch Street.
Minier and Co., 63, Strand.
Ralph Prentice and Edwards, 5, Lower Thames Street.
Robson and Tipsen, 39, Holborn.
Tim Topping, 121, Upper Thames Street.
Abraham Young, 11, Smithfield.

A century ago—in 1812, forty-one years after the publication of the Directory from which the above list is quoted, we find in the Post Office *Directory* a list of over 16,000 merchants and tradesmen in London and "Parts Adjacent," and among them over 60 seedsmen, nurserymen, and florists. The commercial expansion of England between 1771 and 1812—in spite of our being more or less in a state of war with the rest of the world—had already reached a height unprecedented in the history of modern Europe, although that expansion was nothing to be compared with what was to follow in the next half-century. Probably no trade enjoyed a greater share in this prosperity than that of seeds and plants, although horticulture as a science was still in the experimental stage.

Whilst the seedsmen of 1771 were confined to one or two localities, such as Fleet Street and Thames Street, those of 1812, with the branch trades of nurserymen and florists, were scattered all over London and overflowed into what were then remote suburbs, such as Brompton, Hackney, Stockwell, and Chelsea. At Brompton there were Curtis and Salisbury, at what was known as the "Botanic Garden and Nursery," which had been started by William Curtis (who died in 1799), for long the editor of the *Botanical Magazine*: whilst the firm of Curtis and Milliken, nurserymen, of Lambeth, was doubtless of the same origin. James and Robert Gray were also in business as nurserymen at Brompton Park; and at Old Brompton there were three firms of nurserymen and seedsmen, John and Samuel Harrison, J. Kirke—the last-named may have been the "J. Kirk" who contributed papers to the *Memoirs* of the Caledonian Horticultural Society, 1816-25—and Whitley and Brames.

Chelsea was at this time famous for its nursery gardens, "much frequented by the nobility and fashionable world in the spring of the year." Only one name, however, is given in the *Directory*—that of William Pamplin, of King's Road. But Fraser and Sons' nursery in Sloane Square was famous for its new plants and seeds from North America, and Thomas Faulkner in his book on Chelsea, 1810, gives a long list of the scarce and curious exotics at Colvill's nursery, which had been established in 1786. There was a nurseryman and seedsman named J. Hall in the New Road, St. Pancras; a nurseryman, R. Hastings, at Harley Place, Marylebone; Jenkins and Gwyther, nurserymen and seedsmen, in the New Road of the same parish; and a firm of nurserymen, W. Malcolm and Co., at Kensington. On the Surrey side of the river there was a seedsman named Jeremiah Batley at Montagne Close, Southwark; another, Robert Bygrave, at the same place; Cormack and Sons were established as nurserymen at New Cross; Davis and Co. were seedsmen at 124, Blackman Street, Borough; Robert Fair and Sons were at No. 21 of the same street; Malcolme and Doughty were seedsmen at Stockwell, then a country village; James Munro, nurseryman and seedsman, C. Sandys, landscape gardener and surveyor, and Warterer and Holmes, were all located in Lambeth; whilst J. Youl and Harvey and Wood were in business in "Kent Road, Surrey," and Ann Lockhart established as a "seedsman" at Newington Causeway.

In North and East London the most famous and familiar name is that of C. Loddiges, who was at "Mair" Street, Hackney, as nurseryman and seedsman. The rival firm of G. and J. Allport was in the Hackney Road; W. and A. Duthie were at Bethnal Green; E. and S. Smith were nurserymen and florists at Dalston, with a branch establishment in Covent Garden; S. Thompson was in business at Mile End, selling seeds as well as plants, and Joseph Goldsbury at 91, Whitechapel. In the City proper there were both seedsmen and nurserymen, but many of the former were also corn factors or hop and seed factors, probably for the most part wholesale merchants, and so can hardly be ranked with seedsmen as we now understand the term. The ex-

* The senior partner, Alexander Eddie, died May 3, 1887.

ceptions would seem to be Gordon, Forsyth and Co., of 25, Fenchurch Street; John Lewis, of 74, Cornhill; M. Sampey, of 82, Bishopsgate Without; W. Walter, of 97, Leadenhall Street; Warner and Seaman, of 28, Cornhill; and John Field, of 25, Gracechurch Street.

Of seedsmen and nurserymen to be found a century ago in the neighbourhood of the Strand and Fleet Street quite the most interesting firm is that of Minier, Minier and Nash, who were at 63, Strand. As will be seen from the list given previously, this firm was established here in 1771, and probably earlier, and it continued here until 1880 or 1881. In 1882 the firm, under the title of Minier, Nash and Nash, no longer figured in the London *Directory*. Two other of the 1771 firms were in existence in 1812—J. Gordon, under a slightly altered form of nomenclature, was at 25, Fenchurch Street, and John Field had removed from Lower Thames Street to Gracechurch Street.

Beside Minier, Minier and Nash, there was the firm of Beck and Allan at 67, Strand; Mason and Son, florists and "net-makers," at 152, Fleet Street; and Thatcher and Sons, who also combined net-making with seeds, at 147, Fleet Street. John Allport was at 39, Holborn Hill, and, whilst on the subject of Holborn, one cannot help wondering if the William Carter, who was in business as a seedsman at 68, West Smithfield, was in any way connected with James Carter, the founder of the great Holborn business which still bears his name. The West End of London had its fair share of the trade in 1812. A. Bowie was at 4, Edward Street, Portman Square, as a nurseryman and seedsman; Thomas Gibbs and Co., "seedsmen and nurserymen to the Board of Agriculture," were at the corner of Half Moon Street, Piccadilly, and remained there at least as late as 1890; James Hairs and Ivey were at 29, St. James's Street—the same number, if not the same house, whence most of Gillray's famous caricatures were issued; W. North was at 161, Piccadilly; and John Turner and Co. were at 92, New Bond Street, as seedsmen and florists.

Probably some of these men were in a small way of business, for it is not the province of the compilers of directories to pick and choose. On the other hand, many must have been considerable merchants and contributed much to the advancement of the science and art of gardening by the introduction and importation of new plants and vegetables. There is, unfortunately, little record of their existence apart from these old directories. Very few of them issued catalogues, which do not seem to have come into vogue until the second quarter of the last century, and such catalogues as were published are now as rare as early printed books. It is probable that to those whose recollections go back 50 or 60 years some of the firms mentioned will call up memories of personages.

It would be interesting to know which is the oldest seed firm still existing in London. I believe that that of MM. Vilmorin, of Paris, may claim to be the oldest in the world, seeing that it dates back to 1745. *W. Roberts.*

Fig. 103.—EUCRYPHIA PINNATIFOLIA WITH DOUBLE FLOWERS.

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM FLORINDA.

A flower of the first cross of Cymbidium erythrostylum, made between that species and C. giganteum, is sent by Sir John Edwards Moss, Bart., Roby Hall, Torquay. C. giganteum was the seed parent, but in the form of the flower and in the bright crimson colour of the column the hybrid is nearest to C. erythrostylum, described in the *Gardeners' Chronicle*, December 16, 1905, p. 427.

The flower is 3 inches across, the sepals half an inch wide, and the petals rather narrower. Both sepals and petals are cream-white with about nine thin rose-purple, dotted lines. The lip, which is pubescent and marked with deep red, as in C. giganteum, has a yellow ground colour spotted with red on the side lobes, and blotched with dark red along the margin of the front lobe.

EUCRYPHIA PINNATIFOLIA WITH DOUBLE FLOWERS.

A plant of this fine shrub, growing at Castlewellan, has produced flowers that are almost perfectly double (see fig. 103), but which show just a few of the brightly-coloured anthers through the overlapping petals — enough, indeed, to increase the attractiveness of the flowers. The plant is one of a lot raised from seed some twelve years ago, and I believe it only flowered last year for the first time, bearing about a dozen flowers; this year it has done better and borne fifty. It differs from the type in that it blooms fully a month later—the first flowers opened on September 18—a disadvantage, I think, as we generally get the first autumn storms of rain and wind about that time, and flowering plants suffer more or less in consequence. The plant is about 6 feet high, and bushy throughout. The double flowers are quite as attractive as those of the single form (see fig. 104), and that is very high praise. Other plants of the same batch of seedlings have flowered, but none show any tendency to produce double blooms. *T. J. Ryan, Castlewellan, Co. Down.*

THE LAST OF THE LILIES.

It must be many years since wind and rain and sun conspired together to treat L. sulphureum in such handsome fashion as in this year of grace, and the Lily has shown appreciation of favours so seldom vouchsafed to it in our country, by giving us a right wonderful taste of its quality.

Except, perhaps, in western gardens, sheltered nooks on the southern coast-line or in some exceptionally sunny inland valley, where it finds something approaching congenial conditions, sulphureum is generally the last of the Lilies to flower: in fact, in five years out of six it has the stage to itself.

If the truth must be confessed, it does not usually do more than excite our passing pity and a pang of regret that such a gracious thing should have made the long journey from Burma to so little purpose; coupled with a determination to leave the disappointing plant alone in future, or grow it under glass, where the long buds may not be shrivelled up by autumn frosts before they have had time even to open.

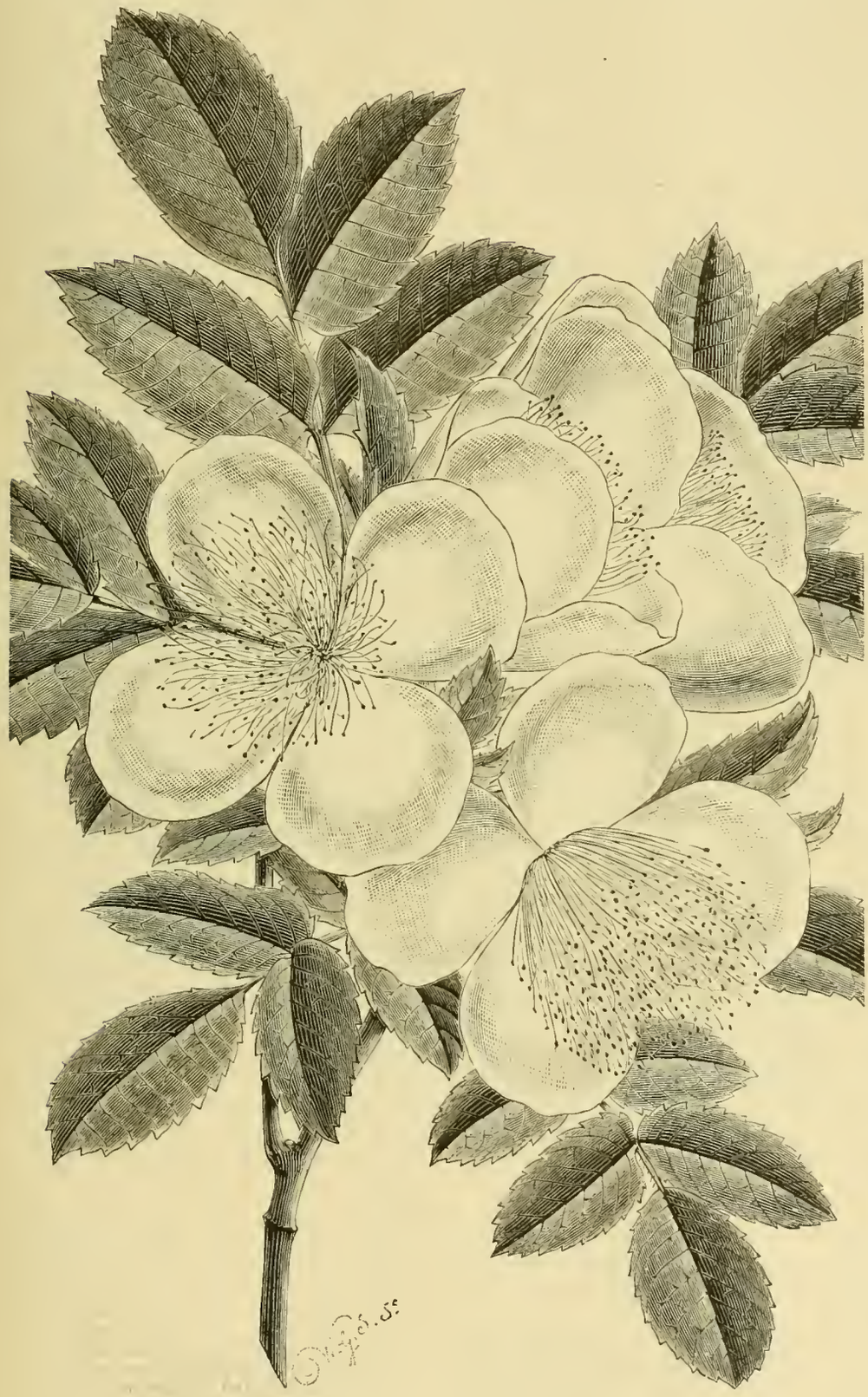


Fig. 104.—Eucryphia pinnatifolia (type). Flowers white, stamens yellow.

But in this year of blessed gardening memory, when October vies with May and autumn does its best to trick us into thinking spring is here again, there has obviously been some understanding among the powers that be, both above and below ground, that L. sulphureum should be coaxed—I had nearly written hocussed, for that is almost what it amounts to—into giving us a true presentment of itself and not a caricature.

In the result the Lily has surpassed itself, and for once belied its title as the last of the race to flower, since it was in and out of bloom while that laggard speciosum was still tight in bud; indeed, sulphureum was in flower before the stooks were on the stubbles, and by the time the mid-September moon was full one saw the night moths pass the ghostly trumpets by—sure sign of waning life.

For once in a way L. sulphureum and L. Sargentiæ were in bloom at the same time, and cheek by jowl, so that one had the long-wished-for opportunity of comparing them together. Until further critical examination has been made with a number of specimens it would, perhaps, be incorrect, besides a little wanting in respect for the authorities, to say that the two Lilies are botanically identical; but they are so near in so many important points as to lend a considerable amount of colour to a conviction that one is a geographical form of the other.

It must have been a matter of observation among those interested in the subject that L. sulphureum is seemingly as fixed in its characteristics as any Lily can well be; in is, in fact, as fixed as L. Hansonii, which means that you may examine scores of specimens without finding any noticeable variation. This is a good deal more than can be said of Lilium species in general, and Sargentiæ in particular, for one of the most noticeable points about the latter is the variable nature of the foliage, the variation being at once considerable and puzzling. The foliage of specimens grown under conditions as identical as one can assure them exhibits abnormal variation, which seems to point to the fact that the latter is inherent, and not due to conditions of cultivation; in other words, that the plant is unstable. This is not to say that variations may not be produced in this Lily by methods of cultivation; indeed, as reported in your issue of the 18th instant, Mr. C. Scrase Dickins has demonstrated the contrary to be the case.

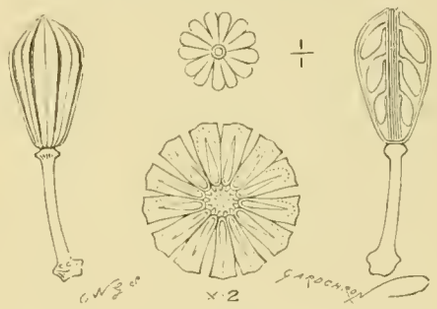


Fig. 105.—Eucryphia pinnatifolia: seed vessel.

L. sulphureum, being, so far as is known, fixed in all its definite characteristics, and Sargentiæ very variable in more than one, it becomes an open question how far one is justified in regarding the latter either as a distinct species or a transitional form. Hitherto the main difficulty, apart from that of seeing the two plants in growth and flower at the same time, has been one of locale, for even among people who ought to have known better there has been a persistent idea that L. sulphureum was confined to Burma.

This, no doubt, is due in some measure to the fact that the few botanists who have collected specimens on the Chinese side of Burma do not appear to have recognised L. sulphureum when

they saw it, referring it to L. Brownii, and in this we have the origin of the multiplicity of so-called forms of the latter Lily, none of them apparently even remotely connected with it, for none of the many that have been sent to me has the unmistakable white oblate bulb of L. Brownii, and all the bulbs are dark-coloured, as in L. Henryi.

Evidence that L. sulphureum does undoubtedly stray over into China is to hand in the fact that bulbs collected in Southern Yunnan, and labelled L. Brownii, have proved, when cultivated, to be the former Lily. Moreover, at Les Barres, M. Maurice de Vilmorin has raised L. sulphureum from seed sent to him by the Abbé Ducloux, and collected in Northern Yunnan. I have one of these plants growing side by side with the typical L. sulphureum from Burma. L. Sargentiæ is a remarkably fine Lily, but one has only to see L. sulphureum towering above it, with five or six of the huge trumpets, their insides like burnished gold, the ivory on the outsides of the perianths flushed with every shade of sunset rose, to realise what a much finer thing it is. To those who grow their Lilies in the garden such sight will come but once in a while, and they may well rest satisfied with L. Sargentiæ, safe in the comforting knowledge that it is more amenable to English winters, especially if kept dry when dormant. *A. Grove, Henley-on-Thames.*

A GLACIER MORAINE.

(*Concluded from page 268.*)

In mounting to the Hut I made very few botanical notes—we had no time to spare; but the abundance of Linaria alpina on the highest rocks was noticeable. Outside the Club-hut were many Iceland Poppies in full flower, which the guide looked upon as *tout-à-fait sauvage*, but which a botanist told me later had been sown by a Swiss gentleman not unknown for his efforts at "improving nature" in the Alps. It is strange he did not at the time of seed-sowing at Saleinaz take the guardian of the Hut into his confidence. However, I do not think he is responsible for the occurrence of anything on the moraine below, which is the subject of this article, and to which we must return.

We were making our way up the stony southern side of the valley, and after passing Oak and Beech Fern, Male and Lady Fern, Geranium sylvaticum, Sedum dasyphyllum, etc., we find the first Rhododendron at about 1,400 metres, together with Campanula barbata. Then in the shade of the steep bank at the side are Achillea macrophylla, Viola biflora, Ranunculus montanus, Alnus viridis, Fragaria vesca, Vaccinium Myrtillus, Phyteuma spicatum, P. betonicæfolium, three kinds of Luzula, including the graceful L. nivea, Holly Fern, Campanula Scheuchzeri, Primula hirsuta, All. (P. viscosa, Vill.) and Chærophyllum Villarsii. On damp rocks a little higher are Bellidastrum, Adenostyles albifrons, Rosa alpina, Saxifraga Aizoon, Mountain Ash, Common Alder, and a few Pinus montana. At about 1,460 metres the first Chrysanthemum alpinum, Arabis alpina, Valeriana tripteris, Soldanella, Bartsia alpina and Carex ferruginea come into view. Now at 1,500 metres, where a broad stretch of screes begins, and the small Larch trees cease on the moraine itself, I took several photographs, with the genial little *berger des chèvres* in the foreground. This boy, still at school in the winter months, is responsible for a large herd of goats, the property of various owners. He takes them up from the main valley each morning and collects them in the evening, often from dangerous places high up on the rocky slopes. He does this for the wage of 60 francs a month, but he loves his goats and his mountains far more than his francs.

A torrent descends from a steep gully on the south, and here are Saxifraga atrorubens, as red as a Stourbridge brick, Gypsophila repens with Silene rupestris, its counterpart on the granite, Campanula pusilla, Selaginella selaginoides and Biscutella lævigata; also Astragalus australis and Pedicularis rostrata carried to this low level by the torrent. I gathered specimens of an Ox-eye Daisy with abnormally small heads, a third of the size they often grow in the Alps, but can make it nothing but Chrysanthemum Leucanthemum.

All the flatter boulders were now for a short distance covered with gravel, mud and small stones, which gave the impression of a recent tremendous flood; but as one of these boulders was six feet high, and far above the stream, perhaps the deposit was left there by a snow avalanche, which had recently melted. Now we come to Parsley Fern and Asplenium, Gymnadenia conopsea, Orchis maculata and Listera ovata by the dozen. Saxifrages also become more evident—S. stellaris, S. aizoides, with more brilliant clumps of the variety atrorubens, S. aspera, S. bryoides, and a form of S. moschata. It is not often that Twayblade is associated with Saxifraga bryoides! More or less in the same company were Campanula glomerata, C. Scheuchzeri, C. rotundifolia (with enormous shallow bells), a few C. barbata, and, of course, pusilla; also Gentiana nivalis, one G. campestris, Hieracium villosum and the pale yellow, viscid H. intybaceum, smelling of musk.

Then I came upon a very small Silver Birch, Parnassia, Gnaphalium sylvaticum, Pyrola secunda, P. media, small plants of Calluna, Coltsfoot, Trifolium pratense, var. nivale, (cream coloured), T. badium, T. alpinum, Salix phyllicifolia, Sempervivum montanum, and S. arachnoideum, Epilobium alsinifolium, E. Fleischeri, Euphrasia salisburgensis, E. minima, Dandelions, Selaginella, Silene inflata, Oak Fern, Lycopodium Selago, Polypodium vulgare and calcareum, Soldanella in fruit, Empetrum nigrum, Vaccinium Vitis Idæa, Thesium alpinum, Myosotis alpestris, Sedum acre, S. atratum, S. dasyphyllum, Erigeron alpinum, Alnus viridis (quite small), Alchemilla alpina, and Viola biflora (still blooming in the shady chink of a rock).

At about 1,600 metres were Saponaria ocymoides, less common on siliceous rock than on limestone, Thymus lanuginosus, Cnicus defloratus, Juniper, Pinguicula vulgaris and alpina, Melampyrum sylvaticum, and shade-grown Hutchinsia alpina, with mature spikes nine inches high. Then Pedicularis rostrata gladdened the scene again, and there were Strawberry runners two feet long, and one plant of the limestone-loving Dryas, still in flower on July 26. I also saw a single plant of Veratrum album and the blue form of Linaria alpina without the orange palate. Silene acaulis, Veronica saxatilis, V. bellidifolia, Ajuga pyramidalis, Chrysanthemum Leucanthemum, Bartsia alpina, Calamintha alpina, Silene inflata var. alpina, Hieracium intybaceum, Valeriana tripteris, Beech Fern, Parsley Fern, Lastræa dilatata, Anthoxanthum odoratum, three Umbellifers and the common Veronica Chamædrys were among the plants observed on the desert of loose rocks and stones level with the snout of the glacier at about 1,700 metres above the sea.

Apart from the large number and extraordinary medley of species observed, including various plants rarely seen on glacier moraines, the Saleinaz valley is remarkable for the low level to which some of these plants descend. The height to which Spruce (Picea excelsa) ascends with the Larch on both sides is also remarkable. Larch climbs also to great altitudes a few miles to the N.E., as, for example, on the cliffs at the head of the valley separating the Clochers d'Arpette from the Pointe de Bovine. *H. Stuart Thompson.*

THE FERNERY.

THE KILLARNEY FERN.
(TRICHOMANES RADICANS.)

In the old days, before the invention of the Wardian case, it was considered a triumph of cultivation to keep this Fern alive, for the reason that it is of such a character that it cannot stand the least drought, either in the soil or in the atmosphere, its fragile, translucent fronds shrivelling at once beyond recovery. It is quite hardy, and though now only to be found as a wild plant in places remote from vandalistic visitors, it was formerly discovered in various places in England, Ireland, and probably elsewhere where mountain streams with their rocky nooks and cascades provided congenial habitats in caves and hollows, where drought was practically never experienced and the direct sunlight never entered. Now, however, when its nature is thoroughly understood, there is, and we say it advisedly, no Fern of such easy culture, and that with the absolute minimum of trouble. In a Wardian case or under a large bell-glass placed near a north window or elsewhere where plenty of light is afforded minus direct sunshine, a beautiful specimen of the Killarney Fern can be grown for practically a life-time if installed as follows. The plant has a creeping rootstock which travels on the surface of the soil and roots as it extends, the fronds springing from the rootstock singly. Our own plan is this. We take a square or, for preference, round, red earthenware pan, four or five inches deep, at the bottom of which we put broken crocks 2 inches deep to form the drainage in the usual fashion. On that we spread a layer of dead moss, Sphagnum for preference, to prevent the soil from choking the drainage, and then fill up the pan with an open compost of lumpy brown fibrous peat, a little leaf-mould, and a liberal dash of coarse silver sand, sufficient to impart a greyish colour. Upon this we spread the creeping rootstocks aforesaid, pegging them down firmly, so that the existing fronds are kept in a natural position. This done we mulch the surface with more compost, so that the rootstocks are partly buried, and then pour water from a jug, washing this mulching well in until the rootstocks are fairly freed from soil again. This, of course, saturates and settles the soil thoroughly. We then place the pan in a shallow saucer large enough to hold it, and when this is installed in the centre of the case or bell-glass, which must be as nearly airtight as possible, we may place it in the permanent position indicated and leave it alone for some months. All that is subsequently necessary is to note that a little water remains in the saucer and to give a fresh supply when it has disappeared, which, under the close conditions involved in the arrangement, may happen two or three times a year. There is no need to wet the fronds, and it is better to leave the plants entirely alone, only lifting the bell-glass or opening the case when the water supply is renewed as aforesaid. It will be found that under such treatment the fronds will remain perfectly evergreen for more than one season, so that there is no period of shabbiness, while the beautiful foliage will gradually spread over the sides of the pan, and in time form a most lovely specimen with, as we have seen, practically no trouble after the first installation, which in itself is very simple. If desired, patches of Hymenophyllum, a small, creeping Fern of like filmy nature and requirements, may be pegged down on the soil before the mulching and washing in are effected, and these, too, will thrive and spread without interfering with the larger plants, whose fronds will be 7 or 8 inches long and of upright growth. These remarks apply to the filmy Ferns generally, which form a large tribe, but many of them are tender exotics which do well in warmed, shady conservatories. Of these tribe Todea superba is the king, and moreover is quite hardy. *Chas. T. Druery.*

MYRTUS LUMA.

Myrtus Luma (Eugenia apiculata) is described by Nicholson in his *Dictionary of Gardening* as a greenhouse subject, yet many noble specimens are found in the open in Ireland, and especially in Co. Wicklow, where the species attains a height of 30 to 40 feet. It flowers luxuriantly and proves quite hardy, whereas M. communis suffers from frost. The illustration in fig. 106 shows a handsome example growing in the Pennick nurseries at Greystones, Co. Wicklow, some 17 miles south from Dublin at an elevation of 400 feet, with keen N.E. exposure. The tree was literally a snowdrift in August and September of this year whilst in flower, and now is richly decorated with the black fruits, which are sweet and edible, and often employed for culinary purposes as a preserve. The Cinnamon bark, which peels off annually like that of the Oriental Plane, is a very handsome feature, and the ultra glossy leafage and the fragrant flowers make it a very delightful subject, meriting more frequent employment than is vouchsafed to it at present. *Pennick-Jones.*

Fig. 106.—Myrtus luma in Messrs. Pennick's nursery, Delgany.

NURSERY NOTE.

LATE AUTUMN FLOWERS AT TAPLOW.

Two years ago, when Messrs. Barr and Sons transferred their nursery stock from Surbiton to Taplow, they had to do this work in one of the driest seasons of recent years. Some pessimists volunteered dismal forebodings, but expiration of leases wait for no firm, and the work of demolition and rehabilitation had to go on. It was inevitable that there should be some losses, but, thanks to careful lifting, proper planting, and good after-cultivation, these were very few, and in the richer, more loamy soil of Taplow the very large stock of herbaceous and bulbous plants for which Messrs. Barr are noted is now vigorous and flourishing. At this season the border flowers which instantly arrest the attention are Michaelmas Daisies, Chrysanthemums and Sunflowers, and of these the first-named is decidedly the most popular with the general garden lover. So far as the exigencies of trade permit Mr. J. W. Barr, who presides over the Taplow branch, endeavours to retain only the best and most distinct of the several types, but he does not look upon "best" and "newest" as being synonymous, for such old varieties as Tradescantii, horizontalis and ericoides are grown in even larger quantity than Milky Way, the newest of the tiny-flowered Starworts, which bears such a profusion of milk-white blooms. These late-flowering varieties of dwarf habit are exceedingly valuable conservatory plants, for if lifted with ordinary care no check ensues, but after being potted the plants continue to flower with even greater profusion than when in the open border. There are many new sorts of what may conveniently be termed the intermediate Michaelmas Daisies, those which have gracefully-arched sprays from 18 to 20 inches in length, studded with star flowers which are neither large nor small. The bed of Aster gracillimus is a feathery mass of white flowers, which at maturity become a delicate pale pink. Rose de la Toussaint is one of the most charming soft pink varieties imaginable, and its narrow, dark-green leaves make it particularly suitable for cut flower purposes. Coombe Fishacre Brightness is of a similar shade of colour, but it is easily distinguished by the broader ray florets and larger leaves. The variety Aster is another charming pink, and Madame Poichawin is a welcome addition to the deep pink shades. Amongst the erect-growing sorts which bear large, rich purple, golden-centred flowers the very best was Mrs. Rayner, which has superseded William Bowman: Madame Gouchard is of a lighter shade of purple, but produces a much larger disk. In another part of the nursery there is a very interesting collection of the large-flowered blue sorts, which are the latest to flower, and here is to be noted Framfieldii, which, at the second week in October, has only a few buds open. Of the new sorts in this section Preziosa promises to be unusually good.

The comparative neglect in many gardens of the early-flowering border Chrysanthemums is inexplicable, for there is no flower which gives such brightness to the outdoor garden so late in the year. Unlike the large-flowered varieties, the newer border blooms are rarely injured by frost, and they continue to flower until the last half of November. The old cottage garden type, which had a few flowers at the end of a long weedy shoot, has been so improved that we have now a race of sturdy, floriferous Chrysanthemums eminently suited for the present-day fashion of colour-massing. Confident that before long these valuable sorts will be estimated at their full value, Messrs. Barr have got together a splendid collection, which make a wonderful show during the late autumn. The sturdy sorts include such as La Somme, Perle Rose, Perle Chatillionaise, Market White, and Verona, which bears plentiful trusses of orange-coloured flowers—an uncommon shade of colour in the outdoor garden, and which at the moment has a companion in Geum Helvetii, a splendid border plant, yielding a second blossoming in the autumn. Of the taller Chrysanthemums, still at their very best, Eden, a variety which grows to a height of about 2 ft. 6 in. and bears masses of graceful pink blooms, and Freedom, a darker shade of the same colour, are especially good, and both harmonise with the rich yellow of the Pompon Gladys Gray.

Many varieties of Anemone japonica, some of them of very dwarf habit, but all free-flowering, illustrate the value of this perennial for late autumn display. In other quarters Salvia nemorosa and Polygonum amplexicaule, with a bordering of Nepeta Mussinii, all of which have been in flower since June, are still gay and attractive; whilst the lofty Rudbeckia Herdstowne and Kniphofias MacOwanii and Lord Roberts diffuse their rich-yellow colourings.

In a special quarter the dainty autumn Crocuses—the true species, C. lævigatus, the very fragrant C. longiflorus, with charming rose-lilac flowers, the rich purple C. nudiflorus, the snow-white C. marathonisius and C. speciosus, large and showy, are alone worth a visit. These might well be termed the flowers of St. Martin's Summer, for the tightly-folded, pointed buds, rising just clear of the soil, give no promise of the glory with which they unfold beneath the warm radiance of the kindly autumn sunshine. Then their true beauty is seen: the petals unfold, the cups open wide, their satiny texture glows in the sun, and surrounds the brilliant yellow stigmas of such as C. longiflorus, or scarlet, as in C. hadriaticus, or the ivory-white organs of C. pulchellus. Alongside these Crocuses are grown the larger-flowered Colchicums, which are so valuable for massing in the borders or for naturalising in the grasslands. These are hardier than the true autumn Croci, and not so shy, and flaunt their purple or crimson at the slightest hint of bursting sunshine, but somehow they do not possess the charm of their more delicate cousins. For autumn massing few bulbous plants have more value than the dainty yellow Sternbergia lutea, which may be said to have the flower of a Crocus delicately poised on a slender Daffodil stalk. *A.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

ODONTOGLOSSUM. —Odontoglossum Rossii, O. Cervantesii, O. aspersum, O. Humeanum and O. Galeottianum are all growing freely, and some have their flower spikes developing. Keep the roots well supplied with water until growth is completed. Sophronitis grandiflora requires a similar treatment, and should be grown at the warm end of the house; but in very cold weather this Orchid will do better in a cool, light position in the intermediate house. Water the roots freely, but not so plentifully as to cause stagnation. These Odontoglossums and the Sophronitis may be repotted immediately after the flowers fade. Directly the flowering stage is passed, Odontoglossum grande, O. Insleayi and O. Schlieperianum should be removed to the cooler and drier part of the house, where they may be rested. A shelf near the top of the wall at the back of a cool, lean-to house is a capital place for these Orchids at all seasons; on the plant stages there is more atmospheric moisture than suits them. Odontoglossum Uro-Skinneri and its variety album may be repotted; but the roots should not be wholly grown in a pot or basket: any that have grown over the edge of the pot may be allowed to remain there. The pot should be rather more than half filled with coarse material for drainage. The compost may consist of lumps of Osmunda-fibre from which the dust, and as much as possible of the mossy material, has been removed. Do not press the pieces of fibre very closely together—only just sufficiently to make the plant firm in the soil. This Odontoglossum needs plenty of rooting space and an abundance of water at all times. It will thrive best in the cooler end of the house. O apterum, better known as O. nebulosum, requires similar treatment.

EPIDENDRUM RADICANS.—Plants of this orange-scarlet Epidendrum that have made strong growths during the past season should now have the young growths cut off in lengths of about 2 feet, so that when re-potted about 18 inches of the stem will be above the level of the soil. A good plan is to put four, five, or six of the strongest stems in a 32-sized pot, tying the stems to tall, neat stakes to keep them in position. Almost any kind of material will do for them to root in, but living Sphagnum-moss should predominate, and when re-potting as many of the aerial roots should be placed inside the pot as possible. It is also advisable while the plants are growing to continue to train the roots down into the compost. By adopting this method last year almost every shoot that was cut down sent up strong flower spikes, which lasted in bloom for several months. This species flowers in a comparatively dwarf state when treated as I have described, making valuable specimens for exhibition and other purposes. Grow the plants in the Cattleya or Mexican house, and elevate them well up to the roof glass, so as to keep them as dwarf as possible. They will need little or no water poured through the compost, as by syringing the growths and aerial roots every day the compost will be kept sufficiently moist.

DENDROBIUM CHRYSOTIS.—This plant has lately been in bloom, and is one of the most handsome of Dendrobiums; the individual flowers somewhat resemble those of D. fimbriatum oculatum, possessing the dark centre and much-fringed lip; but the sepals and petals are longer, and the colour of the flower a lighter yellow. The plant will often send out as many as five to eight flowered racemes from that part of the bulb formed in the previous summer. This is a very difficult plant to cultivate for many years together, and quite different in its habit from the majority of Dendrobiums. If kept in a high temperature it will be constantly growing, and consequently fail to flower. To prevent this it is advisable to grow the plant suspended from the roof of the Cattleya house, choosing a light, airy position. From spring to autumn it should get an abundance of water, after which it should rest moderately dry and cool. The plant will succeed either in pots or in teak-wood baskets, filled with well-drained Osmunda-fibre and Sphagnum-moss cut up moderately small and well mixed together.

DENDROBIUM MACCARTHIÆ is a very difficult plant in cultivation, but after repeated trials and failures I find the plant thrives best when subjected to the same kind of treatment as advised for D. chrysotis.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

PRIMULA.—Double-flowered Primulas should be placed in a warm pit, or on a shelf in a house of dry atmosphere, as near the roof glass as possible. The temperature should be maintained at 50° to 55°, and if the plants are well rooted they should be watered with weak liquid manure, obtained by means of soaking a bag of cow or sheep manure in a tank of water. A little weak soot water will occasionally be found beneficial. This treatment can also be applied to Primula obconica, and P. sinensis, already established in their flowering pots. Plants required for spring flowering, which are already in 60-size pots, should be transferred to pots of 4½-inch or 5-inch size. The compost should consist of three-parts good fibrous loam and one part leaf-mould, coarse sand and decayed cow manure. If the loam is somewhat heavy the addition of some more leaf-mould and sand and a little soot will be found beneficial. When potted the plants should be placed on a shelf or in a pit where a temperature of 45° to 50° is maintained at night. If insect pests are troublesome the plants should be fumigated.

NERINE.—As the plants of Nerine Fothergillii major pass out of flower they should be given liberal supplies of liquid cow or sheep manure, and be grown in a pit or on a warm shelf in a house where the night temperature ranges from 55° to 60°. The plants must be watched that they do not become dry at the root.

FORCING BULBS.—The earliest batch of Roman Hyacinths and Paper White Narcissus should now be sufficiently advanced to be removed from the ash-bed into cold frames. When the growths have been exposed to the light for a few days a batch should be placed in heat in a night temperature of 55°, to be gradually increased as the growth progresses. A little chemical manure, in water, will be found to assist the growth of the flower spikes. The plants should be shaded in order that the flower spikes may elongate as much as possible. The bulbs should not be kept in too great a heat; a gradual increase of temperature up to 65° will be found sufficient. This especially applies to Paper White Narcissus. If placed in too strong a heat the flower spikes will be blind.

THE FLOWER GARDEN.

By EDWARD HARRISS, Gardener to Lady WANTAGE, Lockinge, Berkshire.

REPLANTING HERBACEOUS BORDERS.—As soon as the spring bedding is finished attention should be given to the herbaceous borders. Herbaceous plants need replanting about every third year, and there is no time more favourable than the present to do this work providing the ground is not too wet. The plants should be lifted and placed in a convenient spot whilst the ground is being prepared, care being taken that each plant is correctly and securely labelled so as to prevent any confusion when replanting them. In preparing the ground for herbaceous plants this autumn no doubt many gardeners, remembering the abnormally dry summer, will already have decided to trench deeply and manure their ground. In most cases this is the correct thing to do, as herbaceous plants are deep-rooting, gross-feeding subjects, and unless they are given a fairly rich rooting medium they are bound to suffer during prolonged periods of drought. The planting should be done as soon as the ground is ready, after carefully marking the places for the various subjects. The system of planting in small clumps is much to be preferred to planting in large groups of one subject together. When these pass out of flower unsightly gaps are made which spoils the general effect of the border. Some of the choicer plants, such as Phlox, Anchusa, and Delphinium, should be planted in the most conspicuous positions, and the surface of the border should be broken up by planting a few of the plants of medium height towards the front of the border. In a border of from 15 to 20 feet wide a good sprinkling of Hollyhocks may be planted with good effect from the middle to the back of the border. The positions of all bulbous plants must be carefully noted when planted. The clumps of such plants as Phlox and Asters should be torn asunder with the aid of a fork; the pieces most suitable for replanting are those on the outside of the clump. The planting must be done very firmly, and when all is finished the surface should be covered with an inch or two of manure from a spent Mushroom bed or some similar material. A neat label should be placed on every plant. Any of the surplus plants which are to be used for the production of flowers for cutting should be planted in an out-of-the-way part of the garden.

SENECIO CLIVORUM.—It would be difficult to find a more suitable plant for growing in the "wild garden" or by the margin of a stream or lake than this Chinese Groundsel. Planted in large masses it is a most striking object. If included in the mixed border it should be planted singly, as the plants assume very large proportions. Being a gross-feeding plant it succeeds best in low-lying, swampy places. It is easily raised from seed, and when once established plenty of seedlings will be found growing around the old plants. Senecio Veitchianus is of similar habit to the above, and may be treated in much the same manner.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith Palace, Midlothian.

VINES.—The Grapes in the later vineries are now fully ripe, and it will presumably be the first object to keep them in good condition through the winter. Weather conditions must be carefully studied. On bright, dry days ventilation may be freely admitted at the top of the house, and the atmospheric temperature maintained at 70° in the daytime and 50° at night. If the weather be wet the moisture-laden air should be excluded by closing the ventilators and maintaining sufficient heat in the water-pipes during the day to keep the air dry. If the inside border was well watered before the ripening of the Grapes, and covered with hay or straw to prevent evaporation, it need not be watered again until after the Grapes are cut. As the air in the house is to be kept dry the raising of dust must be avoided, otherwise it will settle on the Grapes. All lateral growths and decaying foliage must be removed. One great secret of successful Grape-growing is the method of confining the use of the vineries to vines only. Many failures can be traced to the part occupation of the Grape-houses by a miscellaneous collection of plants, and it is particularly important that during the months of November and December, when the ripe Grapes must be kept in good condition, no other plants shall be placed in the house where they are hanging.

PINES.—The transferring of Pine plants from the succession pits to the fruiting houses, or the potting of rooted suckers, should be completed this month. Queen Pines, which are expected to fruit early next summer, and have lately been removed to their fruiting quarters, where they are plunged in moist material with a bottom heat of 75°, should now enter on a resting period, and will require no more water until January, when they will be started into growth; the temperature for the present may range from 55° to 60°. The varieties Smooth Cayenne and

Charlotte Rothschild, on which the fruits are now swelling, should have a minimum temperature of 70°, rising with sun-heat to 80° or 85°. From now onwards the Pinery should be kept drier than hitherto; only on very bright days should the plants be sprinkled overhead. On fine days the house should be closed early, after damping the paths and surfaces. A bottom heat of 85° should be maintained, and the watering carefully carried out. The amount of water given should be moderate; a weak guano-solution should be used at each watering for Pines of which the fruit is swelling. Plants in the succession pits should not be encouraged to grow much during the winter. Do not allow the temperature at night to exceed 60°, falling to 55° in severe weather, nor the bottom heat to exceed 75°. Let the glass be covered on cold nights with a thick material, to save using excessive fire heat. The plants will now require much less moisture, both at the roots and in the air. In the mornings of mild days plenty of ventilation should be admitted. Suckers potted in August and early in September should now be well rooted. They should receive plenty of fresh air to prevent their becoming drawn and to keep them at rest. Suckers of Smooth Cayenne and Charlotte Rothschild may be selected as they become large enough, potting and plunging them in bottom heat.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

French Beans.—A sowing of French Beans may be made now, and if the weather is favourable should produce a few dishes about the end of December, when choice vegetables are scarce. There is very little gained by sowing later than this, for with dull, foggy weather in December it is a difficult matter to secure a satisfactory crop. 6-inch pots may be used for this late batch as the soil is not so likely to become sour in these as in larger pots. The compost may consist of two-thirds sandy loam and one-third leaf-soil, and it should be made moderately firm. Place the pots in a temperature of 60°, and grow the plants as near as possible to the roof-glass, which should be kept perfectly clean. The Belfast is a good variety for sowing in pots, the pods being of a thick, fleshy nature. Osborn's Forcing is also a good winter Bean. If Beans were sown a month ago the plants should now be growing freely, and should receive frequent waterings with weak liquid manure. A few small twigs should be placed in each pot to keep the plants in an upright position. Syringe them twice daily if the weather is bright in order to keep them free from red spider and other pests.

Beet.—Late-sown Beet roots should be lifted without delay. This is an important crop, and great care should be exercised while lifting the roots, so that not the slightest scratching or breaking of the skin may take place. A cool, dry shed is the best place to store Beet, and the position should be quite frost-proof, for if once the roots are affected by frost they are of very little value.

Cauliflower and Early Broccoli.—Careful attention should be given to these crops in order to protect the crowns from frost. The usual method of protection by their own foliage is sufficient to ward off a few degrees of frost or to lessen the injury which may be caused by exposure to heavy rains. But as the season advances Broccoli should be carefully lifted with a good ball of soil to each plant and placed in a position where protection can be afforded if a sharp frost sets in. The plants should be lifted when the heads are about the size of an egg. If the work is carefully carried out a supply may be kept up for some time after unprotected crops are spoiled.

Winter Salad.—All available space in cold pits should be filled with winter salad plants. Batavian Endive which has grown to full size in the open garden may be carefully lifted and placed under cover. The moist weather during the past month has rendered these plants unfit to survive a sharp frost; therefore it is necessary to protect them as far as possible. Air should be freely given by tilting the lights in such a way as to keep the plants in a fairly dry condition. If the soil is watered after the plants have been placed in position no further watering will be necessary for a considerable time.

Rhubarb.—Roots intended for forcing may be lifted as soon as the foliage has died down and be left exposed to the weather for ten days before being placed in the forcing pit.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Selection of Varieties (*continued from p. 273*).—Dessert Plums should, if possible, be grown on a wall and trained either in fan-shape or oblique cordons. Culinary varieties should be grown in the open on bush or pyramid trees, and the standard varieties will succeed admirably in most places. The best twelve dessert varieties, in their order of ripening, are as follows:—Denniston's Superb, Early Transparent Gage, De Montfort, Jefferson's, Transparent Gage, McLaughlin, Kirke's, Bryanston, Green Gage, Reine Claude de Bavay, Late Transparent Gage, Coe's Violet and Coe's Golden Drop. For kitchen purposes the best are:—Early Prolific, Rivers', Czar, Belgian Purple, Belle de Louvain, Mallard, Prince Engelbert, Victoria, White Magnum Bonum, Diamond, Monarch, Archduke, Langley, Bullace.

Peaches.—These fruits will grow well only on a wall with a south aspect; and in choosing the best varieties their hardiness and freedom of bearing are taken into consideration. One of the best varieties—Royal George—is omitted from the list here given on account of its susceptibility to mildew. The following are placed in their order of ripening:—Hale's Early, Dr. Hogg, Crimson Galande, Violette Hâtive, Princess of Wales and Gladstone.

Cherries.—The best dessert Cherries require the protection of a wall; but most varieties will grow in the open and do well as standards. The nine varieties given below are all reliable:—Belle d'Orléans, Bigarreau Napoléon, Elton, Governor Wood, May Duke, Noble, Bigarreau de Schreken, Black Tartarian and St. Margarets. The three latter need to be grown against a wall. Morello's is a variety chiefly grown for culinary purposes, and may be planted as a pyramid in the open or fan-trained against a north wall.

Figs.—These fruits succeed only in very favourable positions. The variety Brown Turkey is the best for all purposes.

Grapes.—Vines are seldom cultivated out-of-doors for dessert fruit, but they are occasionally grown over an archway or in some warm corner for the sake of the half-ripened fruit, which makes an excellent wine. The varieties Royal Muscadine and Black Cluster are the most hardy, and are both very prolific.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Winter Lettuces.—This crop is doing well and heads are beginning to form. Ventilation must be liberally provided on bright days, especially where the variety Passion is growing. The plants should be cleared of all decayed leaves whenever necessary.

Old Melon Beds.—The quarters in which Melons or Cucumbers have been grown should now be prepared for spring. The accumulation of humus formed from the manure used renders the plot a very suitable one for Cauliflowers, Cos Lettuces, or Celery. The soil should be removed from the first trench and placed on a ridge parallel to the trench. The manure should then be carted away to the heap of black soil. The bottom of the trench is next loosened with a spade, and the space between the outside path and the second trench dug roughly level. The manure from the second trench is placed on the dug space, and the place between the dug part and the third trench also levelled down, the bottom of the trench first being loosened; and so on to the last trench. One lot of manure out of every three beds will, however, be sufficient for the plot, the other two being carried to the heap of black soil. The plot having been thus prepared the manure is spread over it and the ground dug in the usual way, in readiness for future crops. The soil should yield first-rate produce for two years without any further manuring. The advantage of changing the quarters of the Melons and Cucumbers each year will readily be seen, since their presence for one season renders the ground suitable for the most intensive culture of vegetables.

Nursery Beds.—The first Lettuce to be pricked out should be the variety Little Gott. All the clôches will now have been set in position, three rows to each bed 4 feet 6 inches wide, 1 inch to be left between each clôche, to facilitate tilting during the winter. The method to be adopted in large gardens will be as follows:—Eighteen clôches are removed from an outside row. A plank 12 feet long and 1 foot wide is placed along the position occupied by the first nine clôches removed, and is used for kneeling on while pricking out the middle row, another man working on the second outside row. As the seedlings are very small the pricking out should be done with a small, sharp-pointed dibber, to facilitate the pressing of the soil against the little roots. Should the roots of the seedlings be long the extremity is cut when lifting them from the seed beds. If the seeds have been sown too thickly only a portion of the plants should be lifted, the rest being left in the ground to grow sturdy within the next few days. The pricking out can be done whenever the weather will permit of quick and comfortable work; and on all bright days every available hand should be set to this work. Thirty plants should be assigned to each clôche, arranged in lozenge shape, the apex of the angles to be 1½ inch from the edge of the bell-glass. If there are sufficient clôches available only twenty-four plants of the variety Passion should be placed under a glass, as it is a very strong grower. Where lights are utilised as well as clôches they should be each reserved for one variety. The first batch of Cauliflowers, pricked out this month, are covered with lights; these latter are placed on bricks during the genial weather, to establish a draught and check the already too active growth. The frames and lights for the accommodation of the second batch of Cauliflowers should be prepared at an early date; the frames must be kept covered to keep off moisture.

THE APIARY.

By Chloris.

Preparing Sections for Sale.—I have just seen a splendid lot of section honey placed on the market in a country town in a disgraceful state. In the first instance, no dividers had been used between the sections, so that many sections could only be taken out in twos, and none of the woodwork was clean, besides which they were given to the shopkeeper in the rack covered with dripping brace-combs and exposed to the attacks of wasps and flies. Always use dividers, metal for preference, and then the sections can easily be removed from the rack singly. This done, the woodwork can be cleansed of bracecomb and propolis, but where the sections are closely packed and wedged the quantity of propolis will be reduced to a minimum. A sharp penknife, and a bowl of hot water to wash the hands and knife frequently, will be all that is required to do the work efficiently. In using the pocket-knife, only the point will be necessary. The sections should then be classified; the fruit honey in sections filled to the wood will fetch the best price generally, although many prefer heather honey; then those not quite so evenly full and from a mixed source; afterwards those fairly full, but not completely sealed; while the inferior sealed samples can be used in the house of the bee-keeper or extracted. Each section for sale should be glazed and laced (paper lace, about ⅜ inch deep).

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCTOBER 27—
Nat. Chrys. Soc. Executive and Floral Coms. meet.

TUESDAY, OCTOBER 28—
Southampton Royal Hort. Sh. (2 days).

WEDNESDAY, OCTOBER 29—
Kent County Chrys. Sh. (2 days). Borough of Croydon Chrys. Sh. (2 days). Watford Hort. Soc. Sh.

THURSDAY, OCTOBER 30—
Torquay Fl. Sh. Weston-super-Mare and District Chrys. Sh. in Knightstone Pavilion. Maidenhead Chrys. Fruit and Veg. Sh.

FRIDAY, OCTOBER 31—
Enfield Highway Chrys. Soc. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 47.4°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, October* 22 (6 p.m.); Max. 57°; Min. 44°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, October* 23 (10 a.m.): Bar., 29.7; Temp. 50°; *Weather.*—Slight fog.
PROVINCES.—*Wednesday*, October 22; Max. 52°, Yarmouth. Min., 46°, Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY—
Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, TUESDAY, AND WEDNESDAY—
First portion of the Nursery stock at Veitch's Nurseries, Slough, comprising 23,000 Fruit Trees, Roses, Herbaceous Plants, etc., by Protheroe and Morris, at 12.

MONDAY, WEDNESDAY, AND THURSDAY—
Roses, Bulbs, Lilies, etc., at Stevens' Rooms, 38, King Street, Covent Garden, W.C.

WEDNESDAY—
Trade Sale of Bulbs, Liliums, etc., at 1; Palms and Plants at 3; at Protheroe and Morris's Rooms. Nursery Stock at The Nurseries, Twickenham, by order of Mr. H. E. Fordham, by Protheroe and Morris, at 1.

Peat Plant Food.

The lecture delivered by Professor Bottomley to the members of the Horticultural Club on Tuesday last dealt with a subject of more than passing interest. A report of the lecture will be found on page 295, and we will confine ourselves here to an explanation of the objects which Professor Bottomley is seeking to achieve. Starting from the premiss that a first essential of soil fertility is the existence in the soil of plentiful supplies of nitrogen in an assimilable form, Professor Bottomley set himself the task of discovering whether these supplies might not be provided by encouraging the nitrogen-fixing soil organisms to work faster than they do in ordinary soils. Attempts to produce this result by the simple expedient of adding artificial cultures of nitrogen-fixing bacteria to the soil have not proved successful. Wherefore it would appear that in order to speed up the rate of nitrogen fixation in a soil, it is not only necessary that the nitrogen-fixing organisms should be present, but that a suitable "seed bed" for the growth and increase of these organisms must also be provided. In his search for a medium which shall serve for the rapid multiplication of the nitrogen fixers, Professor Bottomley's attention was directed to peat. As a result of experiments with this material, he appears to have demonstrated beyond dispute that by suitable treatment it may be changed into a manure of remarkable potency. The method employed to produce this "peat manure" is somewhat complicated, and consists in three processes, first in the treatment of the peat with certain bacteria which bring about decomposition in the organic constituents and result in the production of humates; second, the sterilisation of the treated peat; and, third, the inoculation of the sterilised peat with nitrogen-fixing organisms. The figures quoted by the Professor support his claim that nitrogen fixation proceeds at a rapid rate in the treated, sterilised peat, and show that the final product is extremely rich in nitrogen compounds.

The exact nature of the changes set up in the course of these operations is by no means clear, and much more experimental work will be necessary before we can hope to understand the chemistry of the process.

Of more immediate importance, however, is the question whether all the stages of treatment are necessary; for on the answer to this question depends the price at which "peat manure" can be put on the market. We need not discuss at present the further question whether the remarkable manurial effects produced by this preparation are to be attributed solely to the fact that it contains a large amount of nitrogen, or whether they are due also to the liberation in the peat of other plant foods. It will be patent to everyone that if it should prove possible to make peat plant food cheaply, and if further trials confirm the results of those which have been made at Kew and elsewhere, Professor Bottomley's discovery will be of great service to horticulture and agriculture.

The Vegetation of Cocos Island, Costa Rica.

There are several islands and groups of islands bearing the name Cocos. For example, there is one in the Bay of Bengal; there are the Keeling or Cocos Islands, rendered classical by Darwin's visit in 1836; and there is the one under consideration. There is also Dampier's "Island of Cocos" off the Coast of Colombia, now no longer known by that name. Cocos Island, Costa Rica, is not the least interesting of these islands, and it was visited by several of the early mariners, including Wafer, at one time Dampier's first officer (who wrote of the coconut trees), Vancouver, Anson, and others. Later, some seventy years ago, it was visited by H.M.S. *Sulphur*, when engaged upon a scientific expedition, but little was done in collecting botanical specimens. Comparatively recently it has been explored for supposed buried treasures, and in 1905-6 it was visited by an American scientific expedition on its way to the Galapagos, though the results were only lately published.* The *Sulphur* Expedition brought home specimens of about a dozen species of plants, two-thirds of which were described as new. Then there was the expedition of U.S. ship *Albatross* previous to 1892, of which the botanical results were next to nothing, although there are some good views of the vegetation of the island in a general report on the expedition by A. Agassiz. The present paper is practically limited to the collections made by the author, and it is merely the forerunner of a more complete account in preparation by Dr. B. L. Robinson and Professor H. Pittier.

Cocos Island, Costa Rica, lies in about 87° W. longitude and 5° 30′ N. latitude, about 300 miles distant from the mainland, and its area is approximately ten square miles, with a greatest altitude of 2,788 feet. Very little is yet known of the interior and upper part of the island, as the party was unable to get through the dense vegetation above an elevation of 650 feet. Notwithstanding this fact, Mr. Stewart thinks it is likely that the number of species omitted is not large. Out of a total of 77 species of vascular plants twenty are ferns, including the arboreous Alsophila armata, which also inhabits Mexico, the West Indies, and South America.

The vegetation is altogether different from that of the Galapagos. The greater part of the island is covered with dense forests, most of the trees are a hundred feet or more high, and so densely laden with lianes that "even at midday, with the sun shining, the light is almost as diffuse as twilight." The number of kinds of lianes is small, but the quantity is enormous, and they include an Anthurium, a Philodendron, and Tassadia Colubrina—a Brazilian plant. Several of the largest of the lianes were in a sterile condition, and their generic relations were undetermined. The commonest bushes are Eugenia pacifica, Clidemia hirta, C. umbonata, Miconia dodecandra, and Clibadium acuminatum. No peculiar genus was discovered, and the endemic specific element is under 9 per cent., against upwards of 40 per cent. in the Galapagos. The total number of species recorded from the Galapagos is 682, and Mr. Stewart thinks the Cocos flora "very likely contains but little, if at all, over a hundred species." The endemic species are Chloris paniculata, Kyllinga nudiceps, Cecropia Pittieri, Eugenia pacifica, Ossæa macrophylla, Ardisia cuspidata, Bertiera angustifolia, and Clibadium acuminatum. Mr. Stewart holds that the great difference between the floras of Cocos and the Galapagos strongly opposes the subsidence theory put forward by the late Dr. George Baur. He suggests that local conditions probably have determined the character of the two floras, which after all are essentially the same as corresponding parts of Continental America.

* Expedition of the California Academy of Sciences to the Galapagos, 1905-1906. V. Notes on the Botany of Cocos Island. By Alban Stewart. *Proceedings* of the California Academy of Sciences. Fourth Series., vol i., pp. 375-404, plates xxxi. xxxiv.

Importation of Plants to America.—The Board of Agriculture informs us that the importation of plants by post has been prohibited by the Government of the United States of America. The Horticultural Board of the Department of Agriculture, Washington, has ruled that Orchids are included in the definition of nursery stock, and cannot, therefore, be imported without a certificate of freedom from disease.

Royal Agricultural Society of England.—The Royal Agricultural Society of England is proposing to offer prizes for bottled fruits in connection with their show to be held at Shrewsbury next year. The classification has been arranged so as to include competition by both the large grower and the small holder. The fruit must have been grown in the United Kingdom, and the exhibitor must be the grower and bottler and bonâ fide owner of the fruit. Further particulars will he supplied on application to Thomas McRow, secretary, 16, Bedford Square, London, W.C.

The Symons Gold Medal.—The Council of the Royal Meteorological Society have awarded the Symons Gold Medal to Mr. W. H. Dines, F.R.S., in recognition of the valuable work which he has done in connection with meteorological science. The Medal will be presented at the annual meeting of the society on January 21, 1914.

Appointment.—We understand that Mr. J. W. Matthews, who, on leaving Kew in 1895, was appointed to the post of Assistant in the Municipal Gardens, Cape Town, South Africa, has been appointed Curator of the newly founded National Botanic Garden of South Africa which is being established at Kirstenbosch.

Viola gracilis.—Writing in *Le Jardin* (October 5, 1913), M. D. Guihéneuf draws attention as to the merits of this species, particularly as an edging for beds of Tulips, Hyacinths, or similar plants. Though known for upwards of a century, Viola gracilis, which is of Grecian origin, has achieved popularity only in comparatively recent years. Hardy and perennial, it is very easy of cultivation. Owing to the procumbency of its stem, the plant forms a good "carpet," which is covered with brilliant, blue-purple blossoms from springtime on till autumn. Viola gracilis is a poor seeder, but may be increased readily by division.

The Cultivation of Jasmine for Perfumery.—The mode of culture of Jasmine for the purpose of perfumery forms the subject of an interesting article by M. A. Rolet in *Le Jardin* (October 5, 1913). In the neighbourhood of Grasse it is the large-flowered Jasmine, Jasminum grandiflorum, which provides the perfume; but it is grown as a graft on the common Jasmine (J. vulgare), which is more resistant to drought than is the former species. The common Jasmine occurs wild in the Italian Riviera, particularly in the neighbourhood of Nervi, and the French horticulturists import rooted scions at a cost of 20-30 francs the thousand. It is estimated that Grasse receives from Italy some 70,000 plants per annum. Grafting is effected after the stocks have grown for a year in their permanent quarters. It is a delicate operation, requiring considerable skill, and is done in March or April. The stock is cut down to the ground level, and the scion—a well-ripened shoot of J. grandiflorum—is saddle-grafted on the stock. Soil if sufficiently light or, if not, sand is drawn over the graft. Working on a systematic plan four workmen can deal with 2,000 stocks a day. Some time after grafting the plants are watered moderately, care being taken that the little heap over each plant does not form a crust. Twenty days after grafting the covering of earth is drawn away gradually in order to give air to the plants, but it is not till the grafted shoot is 4 or 5 inches long that it is exposed completely. When the plants are from 3 to 4 feet high they are trained to a wire trellis; water is given every week or fortnight, and buds which form on the scion are removed. Late in autumn earth is drawn up about the plants to protect them from frost. The plantation is in full yield in its third or fourth year. The cost of cultivation amounts, according to some estimates, on the average to £32 per acre, and the return may be as much as £160 per acre.

Strike of Potato Diggers.—A number of the Irish Potato diggers employed on the fields in East Lothian came out on strike a week or so ago. They claimed an advance of 2s. per week on their former wages, together with dinner. They had been receiving 24s. per week with bothy accommodation provided. As the work was urgent the demands were conceded by the growers, and the Potato workers resumed work. Some casual workers were also granted the 2s. advance.

Jute-Growing in Mexico.—In a very interesting series of articles in the *Daily Telegraph* on the general condition and prospects of Mexico, a good deal of light is thrown on what the writer calls "the limitless agricultural resources that exist in the Republic," and one of the most striking instances of development occurs in connection with Jute. The Jute of commerce is furnished by the bark of Corchorus capsularis, and perhaps C. olitorium, annual Tiliaceous plants found throughout the hotter parts of India, and extensively cultivated for the sake of the inner fibrous bark. With plants of such wide cultivation in the East, there has been much discussion as to the locality in which they are truly indigenous; but be that as it may, one has always looked to the East, and chiefly to India itself, as the principal source of the Jute of commerce. When one considers the enormous trade now carried on in Jute products, all of which has sprung up within the last fifty or sixty years, the extension and development are as remarkable as was the discovery of its capabilities for textile purposes, which is said to have arisen in the following manner. Besides being used by the Indians in the making of a rough kind of clothing, it was also used in the manufacture of gunny bags, in which sugar, rice, and such-like goods were exported. After arrival in London they were emptied of their contents and the bags were bought up chiefly by Jewish dealers in the East-end of London, who, in the case of the sugar-bags, boiled them for the purpose of extracting what sugar may have remained, and disposed of the bags afterwards to paper-makers for the purpose of pulping. This led to the discovery that a fibre suitable for weaving purposes is present in the bark, and to its consequent importation into Dundee, which has since remained the centre of the Jute trade. The application of this material has extended from rope, cordage, and sack-making to tapestries, carpet-weaving, and even some of the finer fabrics, for some of which uses it is mixed with silk. With these facts in remembrance, it comes with somewhat of a surprise in the articles referred to on Mexican produce that Jute has established itself in that country as a commercial product. As stated in the *Daily Telegraph*, "the industry was originally started in 1892 by two English gentlemen, and for a time was not prosperous. Some years later it was taken over by Lord Cowdray, who rebuilt the mills on a much larger scale and reorganised the business, which then entered on a career of great prosperity. Lord Cowdray, though largely interested as a shareholder, no longer takes an active part in the management. The present output of the factory averages 7,500 Jute sacks yearly, for coffee, sugar, salt, cement, ores, asphalt, etc., and about 20,000 rolls of Jute cloth, besides carpets, rugs, twine, and other similar products. Over 5,000 tons of Jute are worked up annually, all of which is imported from India at a cost varying from about £26 to £28 per ton. The Jute plant grows wild in the tropical parts of Mexico, and two or three years ago an attempt was made, on the initiative of Lord Cowdray, to grow commercial Jute on the Isthmus of Tehuantepec. Luxuriant crops of the fibre were raised, but the experiment so far has not been a success from the commercial point of view, owing to the difficulty of obtaining skilled labour for the processes involved in preparing the Jute for the factory. No doubt in time the obstacle will be overcome, and a new and profitable industry added to the resources of Mexico."

The Preservation of Colour in Plant Preparations.—Various methods are in use for the preservation of the natural colours of plants, but so far as our experience goes none of these methods is uniformly successful. In many cases the colour of leaf and flower may be preserved in plants which have been dried carefully and at not too high temperatures. The method which is commonly employed is to cover the specimen with sawdust (of some hard wood) and to put it in a drying oven. A drawback to the process lies in the fact that the dried specimens are extremely brittle. It is possible that if the dried preparations were transferred to formalin or to the mixture to which reference is about to be made this drawback might be overcome. The newest method, which is advocated by Mr. H. M. Quanjer (*see Bot. Cent. blatt*, No. 39, 1913) consists in placing the specimen in a mixture of 3 grams copper sulphate, 200 c.c.m. of formalin, and 1½ litres of water. The specimen is left for some time—until it is thoroughly penetrated by the solution—and then is transferred to a solution of formalin, presumably of from 2 to 5 per cent. Mr. Quanjer states that this process gives excellent results with pathological specimens. In certain cases the blackening of tissues must be prevented, and this may be effected by a preliminary treatment, for about three minutes, with boiling water.

GUNTON PARK.

(*See Supplementary Illustration.*)

It was with fresh memories of the splendid Apples and Pears exhibited by Col. the Hon. C. Harbord at the R.H.S. Autumn Fruit Show that I visited recently his famous gardens in Norfolk, and made an inspection of the splendid Norfolk Pears. It is interesting to note that whilst the climate of Norfolk does not encourage the heavy crops of fruit to be seen on standard Pears in the more southern counties, the wall trees in the eastern county produce fruits that are unexcelled in any part of the country. When admiring the prize exhibits at the shows it is not unnatural to wonder from how many were those particular examples selected; but whilst at Gunton another thought presented itself: how difficult it would be to make a selection. For there, either on the trees or in the fruit room, were dozens of Pears and Apples quite as good as those shown in London. Mr. Allan, the veteran gardener at Gunton, took charge at Gunton in February, 1867, and of the Pears then growing only two remain—one, a Uvedale's St. Germain, known in France as Belle Angevine, which is still one of the best stewing varieties, was planted in 1743, and still bears goodly crops of fruits. The other tree is a Doyenné d'Eté, a small summer Pear, but still a valuable variety. Alongside a tree of Nouvelle Fulvie, which was bearing its characteristic large, rugged fruits, was noted President Barabe, which Mr. Allan believes to be distinct from Beurré Perran. Marie Louise and d'Uccle, worked on the same tree, both fruit well, and next there is a young tree of Roosevelt, a new variety of splendid appearance and good flavour. Mr. Allan has a high

opinion of the value of Williams's Bon Chrêtien, and considers it to be an indispensable variety. A tree of Doyenné du Comice on the Pear stock was well cropped with magnificent fruits. The heaviest fruit of this variety grown at Gunton was 19½ ounces from a tree on the Quince stock; but the Gunton Pear record is a Pitmaston Duchess, which weighed 29½ ounces. The well-known variety Blickling, a splendid December to January variety, is a seedling raised on the neighbouring estate of Blickling, but it was Mr. Allan who first discovered its real value. A trial is being made of a double-worked tree of Beurré Clairgeau, sent by the late Mr. Charles Smith, of Guernsey, who said that grown in this manner it was equal to the best Jersey Pears. Other walls are covered with splendid trees of such varieties as Beurré Fouqueray, Beurré Dumont, Fondant de Thirriott, Durondeau and Beurré Alexandre Lucas, all bearing full crops of first quality fruits.

Attractive as were the Pears, they paled beside the wall-trees of Cox's Orange Pippin Apple. As thus grown at Gunton the adjective "orange" is fully justified, and no fruit can be more beautiful than these rosy-flushed, orange-skinned Apples. Other fruits on the espalier trees bore more than the customary colour, but these wall fruits were superb. In the kitchen garden bush trees and espaliers of Blenheim Pippin, Ribston Pippin, Duchess of Gloucester, Allington Pippin, Sandringham and many other varieties all evidenced the same skilful cultivation. In the orchard, conveniently near, there were heavy crops of Apples, and of one Pear, Suffolk Orange, a local variety, which, contrary to the general rule, crops well as a standard. This orchard was in existence when Mr. Allan went to Gunton, but it was unprofitable; "it was a difficult matter to keep the leaves on the trees." This failure was attributed to its being a "grass orchard," so the grass was broken up and the orchard undercropped with vegetables, and the result has exceeded expectations; for not only are the orchard trees as healthy and fruitful as could be wished, but the under crops of Brussels Sprouts, Cauliflower, Kale and similar vegetables are also exceedingly profitable. Beyond this old orchard another has recently been planted with bush trees of Cox's Orange Pippin, Beauty of Bath and other varieties which succeed so well. The kitchen garden crops are of the general character, and also include large breadths of Chicory, Dandelion and Cabbage "Incomparable," a variety which has been grown by Mr. Allan and his father for the past sixty years. It is non-bolting and earlier and larger than any other early variety. A goodly plot is devoted to growing the autumn Raspberry "Alexandra," for which Mr. Allan recently received an R.H.S. Award of Merit. Along the sides of one of the kitchen garden walks were many Royal Sovereign Strawberry plants for forcing purposes. With these the Gunton plan has certain advantages. During the autumn a number of self-rooted runners are lifted and planted in nursery rows in a north border, where they winter, and in the spring they are potted into the customary 32-sized pots, at which time all the blind plants are rejected and only fruitful plants retained. All the flower trusses are removed, and this early potting produces stronger crowns, which force better than those grown in the conventional manner.

The Glass Houses.

The average gardener undoubtedly associates Gunton with the Melons which bear its name, and in the house devoted to this fruit there were several plants of Gunton Orange Melon, bearing the typical round fruits about twice as large as a cricket ball. In the writer's opinion this is one of the best of the high-flavoured varieties for frame culture. Gunton Scarlet is another variety raised by Mr. Allan, and one that has won many prizes for exhibitors. This well-known Melon does not flower at so early an age as the Gunton Orange, but it is of excellent flavour and appearance. The next house is devoted to Brown Turkey Figs, and just now they are ripening their second crops. In the late vineries large bunches of splendidly-finished Grapes were hanging—Golden Muscats, Shoeblack, Melton Constable and Gros Colman. The Muscat of Alexandria is over thirty years old, and worked on a Foster's Seedling stock, has filled a large house, and continues to bear excellent crops. Peaches were over, but the trees of these and of Nectarines all bore evidence of successful culture.

Carnations are in great demand as cut flowers, and to ensure a plentiful supply a large ridge and furrow house was recently built to Mr. Allan's design, a desirable feature being the furrows 6 feet 6 inches high, so that visitors may walk through the house in comfort. The beds are raised at a convenient height from the ground, and are planted with the best varieties, which make a delightful show. Other houses contain Zonal Pelargoniums—sturdy plants in 6-inch pots for winter flowering—Cyclamen, Begonia Mrs. Heal, B. L'Ideal and B. Gloire de Lorraine, and a good collection of Cypripediums, chief amongst them being C. Spicerianum, C. insigne var. Sanderæ, C. Maulei, C. Sedenii, and C. violacea punctata. Many frames are planted with Violets, and of these it is interesting to remember that the double white Comte de Brazza shown from Gunton was awarded a First-class Certificate by the R.H.S. The importance of growing frame Violets in as cool conditions as possible is fully appreciated, for during the second week in October the lights had not yet been placed on the frames, and the plants were the sturdy, single-crowned type which produce the finest blooms.

The Flower Garden.

Few country houses can boast of a more pleasant spot than the flower garden at Gunton. Next to the house there is a broad gravel terrace—an unpretentious, yet dignified framing, and away on the entrance side there is a spacious lawn with specimen trees and shrubs in the background, and a pair of Douglas Firs, planted by the late King Edward and Queen Alexandra, through which may be caught a glimpse of the chapel. A low retaining wall of charming design divides the large, sloping, terraced flower garden from the gravel terrace. The retaining wall afforded the opportunity for planting Roses and Honeysuckles, Clematises and Lemon-scented Verbenas, and similar plants which bear a profusion of bloom or fragrant foliage. The flower-beds are laid out in no set design—this spacious greensward, sloping gently away from the house, is no place for formal gardening—but there they are, plenty of them, in just the correct places, and with ample surroundings of the rich green turf which so well sets off the flowering plants, whether they be masses of the rich red Paul Crampel Pelargonium, or the vivid scarlet Salvia splendens, which has made such a blaze of colour this mild autumn, or the beds of Perpetual and of Tea Roses, which still bloom as though it were as yet only July. But the winter, when all these plants will be either killed by the frost or be bare of leaves, has been thought of by the cultivator, and here and there the centre of a bed is planted with a clean-stemmed, round-headed golden or silvery Holly, which will then relieve the levelness and, as now, furnish grateful colouring. Other beds have centres of pillar Roses, and at the corners of the large grass plots stand terra-cotta vases by Groggon of Lambeth, bearing the date of 1827. On these the ornamental figures in Italian style are of beautiful execution. Away beyond this fascinating flower garden there is a goodly herbaceous border, which is being made still broader so as to have bold colour masses, and to the right the "Harbord Oak," interesting by reason of its short, sturdy trunk and low, round head, as well as having been planted by John Harbord in 1670, occupies a commanding position on a little knoll. From this ancestral tree the way lies through a little avenue of tall, clean-stemmed Spanish Chestnuts to the Lily garden, which is not really a Lily garden, but a charming secluded spot wherein irregular beds, shrubs and perennial plants are pleasantly associated. Varieties of Hibiscus syriacus and Caryopteris Mastacanthus were flowering freely, being admirable foils to the brilliant inflorescences of Tritoma grandis, and of T. John Benary. Then is reached the Bamboo grove, where a magnificent Spanish Chestnut towers over the tall, graceful columns of Arundinaria japonica, A. princeps, A. nitida, Phyllostachys nigra, and other bamboos, which have grown so luxuriantly as to form an almost impenetrable jungle. A turn to the right again brings the house into view, and also discloses a splendid, upright Roman Cypress (Cupressus sempervirens), studded with cones, and a dark sombre-foliaged English Yew. On this side of the house there is a sunken tennis ground, enclosed by low Yew hedges pruned bevel-wise, 4 feet through.

Tho seemingly inevitable fire occurred in 1882, when the greater part of the mansion was gutted. Most of it was rebuilt, but the wing nearest the flower garden was not included in the scheme of restoration, and here the interior walls and débris were cleared away and the space treated as a forecourt. The outer walls are now quite clothed with Virginia Creeper, Magnolia grandiflora, Wistarias, and Roses, and the forecourt planted with specimen Bays, Hollies, and Phillyræas. Outside this uncommon feature a broad, paved verandah commands magnificent views of the Coronation Avenue, and across a portion of the 1,000-acre park to the lakes, where luxuriant trees sweep the banks and herons build their nests. There in the park there are broad stretches of grassland, and the gentle-eyed deer graze close up to the garden confines, but on the other side there are splendid woodlands, with many fine Oaks and Beeches and "Sweet Briar Lane," a ride cut through the Beech woods from Gunton to the Cromer road, a distance of two and a half miles. *A. B. C.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Government Seed Control.—Your correspondent, Mr. E. Molyneux (see p. 258), had better first have acquainted himself with the issue sought, rather than have presented an argument so amusingly shallow. On his own count he proclaims himself no less ignorant of the agricultural seed trade than of the issue in question. He harps on grain. Who has said, or even implied, that the farmer could not distinguish between a good and bad sample? Any ordinarily intelligent youth could easily accomplish that after a few hours' demonstration. Besides, grain changes hands probably oftener between farmer and farmer than between seedsman and farmer. His "etc." is manifestly an artifice for assumed knowledge of what actually and almost wholly makes up the agricultural seed business. The farmer, he asserts, can tell (and on the spot, he infers) the impurities, country of origin, and germinating value of a sample of seed! It is quite plain "E. M." is cruising about in unknown waters. For what purpose does he think the foreign control stations have existed all these years? Why has the Royal Agricultural Society its consulting botanist, and are his reports from year to year just so many displays of pedantry to justify the retention of his office? Does he think the agricultural seed firms of this country—not one, nor two, but a score and more—would have expended so much money in fitting out extensive and expensive "labs." and employing qualified assistants just for the fun of the thing? The commonsense reply to any one of these pregnant questions gives the retort direct to such extraordinary assumptions as your correspondent has put on record. *Agricultural Seedsman.*

Silver-Leaf Disease.—The disease known as "Silver-leaf Disease" has been known for a considerable period among certain varieties of Plums, notably Victoria; but it has lately been found to exist also on Apple and Currant trees. No reference appears to be made to this disease in any work on fruit trees, and from many articles on the Plum and its culture all mention of it is absent. In orchards where the Victoria Plum is extensively grown the damage annually wrought by the disease is considerable. In an orchard not far from here as many as two hundred trees of this variety alone had to be replaced in one season. This year the disease is more rife than ever, owing, no doubt, to the excess of rain in 1912, as much as 46 inches being registered here, whereas the average for the last decade is 36 inches. During the month of August—an important period in the maturing of the season's growth and preparation for the subsequent fruit crops—only three dry days were registered, and in the last three months of the year the number of wet days was far in excess of dry ones. This excess of moisture at the roots and in the atmosphere was extremely inimical to the proper ripening of the wood—an important factor in the production of fruit. There is little doubt that the increase in the prevalence of Silver-leaf disease this year is largely owing to these adverse conditions, as it has been observed that the disease is always more to be found after a particularly wet season. The discovery of the disease on Apple and Currant trees is a new and disturbing element in the case, and it will not be surprising to find before long that Silver-leaf is included among scheduled and notifiable diseases. With regard to methods of extermination, attempts are frequently made to cope with the disease, apart from cutting away the affected parts, which is rather a means of preventing the spread of the disease than an actual cure. It is probable that the disease is a deeply-seated one, and affects the whole constitution of the tree. Branch pruning is, therefore, only a partial aid. Several methods have been tried, among others boring holes in the trunks and branches and charging the trees with sulphate of iron or sulphur, but hitherto without effect. A strong solution of Bordeaux mixture and sulphate of iron, used as a spray, has also been found insufficient. In the orchard here there are two trees of the same variety (Norfolk Beauty, which were grafted six years ago on sixteen-year-old Warner's King) both attacked with Silver-leaf, and it was decided to make an experiment with a view to effecting a cure. The experiment was made in March of this year. It may be remarked in passing that before these two trees were attacked no trace of the disease had before appeared in the orchard, and there were no Plum trees growing within a hundred yards of the affected ones. The method adopted was as follows. A trench was dug stretching for six feet from the base of the stem, eight inches deep. As the digging proceeded, 6lb. of sulphate of iron (in the crystal form) was scattered into the trench and among the roots. The new growth, when it appeared, was carefully observed. The first leaves still showed traces of the disease, but as time went on the fresh foliage assumed a dense green colour, and soon no trace of Silver-leaf could be found. The leading shoots have now made a remarkable amount of growth, and the tree is more vigorous than any of the same variety, of which there are several close by. With regard to the second tree affected by the disease, this was left untreated for the present, in order that comparison might be made between the two. Next year the tree already treated will be left untouched and the one still suffering from Silver-leaf disease will be treated in a similar manner to the first. It will be interesting to see whether the one first treated will continue in health. *E. Molyneux.*

The Recent Fruit Show (see pp. 259 and 280).—I should not have written again only that *Your Reporter* says (see p. 280) that the judges were unanimous in awarding the 2nd prize. Mr. Allan told me they left the decision to Mr. Vert. In speaking to Mr. Vert afterwards I was quite satisfied with what he told me, but my contention was that the 1st prize collection was not so far ahead to merit special mention. It is usual, when the 2nd prize lot is good, to mention it; the award of 1st prize speaks for itself. *J. Hill.*

Gas Tar and Mealy Bug.—Possibly my experience of gas tar as a cure for mealy bug may interest Mr. Shakelton (see p. 279), as I am firmly convinced by practical experience that tar is by far the best and cheapest means of eradication for a vinery infested with this pest. When an improver under a gardener of the old school I saw some vines which had been painted each year with a mixture of three parts clay (with the addition of a little water) and one part gas tar, thoroughly mixed and boiled together. Those who adopt this method have to exercise great care that the mixture does not catch fire while boiling, and it should be kept well stirred. The mixture is applied cold with a paint brush, and well rubbed into all the old wood, including the spurs; but the buds are not touched. During the five years I worked under this gardener no mealy bug was seen, and good crops of Grapes were produced; but I was told that previous to the adoption of this method of treatment the vines had been quite white with the pest. Six years ago, on taking my first place as head in North Devon, I found a quantity of mealy bug in each of the three vineries there. I applied the same treatment to them, with excellent results; there was soon but little trace of the pest, and the Grapes did not suffer in any way. On taking charge of the gardens here last autumn I found the Grapes quite white with mealy bug; they had to be washed before being sent to table. The vines were in a weak state, and had (until the season of 1912) suffered badly from mildew. I cleaned off all the loose bark, especially round the spurs, and scrubbed the rods with a scrubbing brush, using a mixture of soft soap (2 ozs.) and sulphur (2 ozs.) in a gallon of water. The vinery was then well scrubbed with soft soap and water, and afterwards syringed with paraffin wherever it could be used with safety. The walls were whitewashed with hot lime, and the rods painted with the gas tar mixture mentioned above, only the eyes and the last season's wood being left. The tar was perfectly fresh, having been obtained from the gas-works only the day before being used, and the mixture was put on in a stiff paste. The vines looked very black—in fact, they do still; but the crops have suffered no harm. My employer told me a few days ago that they had not had such good Grapes for twenty years. No bugs whatever were seen in the vinery until July; and the number which have been found up to date could be counted on the fingers. I am in great hopes that similar treatment this winter will completely clear mealy bug from the vines here. I do not advise scraping the rods down to the green, sappy wood; but I have never found that any deleterious effects have followed the application of the tar to places where this has inadvertently been done. I consider the gas-tar method both cheaper and safer than fumigation with cyanide of sodium. *F. A. Edwards, Upton Gardens, Alresford.*

—— I have proved that it is quite safe to use the mixture recommended by Mr. Whytock on p. 219 for the destruction of mealy bug on vines, or an even stronger one; but it is important that the compound be properly mixed. It should be started in very small quantities, and the ingredients well rubbed together. I have cleaned both vines and Figs with the mixture without any unfavourable results to the trees. The vines should not be scraped, but the rough bark may be rubbed off with the hand, and the stems then washed with a strong solution of Gishurst Compound. This compound should be used three times before the tar and clay are applied. The latter must be well worked in with a stiff paint brush, and kept away from the eyes and the young wood. *A. B. Wadds.*

Fig. 107.—Hippeastrums: showing the accelerated growth induced by bacterised peat. (See "Horticultural Club," p. 295.)

Primula Poisoning (see p. 279).—For the past three years I have handled this Primula, and have found that if after touching the plants I have put my hands to my face it has caused the skin to break out and become very painful. This year I have grown a small number of plants of P. malacoides, which I have found to have exactly the same effect. On the contrary, I can handle P. obconica with impunity. With regard to P. sinensis and P. malacoides, I notice that they do not seem to cause any ill-effects until they are established in their flowering pots. *E. Dennis, Battle, Sussex.*

Apple Lane's Prince Albert.—While agreeing with *Southern Grower's* statement that the variety Lane's Prince Albert is almost immune from scab in most places, I cannot say that it is the case here, on our heavy, cold soil. The variety has also the disadvantage of requiring more stimulant than any other Apple in the orchard to keep it in good health; when the trees are in full vigour the fruit is certainly cleaner than when the growth is weak and puny. No Apple that I know loses the chlorophyll of the leaves so quickly as this variety, especially here; and it needs constant attention and continual aids to help it to regain proper colour and vigour. In soil of a lighter character the growth is altogether different. *E. Molyneux, Bishop's Waltham, Hants.*

SOCIETIES.

ROYAL HORTICULTURAL.

October 21.—There was a good attendance at the fortnightly meeting and exhibition of this society at Vincent Square, Westminster, on Tuesday last. The special features of the show were the Gold Medal collections of Apples and of vegetables, the numerous exhibits of Chrysanthemums, Roses cut from out-of-doors, and greenhouse Carnations.

The exhibits of Orchids were more numerous than of late, and the Orchid Committee recommended six Awards of Merit and seven Medals to novelties and collections.

The Floral Committee recommended four Awards of Merit and nineteen Medals to novelties and collections of shrubs and flowers.

The Fruit and Vegetable Committee recommended that two Gold and two other Medals be awarded to collections of Fruit and Vegetables. The Council confirmed the provisional Award of Merit made at the last meeting to Apple S. T. Wright.

At the three o'clock meeting of Fellows in the Lecture Room, the Rev. Prof. Henslow delivered a lecture on "The Evolution of Plants."

Floral Committee.

Present: H. B. May, Esq., in the chair; Messrs. John Green, C. T. Druery, E. A. Bowles, R. Hooper Pearson, R. C. Notcutt, Chas. E. Pearson, E. H. Jenkins, George Gordon, Ed. Mawley, G. Reuthe, Arthur Turner, H. J. Jones, Wm. James, Wm. Bain, W. G. Baker, Chas. E. Shea, Chas. Dixon, John Dickson, C. R. Fielder, J. W. Moorman, J. T. Bennett-Poë, J. Jennings, Wm. Howe, J. F. McLeod, Thos. Stevenson and W. J. Bean.

Mr. H. J. Jones, Lewisham, filled a length of tabling with a collection of Chrysanthemum blooms of exceptional quality, and tall stands contained immense blooms of such varieties as Bob Pulling, Mrs. J. C. Kelly, Mrs. J. Surrey and Mrs. W. R. Smith. Along the front of this fine exhibit there were vases of such single-flowered varieties as Sylvia Slade, Vick and Arthur, and many market varieties. (Silver-gilt Banksian Medal.)

Messrs. W. Wells and Co., Merstham, Surrey, also had many blooms of border Chrysanthemums as well as very large blooms of Mrs. R. Luxford, Queen Mary, Marie Loomes and Mrs. David Lyne which evidenced high cultural skill. (Silver Flora Medal.)

Messrs. John Peed and Son, West Norwood, showed Chrysanthemums, of which the large-flowered sorts and such singles as Geoffrey Peer and Charles Kingsley (yellows), Mary Duncan (orange buff) and Ceddie Mason (crimson) are a selection. (Silver Banksian Medal.)

The Wargrave Hardy Plant Farm, Liverpool Street, London, staged a collection of border Chrysanthemums in a great variety of colours, and a little group of Alpines such as Linaria alpina, Mazus rugosus, Polygonum capitatum and Sedum dasyphyllum. (Silver Banksian Medal.)

Messrs. Godfrey and Son, Exmouth, Devon, arranged various cut blooms of Chrysanthemums, amongst which such singles as Captivation (yellow), Miss Gidley and Constance (good whites) and Attraction (Indian Red) were especially noteworthy. (Bronze Banksian Medal.)

The Misses Price and Fyfe, Grove Park Nursery, Lee, also showed an attractive collection of Chrysanthemums. Amongst the single-flowered varieties, Rose o' the River, of old rose colour, was especially charming.

Messrs. H. B. May and Sons, Upper Edmonton, set up a collection of decorative varieties of Chrysanthemums growing in relatively small pots. In addition to these Chrysanthemums there was a valuable collection of greenhouse plants—Ericas, Primulas, Begonias, Ferns, and so forth. (Silver Banksian Medal.)

Mr. L. R. Russell, Richmond, filled the end of the hall with an enormous collection of hardy Bamboos, Ivies, and various flowering, berried and foliage shrubs. Ceanothuses of such species and varieties as C. azureus, C. a. grandiflorus, C. Gloire de Versailles and many varieties of Clematis were very freely flowered, and a specimen of Hamamelis arborea bore its curious yellow flowers. (Silver-gilt Banksian Medal.)

Messrs. J. Cheal and Sons, Crawley, Sussex, showed topiary examples and many bush plants of useful conifers on a floor space, whilst a length of tabling was occupied with flowering sprays of Veronica Andersonii, V. La Séduisante, Buddleia Veitchianus and various Ceanothuses arranged with brilliant examples of autumn foliage. (Silver Flora Medal.)

Messrs. Dickson and Robinson, Manchester, contributed Michaelmas Daisies, Chrysanthemums and Dahlias. This was the most attractively arranged group in the hall; the disposition of the stands of exceedingly good Chrysanthemums and Dahlias amongst the Starworts was admirable. (Silver Flora Medal.)

Messrs. Carter, Page and Co., London Wall, London, displayed a grand collection of Cactus, Collerette and decorative Dahlias. (Silver Flora Medal.)

Mr. J. B. Riding, Chingford, exhibited excellent Dahlias, amongst which we noted such desirable Collerette varieties as Général de Louis, Mme. Perrier, Giant of Lyons and Dora Fisher. (Silver Banksian Medal.)

Mr. W. A. Manda, St. Albans, also showed Dahlias.

Messrs. T. S. Ware, Ltd., Feltham, contributed an excellent collection of Dahlias, in which prominence was given to the decorative type; herbaceous and rockery plants. Amongst the herbaceous plants were Schizostylis coccinea, the orange-coloured Geum Heldreichii splendens and Potentilla Miss Willmott. (Silver Banksian Medal.)

Messrs. Barr and Sons, King Street, Covent Garden, arranged a small group of Lilium sulphureum, Gladiolus Afterglow, G. Peace, G. Dawn and Chrysanthemums. (Bronze Banksian Medal.)

Messrs. Wm. Cutbush and Son, Highgate, arranged large quantities of Michaelmas Daisies with a tall stand of Polygonum amplexicaule, various Delphiniums and many exceedingly good Carnations. In another place Messrs. Cutbush filled a length of tabling with Roses, Coleus, Hydrangeas and other flowering shrubs. (Silver Flora Medal.)

Mr. George Prince, Longworth, Oxford, showed many Roses which were excellent for the time of the year. Vases of Queen Mab, Old Gold, Gustav Grünerwald, La Tosca, Gottfried Keller and Mrs. J. Laing were charming. (Silver Banksian Medal.)

The Rev. J. H. Pemberton, Havering, Essex, exhibited his new varieties, Moonlight and Danaë.

Messrs. Stuart Low and Co., Bush Hill Park, Enfield, had an exceptionally good collection of Carnations. Such varieties as Gorgeous (bright glowing cerise), Satin Robe (pink, which is said to be superior to Windsor), Salmon King (a free bloomer), Mikado, and Sunstar are the names of a few from this grand exhibit. (Silver Flora Medal.)

Messrs. Attwood Bros., Haywards Heath, Sussex, arranged a very bright collection of cut Carnations, special prominence being given to the very fragrant variety Mary Attwood, and the flaked Mrs. T. M. Crook. (Silver Banksian Medal.)

Messrs. J. Veitch and Sons, Chelsea, again showed excellent plants of such winter-flowering Begonias as Elatior, Mrs. Heal, and Optima, and batches of Exacum macranthum, Lindenbergia grandiflora, and many sturdy free-flowering Chrysanthemums. (Silver Flora Medal.)

Messrs. Wills and Segar, Onslow Crescent, South Kensington, displayed plants of Erica nivalis, Crotons, Palms, and Hydrangeas, suitable for house decoration. (Bronze Banksian Medal.)

Mr. G. Reuthe, Fox Hill Nursery, Keston, Kent, included a good collection of Nerines and some charming Crocuses in his exhibit of shrubs and border flowers.

Mr. Clarence Elliott, Six Hills Nursery, built a low rockery with Alpines.

Messrs. Whiteleog and Page, Chislehurst, also showed rockery plants, and added border flowers and plants of Fuchsia gracilis.

Mr. A. H. Cole, Swanley, exhibited trusses of brightly coloured zonal Pelargoniums.

Mr. J. J. Kettle, Corfe Mullen, Dorset, showed 30 different varieties of Violets in liberal bunches. These showed an interesting diversity of colour, and such singles as Czar and Princess of Wales were of an intense shade of blue. The doubles included de Parme, Belle de Chatenay, Patrie France, Marie Louise, Toulouse Parme, and Mrs. J. J. Kettle. The last-named is a pale mauve-coloured variety raised at Corfe Mullen, and bears large, well-formed flowers.

Awards of Merit.

Carnation Cinderella.—This is a seedling perpetual flowering variety, notable for its quaint and bright colouring. It has a silvery mauve-blue ground, heavily splashed with carmine-rose, as if the occasional splashes of red in the slaty mauves of the Mikado type had developed until they covered from one-third to one-half of the flower. The calyx is good, the flower large, of fine form, not too full, with smooth petal edge. The flowers also possess a slight fragrance. (Mr. Geo. Fairbairn, Botcherby, Carlisle.)

Chrysanthemum Mrs. R. C. Pulling.—This is an incurved Japanese variety producing a globular flower of great substance and depth, with broad, curled incurving florets. The colour is a bright silvery-yellow, lightly tinged with green. The flowers shown were about 7 inches in diameter, and the variety is credited with being one of the easiest of growers. (Messrs. H. J. Jones, Ltd.)

Chrysanthemum William Vert.—This variety belongs to the large-flowered, reflexed, Japanese section. The florets are a rich, velvety maroon, with light bronze reverse, but the reverse is scarcely seen on account of the smoothness and flatness of the petals. A very handsome piece of colour, with flowers of the flat-headed rather than globular type, and nearly 9 inches in diameter. (Messrs. Wells.)

Chrysanthemum Amy Poulton.—A member of the same section of large-flowered, reflexed Japanese. This flower differs from the last in the high centre and longer and more twisted florets, which give it a greater apparent depth and a more globular shape. The colour is a light creamy-pink, with a touch of buff at the centre, a shade that is especially pleasing in artificial light. (Mr. H. Poulton, Ware.)

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair; Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, W. Bolton, S. W. Flory, W. H. White, A. Dye, H. G. Alexander, J. E. Shill, W. P. Bound, G. Hunter, W. H. Hatcher, J. Cypher, J. Charlesworth, W. Cobb, C. H. Curtis, A. McBean, T. Armstrong, F. J. Hanbury, F. M. Ogilvie, J. Wilson Potter, R. G. Thwaites, R. A. Rolfe, C. J. Lucas, Sir J. Colman, Bart., and Sir Harry J. Veitch.

A choice selection of splendidly grown specimens sent by Lieut.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), secured a Silver Banksian Medal. The best in the group were the beautiful Cypripedium Muriel, which secured an Award at the November Show last year; a magnificent form of Oncidium varicosum; and the beautiful Odontoglossum Vivien (for both of which see Awards); the stately Cattleya Fabia (Holford's Variety), the largest and darkest form; Lælio-Cattleya Neleus (C. Iris × L.-C. Ophir), a very delicately-tinted flower; Cypripedium Actæus Bianca, and the true white C. Boltonii, Lælio-Cattleya luminosa and others.

Messrs. Armstrong and Brown, Orchidhurst, Tunbridge Wells, were awarded a Silver Flora Medal for a group, principally of new and rare hybrids, the favourite yellow-petalled class being well represented. There were also several fine forms of Lælio-Cattleya Thyone, all different in tint; Cattleya Acis (Maronii × aurea); a pretty, bronzy-yellow hybrid between Cattleya Armstrongæ and C. aurea; the superb C. Freya Mrs. Frederick Sassoon, a grand flower with deep purple, gold-veined lip; Cypripedium Gaston Bultel, C. Baron Schröder with fine flowers, and other Cypripediums; several plants of a dark purple hybrid between Odontoglossum Edwardii and O. illustrissimum and many other hybrids. Among other interesting plants were Bulbophyllum grandiflorum, the typical Cirrhopetalum appendiculatum, and a superb form of that highest development of the section C. Fascinator.

W. R. Lee, Esq., Plumpton Hall, Heywood, Lancashire (gr. Mr. Branch), was awarded a Silver Banksian Medal for a group of Cypri-

pediums with the noble First-class Certificate variety of Lælio-Cattleya St. Gothard. The very fine Cypripedium Queen Alexandra (see Awards) was by far the best, and the very large and beautiful C. Rosettii Leeanum was a prominent feature.

Messrs. Cypher and Sons, Cheltenham, staged an effective group, for which a Silver Banksian Medal was voted. It included some showy Cattleya Fabia, C. labiata, C. Mantinii, C. Pcetersiana; specially fine dark forms of C. Bowringiana, Lælio-Cattleya Mrs. Aston and other Lælio-Cattleyas; a selection of Cypripediums; varieties of Dendrobium Phalænopsis, Masdevallia angulata, M. Calura, a fine specimen of Phaio-Cymbidium Chardwarense, with its showy, yellow flowers with brownish-red markings on the lip, and various pretty species not now often seen.

Messrs. Charlesworth and Co., Haywards Heath, staged a group of well-grown and profusely-flowered specimens, the new Sophro-Lælio-Cattleya Laconia securing an Award of Merit. Lælio-Cattleya Satum (L.-C. Clive × C. Dowiana Rosita) was a fine lilac-tinted flower, with dark maroon-purple tip; Cattleya Suavior and other Cattleyas were shown, and varieties of Odontoglossum Dora, the singular Polycycnis muscifera, with its tall spike of many insect-like flowers; Oncidium Forbesii Glebe variety, a very large form with pretty yellow marking on the chestnut-brown segments; good Cattleya Fabia, the variety alba having pure-white sepals and petals; and good specimens of Angræcum Chailluanum and Trichopilia fragrans.

Messrs. Hassall and Co., Southgate, were awarded a Silver Banksian Medal for a group of fine forms of Cattleya labiata, C. Fabia, C. Hardyana, C. aurea, C. Minucia, C. Lord Rothschild, C. St. Gilles and the new and pretty C. Moira (Fabia × Mantinii), of fine shape and coloured like a good C. Fabia.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Banksian Medal for a group of Cattleyas, both hybrids and species, with which were the singular Sievekingia peruviana, Dendrobium Cœlogyne, Catasetum imperiale, plants of Pleione lagenaria, Cœlogyne fuliginosa maxima much longer than the type, having a fine blackish, fringed lip.

Messrs. Stuart Low and Co., Enfield, were awarded a Silver Banksian Medal for an effective group in which Oncidium varicosum, a selection of Dendrobium Phalænopsis, including a plant of the white form; good Cattleya Mantinii, C. labiata, C. Fabia and Vanda cœrulea were the principal features.

R. G. Thwaites, Esq., Chessington, Streatham, showed a selection of hybrids, among which were the new Odontoglossum Meredithæ (Rossii rubescens × venustulum), rose-tinted, with dark spotting and a ruby-red blotch in front of the crest of the lip. Also Odontioda Cupid, O. Leeana, O. Bradshawiæ, etc.

William Bolton, Esq., Warrington, showed Cattleya Surprise (Trianæ × granulosa), a pretty hybrid.

C. J. Phillips, Esq., The Glebe, Sevenoaks, sent Lælio-Cattleya The Hon. Mrs. Astor "Glebe Variety," a good white flower with rosy-crimson colour on the lip, and the new Cattleya Graniris (see Awards).

His Grace the Duke of Marlborough, Blenheim, Woodstock (gr. Mr. Hunter), showed Cypripedium Norah (Fairrieanum × Standard), with white dorsal sepal marked with purple lines and veining.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), sent Lælio-Cattleya Captain Starkie Westfield variety (L.-C. Aphrodite × C. labiata), a good flower, with the lip lined and tinged with reddish purple; and Cattleya labiata The Empress, white with a slight pink tint on the lip.

Mrs. Bischoffsheim, The Warren House, Stanmore (Orchid-grower, Mr. Jones), showed Cattleya labiata Warren House variety, a large flower of a light rose tint, the broad labellum showing much white in the centre, the front coloured rose-purple. The spike bore four flowers.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), sent two plants of his pale yellow Odontoglossum grande Pittianum, one with ten and the other with four flowers on a spike. Also for registering, Lælio-Cattleya Amecia (L.-C. Wellsiana × C. Mantinii) and Cattleya Thela (Mrs. J. W. Whiteley × Hardyana).

H. S. Goodson, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), showed a selection of rare and pretty hybrids, which included Cattleya Maggie Raphael Goodson's variety; Sophro-Lælio-Cattleya Niobe Goodson's variety; S.-L.-C. Sibyl, of very rich colour; Sophro-Cattleya eximia, S.-C. Rappartiana and other Sophro-Cattleyas.

Sir Trevor Lawrence, Bart., K.C.V.O. (gr. Mr. W. H. White), showed Cattleya formosa albescens (Trianæ alba × C. Hardyana alba), a very attractive, light-coloured flower.

Awards of Merit.

Cypripedium Queen Alexandra, from W. R. Lee, Esq., Plumpton Hall, Heywood. One of the largest and best-formed hybrids. The large white dorsal sepal had a dark purple base, the massive lip and petals being yellowish tinged and veined with purple. Staminode white, with green boss. It was said to be a cross between Lathamianum and Charlesworthii, which is the record of C. Mrs. Alfred Fowler.

Odontoglossum Vivien (*parentage unrecorded*), from Lieut.-Col. Sir Geo. L. Holford, K.C.V.O. A beautiful hybrid of the O. eximium class and exceeding in attractiveness the best blotched O. crispum. Flowers of fine substance, white, with a purple tinge on the sepals, which are blotched with reddish-purple, the petals bearing a central band of markings of the same colour.

Oncidium varicosum Westonbirt variety, from Lieut.-Col. Sir Geo. L. Holford. A remarkably large form, with the labellum broader than long and of a light shade of yellow.

Cattleya Empress Frederick Avia Clifton (*Mossiæ* × *Dowiana aurea*), from Pantia Ralli, Esq., Ashtead Park. Flower large, white, with broad yellow lip marked with dark red.

Cattleya graniris (*granulosa* × *Iris*), from C. J. Phillips, Esq., Sevenoaks. A distinct hybrid of good shape, with bronzy-orange coloured sepals and petals and fine lip of a carmine-red colour.

Sophro-Lælio-Cattleya Laconia (*L.-C. Callistoglossa* × *S.-L. heatonensis*), from Messrs. Charlesworth and Co. A desirable hybrid with showy, reddish-rose flowers with dark purple markings on the lip.

Cultural Commendation.

To Mr. W. H. White (Orchid-grower to Sir Trevor Lawrence, Bart., K.C.V.O.), for a very large specimen of Cypripedium picturatum bearing sixty flowers.

Fruit and Vegetable Committee.

Present: Joseph Cheal, Esq., in the chair; Messrs. W. J. Jefferies, J. Bates, J. Willard, Fred. G. Treseder, A. R. Allan, H. Markham, W. E. Humphreys, George Kelf, J. Davis, A. Bullock, P. D. Duckett, G. Reynolds, J. Jaques, H. Somers Rivers, C. G. A. Nix, Wm. Poupart, and John Harrison.

Messrs. Barr and Sons, Covent Garden, presented a splendid collection of high-class vegetables and saladings. These were of perfect shape, and of a size acceptable to the cook. At the back of this exhibit there were well-blanched Celery and Leeks, and mounds of Cauliflowers, which made a splendid background to the dishes of Beet (Covent Garden and Barr's Green Top), Kohl Rabi, Peas (Duchess of Albany), Beans (Golden Waxpod), Onions, Cucumbers, and many other kinds, all of first-rate quality. (Gold Medal.)

Messrs. J. Veitch and Sons, Chelsea, displayed 120 dishes of Apples. The dessert varieties included Allington Pippin, Cox's Orange Pippin, Chas. Ross, Christmas Pearmain, Adams's Pearmain, Washington, Sturmer Pippin, and Ribston Pippin, of just the right size and beautifully coloured. The chief of the cooking varieties were Bismarck, Golden Spire, Peasgood's Nonesuch, Edward VII., Newton Wonder, Gascoyne's Seedling, Lane's Prince Albert, Bramley's Seedling, and Norfolk Beefing. (Gold Medal.)

Mrs. Gordon Canning, Hartbury House, Gloucester, exhibited a large collection of Apples and Pears, a dish of Citron fruits, several bunches of Grapes, Melons, and Medlars. At the end there was an interesting selection of cider Apples and perry Pears. The best perry Pear was stated to be "The Butt," a small, greenish-yellow fruit. Next in merit come Red Longden and Blakeney. This interesting and valuable exhibit also included photographs of Pear trees upwards of 300 years old. (Silver-gilt Banksian Medal.)

Messrs. H. Cannell and Sons, Eynsford, Kent, staged a smaller, but equally good, collection of Apples. (Silver Knightian Medal.)

Award of Merit.

Apple S. T. Wright. The provisional Award of Merit recommended this variety on October 7 (see p. 262) was confirmed.

HORTICULTURAL CLUB.

LECTURE ON BACTERISED PEAT.

October 21.—The first house dinner of the club since the summer recess took place at the headquarters, Hotel Windsor, Westminster, on Tuesday evening last. Mr. A. Worsley presided over an attendance of fifty-two. After dinner Professor W. B. Bottomley, M.A., delivered a lecture, which was illustrated by lantern slides and specimens of plants, on "The Effects of Soluble Humates on Nitrogen-fixation and Plant Growth." He pointed out that the problem of soil-fertility is one of great complexity, that numerous factors play each a part in determining the fertility of a soil—chemical composition, physical state and bacterial activities must all be taken into consideration, as must also the specific requirements of the crop which is growing in the soil.

The parts played by the several constituents of the bacterial flora of the soil have been the subject of much attention in recent years. Of these soil bacteria the nitrogen-fixing bacteria are among the most important. Yet despite the number of researches which have been made into the mode of life of these nitrogen-fixing bacteria much remains still to be learned as to their precise mode of operations and as to the conditions under which they are most active in carrying out their beneficent work. The great discovery by Hellriegel and Wilfarth of the relationship between leguminous plants and the "nodule" bacteria and the practical application of this discovery by Nobbe and Hiltner raised hopes that bacterial inoculation of the soil would solve the problem of nitrogenous manuring. These hopes failed of realisation, and it behoved the investigator to endeavour to ascertain wherein lay the cause of failure. The earlier workers employed liquid cultures of the nitrogen-fixing organisms for the purpose of soil-inoculation. Although on certain poor soils inoculation was attended with good results, it has to be admitted that for ordinary soils it has proved useless.

Pot experiments carried out recently by Professor Bottomley at King's College demonstrate that when sterilised peat, saturated with active cultures of nitrogen-fixing organisms, is used to inoculate ordinary soil, nitrogen-fixation proceeds much more rapidly than when liquid cultures of the nitrogen-fixers are applied directly to the soil. From the investigations of Heinz and Krzemeniewski and others it has been shown that soluble humates exercise a marked stimulating action on the fixation of nitrogen by azotobacter. Hence it occurred to the lecturer that peat which is rich in humus compounds might serve as a suitable medium wherein to convey nitrogen-fixing organisms to the soil. Natural peat is, however, rich in humic acid, and thereof it must be subjected to preliminary treatment in order that the humic acid may be converted into soluble humates. After a number of experiments it was discovered that this change, from humic acid to soluble humates, may be brought about by the agency of certain aerobic soil organisms. The first step, therefore, in the process of converting peat into a soil fertiliser consists in subjecting it to the action of these micro-organisms. The lecturer exhibited extracts obtained from untreated and treated peat, which showed how large is the amount of humates which are produced as the result of bacterial action.

The humate-forming organisms, having done their work, are put out of action by sterilising the peat, which is now ready for inoculating with the nitrogen-fixing bacteria. For this purpose mixed cultures of two nitrogen-fixing bacteria, Azotobacter chroococcum and Bacillus radicicola, are employed. It was found that when peat so treated is mixed with ordinary soil the nitrogen content of the latter rises considerably. Thus a mixture of 9 ozs. of soil (from Rothamsted) and 1 oz. of inoculated peat incubated for 28 days at 26° C. (79° F.) gave the following result :—

Fig. 108.—Effect of bacterised peat on cereals, as shown in the increased vigour and tillering of the treated as compared with the untreated plants.

Soil + peat treated and inoculated contained 421 mg. N. per 100 g. of soil, and soil + peat treated but not inoculated contained 367 mg. N. per 100 g. of soil. In other words, the inoculation with nitrogen-fixing organisms brought about a gain of 54 millegrams of nitrogen.

This remarkable effect may be described as a new method of intensive cultivation—an intensive cultivation of the nitrogen-fixing bacteria of the soil. The treated peat supplies a suitable medium for the growth and activity of these beneficent micro-organisms, and hence the product of that actively-combined nitrogen accumulates in the soil.

The "bacterised" peat—as Professor Bottomley's finished article may be called—in addition to its power of speeding up nitrogen-fixation, possesses remarkable manurial properties. The striking results which are obtained by the use of bacterised peat were demonstrated by specimens shown at the lecture. Trials made with numerons plants, Radishes, Fuchsias, Maiden Hair Fern, Hippeastrum and others, some of which are illustrated in figs. 107, 108, and 109, prove beyond doubt that the addition of bacterised peat stimulates growth and development to a remarkable degree. The plants exhibited had been grown, some at King's College, others at Kew, under the supervision of Mr. Watson, at Eton School gardens, and at the Chelsea Physic Garden—the last-named under the eye of the curator, Mr. W. Hales. At Eton School plots in the open gave results as striking as those obtained with pot plants. Plots manured (1) with bacterised peat (1⅛ tons per acre); (2) with farmyard manure (80 tons per acre) showed a yield in favour of the former treatment of 41 per cent. (Potatos), 25 per cent. (Turnips), 28 per cent. (Carrots) and 38 per cent. (Onions).

Yet more astonishing is the fact that at Chelsea Physic Garden Radishes watered once with an extract of bacterised peat gave an increase of 54 per cent. over plants left untreated.

A striking feature of the plants treated with bacterised peat is the vigour which they display. This vigour is illustrated in the case of cereals by the superior tillering of the shoot (see fig. 108), and in practically all cases by strong root-development. The observation of this latter characteristic led Mr. Watson to make an interesting experiment with the object of ascertaining whether bacterised peat would exercise a beneficial effect on plants grown in soil infected with eelworm. The result of this experiment is illustrated in fig. 109, which represents two similar plants (Carnations) grown in soil known to be affected with eelworm. As will be seen in the illustration, the vigorous development of the root system of the Carnation grown in soil to which the prepared peat was added enabled the plant to "grow away" from the pest and to show only slight symptoms of the root-trouble which it experienced as the result of the presence of eelworm in the soil.

The lecture was followed with close attention and gave rise to an interesting discussion. The chairman (Mr. Worsley) drew attention to the facts that although the value of peat as a manure has long been known, the problem of how to make the food stored up in peat available for plants had not hitherto been solved. He agreed that the results exhibited by Professor Bottomley were remarkable, but he expressed a fear lest in the case of plants grown under glass there might be a difficulty in keeping the peat aerated. Mr. Watson, Curator of Kew Gardens, described the tests that had been carried out at Kew with the bacterised peat. The plants, many of which were exhibited at the meeting, had been selected carefully in pairs, so that each treated plant and each untreated control should be of similar size, age and health. He himself and Mr. Coutts had attended to the potting and labelling, so that there could be no doubt whatever as to the genuineness of the results. He drew attention to the important fact that small quantities of the peat produced results as good as or better than larger quantities. In the case of Orchids, however, the results were less favourable, but he was of opinion that, although pure peat would not answer, the mixing in of a little peat might provide a useful stimulant even for these plants. In concluding his valuable contribution to the discussion, Mr. Watson pointed out the necessity, if bacterised peat is to prove of service to horticulture, of putting the material on the market at a low price.

Dr. A. J. Voelcker, consulting chemist to the Royal Agricultural Society of England, took up a sympathetic but cautious attitude. Having regard to the many failures of nitrogen-fixing materials, he would prefer to wait for further data before expressing a decided opinion as to the value of the discovery for agricultural purposes. He raised the question as to whether the results are to be ascribed solely to nitrogen-fixation or to a more general manurial effect. He concluded by promising to give bacterised peat a thorough trial at Woburn. After Professor Keeble had discussed some of the more striking scientific problems opened up by these experiments, Professor Bottomley wound up the discussion by enumerating the conclusions to which his experiments have led him. These were as follows :—

"Much work has yet to be done before the exact action of the prepared peat on soil bacteria and plant growth can be thoroughly understood, but so far as investigations have gone at present the advantages from using the material are :—

1. It adds active nitrogen-fixing organisms to the soil under suitable conditions for nitrogen-fixation.

2. It stimulates the nitrogen-fixers already in the soil.

3. It adds direct plant food to the soil, a large amount of the organic vegetable matter of the peat being rendered soluble in the processes of treatment.

4. It directly promotes the root development of plants.

5. It improves the mechanical condition of the soil."

NATIONAL SWEET PEA.

Annual General Meeting.

October 20.—The annual meeting of the National Sweet Pea Society took place at the Hotel Windsor, Victoria Street, London, on the above date. Mr. Herbert Smith presided over an attendance of nearly 100 members. The hon. secretary, Mr. C. H. Curtis, read the report of the committee and the financial statement. The past three seasons, he said, were not altogether favourable for the cultivation of Sweet Peas, but the past year might be considered better than its immediate predecessors, although the cold nights and drying east winds of the early spring retarded growth. The effect of such climatic changes was to encourage the enemies of the Sweet Pea, and in some instances the whole of the plants were destroyed by the "streak" and other diseases. The efforts of the committee to obtain a preventive for "streak" have not been successful, staged in the competitive classes, and many of these were of a high order of merit, and there was a gratifying attendance. The provincial show at Carlisle on August 13 and 14 was a success as far as the exhibits were concerned, but the attendance was small and very few new members were enrolled.

There are just under 1,000 members of the society. During the past year 181 new members have joined, a few have resigned, and a considerable number have not as yet paid their subscriptions. The number of affiliated societies has not changed. The financial statement shows a balance of £23 8s. 10d. Subscriptions received amounted to £311 6s. 8d.; fees from affiliated societies brought £58 16s., advertisements added £49 18s., and the funds and gate money realised £50 3s. The chief items of expenditure were medals and plate, £32 5s.; trial expenses, £49 10s. 2d.; printing and stationery, £237 8s. 10d.; honorarium to secretary, £73 10s.; prizes and expenses at London show,

Fig. 109.—Influence of bacterised peat on the control of eelworm, as seen in the more vigorous growth of the treated plant.

(See "Horticultural Club," page 295.)

out to encourage those who are working on this problem the committee propose to offer a prize of the Gold Medal and £10 10s. (kindly promised by Mr. H. A. Perkin) to the first person who satisfies the committee that he, or she, has found an efficient preventive and cure for the disease. Last year's trials were particularly disappointing: the disadvantages of the heavy soil at the Burbank experimental station were painfully evident. The cold, wet weather and plague of slugs in Leicestershire decimated many rows of Sweet Peas and rendered nugatory the trials. In consequence of this failure the outing to Burbage had to be abandoned, and the proposed alternative trip to Messrs. John K. King and Son's seed farms at Coggeshall was equally unfortunate, for a deluge of rain on the day previous to the outing made the journey impossible. For next year's trials the committee have decided upon the sowing of the seed this autumn in the hopes of more satisfactory results.

The London exhibition on July 17 was most successful; 1,691 bunches of Sweet Peas were £107 6s. 2d.; at Carlisle, £51 7s. 5d.; and postage, telegrams, etc., £51 7s. 5d.

In proposing the adoption of the report and financial statement Mr. Herbert Smith expressed the great regret with which the committee accepted the resignation of the hon. secretary, which was made for purely business reasons, and when the customary vote of thanks was proposed to Mr. C. H. Curtis the Gold Medal of the Society was conferred upon him in recognition of his work for the society.

Capt. Ashworth proposed the adoption of the new rules submitted by Miss H. Hemus, a proposition formally seconded by Mr. H. J. Wright. Mr. George Gordon, in opposing these rules, said that the business of the society should be carried out on business lines, and expressed his opinion that the proposed set of rules displayed a lamentable ignorance of the essentials of successful management. The proposal to debar members of the trade and horticultural journalists from any voice in the management of the society was opposed to the best interests of the society. The trade members were a most honourable body, and the society ought to have the benefit of their knowledge and experience. After Mr. W. P. Wright and other speakers had treated the proposed rules as a humorous contribution to the meeting, Mr. J. S. Baker said that although he disagreed with these rules he appealed for their serious consideration, as he felt sure Miss Hemus had spent considerable time over the matter and only wished to consider the best interests of the Sweet Pea and the society. Mr. F. H. Chapman agreed, but protested strongly against the attempt to make the meeting consider the rules *en bloc*. On placing Capt. Ashworth's proposal to the meeting two members voted for it and 65 against.

The alteration of rules, as proposed by Mr. Walter P. Wright, was then discussed, and in view of certain difficulties it was decided that a special meeting be convened to consider them and to hear Mr. Wright's definition of "amateur."

The proposal respecting duplicate trials at Reading was combated by Mr. F. J. Harrison, who insisted, first, that the society could not afford duplicate trials; and, secondly, that the claims of the members in the north were being ignored; and after further discussion the proposal was defeated.

The meeting then proceeded to elect officers and committees for the ensuing year. Mr. Hugh Dickson, of Belfast, was unanimously elected president. Mr. Ed. Sherwood was re-elected hon. treasurer. Mr. F. W. Harvey will be chairman of committee; and after several ballots, which culminated in a tie between Messrs. H. D. Tigwell and T. A. Weston, the former received the chairman's casting vote and was elected secretary for 1914 at a salary of £50. The following were elected members of the Floral Committee for next year: Messrs. R. Bolton, C. H. Curtis, A. Ireland, Thomas Jones, G. W. Leak, A. Malcolm, Herbert Smith, T. Stevenson and H. J. Wright.

Dinner and Conference.

Mr. Hugh Dickson occupied the chair at the dinner which came in the interval between the business meeting and the conference. There were about thirty-six members present.

The conference was an excellent one for three reasons. First, there were sixty present; second, Mr. James Brunton's paper, entitled "The Sweet Pea Industry," was packed with information; and third, the discussion created was wonderfully keen. The principal speaker commenced his history with the beginning of the present century, and proved the remarkable development of the Sweet Pea industry in acreage of land under cultivation with a view to the production of Sweet Pea seeds, in the quantity of seed packets annually printed, in the handsome catalogues issued by many firms, and in the immense numbers of Sweet Peas now grown by market growers. He alluded to the fact that whereas, as far as he had been able to ascertain, the area under Sweet Peas for seed in this country was 30 acres in 1903, it had risen to no fewer than 200 acres in the short period of one decade, and he specially mentioned that of the last-named total no less than one-third was in the county of Essex. Allusion was also made to the fact that seeds are grown in Germany, Holland, and France, of European countries, in New Zealand among our own colonies, and to the immense extent of land devoted to this purpose in California. In the discussion which followed the close of Mr. Brunton's admirable address, Mr. Curtis mentioned the growing popularity of Sweet Peas in other lands; Mr. Herbert Smith referred to the fact that his firm had been forced to print descriptions of many varieties in foreign tongues; Mr. Vernon Hill to the desirability of increasing the acreage under Sweet Peas for seed at home instead of sending them abroad to be grown; Mr. Thos. Stevenson to the wonderful quality of the flowers offered for sale in the markets; Mr. G. Burt to the system of culture in California; Mr. Andrew Ireland to the capacity of the plants to seed in this country and to their hardiness; Mr. G. F. Drayson to the necessity for better seeds and greater fixity; Mr. F. W. Harvey to the importance of bearing in mind the decorative value of Sweet Peas when grown naturally; Mr. G. W. Leak to the

same point, and to the fact that some varieties were much superior to others for the purpose; and Mr. E. H. Christy to the fact that he had found artificial fertilisation with the object of getting heavier crops of seeds a failure.

Obituary.

John Kinnell.—We regret to record the death on Sunday last, at his residence, Berton Hatch, Horsell, near Woking, of Mr. John Kinnell, aged fifty-two years. Mr. John Kinnell was a younger brother of the late Mr. Charles P. Kinnell, founder of the extensive hot-water engineering business carried on in Southwark Street, S.E., and for some years was associated with him in its management. Owing to indifferent health Mr. Kinnell retired from the business a few years ago. He derived great benefit from a prolonged visit to his sons in New Zealand last year. His death, after a short illness, will be greatly regretted by a wide circle of friends among the growers for Covent Garden market, by whom he was greatly respected.

H. J. Alderman.—We regret to announce the sudden death of Mr. H. J. Alderman, gardener to H. H. Konig, Esq., of Ardenrun Place, Blindley Heath, Surrey, on the 13th inst., at the age of 55. Deceased was appointed gardener at Ardenrun Place nearly ten years ago, when the estate was acquired by Mr. Konig, and, with his employer's help, planned out the terraces and gardens. He will be missed by a large circle of friends, for he was a promising gardener and took a keen interest in his work. He leaves a widow and two young sons.

ENQUIRY.

Self-fertilising Varieties of Pears.—Will some reader kindly recommend six varieties of Pears that are good self-fertilisers? *Willesden.*

Answers to Correspondents.

Beans and Chrysanthemums : *M. H. S., Sutton.* The White or Snowy Fly, a species of Aleyrodes, is common enough in warm plant houses, usually on Tomatos and French Beans, especially the latter. The flies multiply very rapidly, but can be destroyed by occasional applications of a nicotine vaporising compound. With reference to the maggots found on the Chrysanthemums, these are a kind of leaf-mining insect. The best way to prevent similar attacks is to spray the foliage occasionally with Quassia Extract or some similar preparation, in order to render the leaves distasteful to the female insect, and thus discourage her from laying her eggs upon them. The infected leaves should be removed and burnt.

Book on Latin Names of Flowers : *W. W., Manchester.* We are not quite sure what you mean by "definitions." Do you want a dictionary of plant names, giving the scientific nomenclature and the derivation of the names, or a dictionary with the scientific and also the popular names of the plants, with full descriptions and methods of culture? If the latter, Miller's or Nicholson's *Dictionary of Gardening* would be the most helpful works to obtain. The latter is now out of print, but copies are frequently advertised for sale.

Cattleyas and Lælio-Cattleyas: *Correspondent.* It is difficult to assign a cause for the production of an excessive number of new growths, especially as the pseudo-bulbs are said to be matured and many of them furnished with flower sheaths. It is evident that the plants cannot continue long in a satisfactory condition unless they get some rest. In spite of the statement that the house is kept at a fairly low temperature and air freely admitted, the making of new growths before the previous pseudo-bulbs are finished suggests that the conditions are more conducive to growth than to the short rest which is necessary to fully complete and mature the normal growth of the season. In some cases a too high temperature at night brings about the conditions you name, and we advise you to make sure that the house is kept at a much lower temperature at night than in the daytime. The tolerably dry treatment you describe is much the safer for Cattleyas in a general way. But if you tried giving more water during the active growing season they would probably develop more fully and not be so likely to start growth again prematurely. The kind of top ventilation you propose seems to be excellent, and if judiciously used should mitigate the trouble about which you complain.

Insects : *J. A., Swansea.* The larvæ you send are those of a weevil, and all weevils are exceedingly destructive to tender forms of vegetation. One method of killing the larvæ is to turn the plants out of their pots, shake the roots entirely free from soil, and re-pot in fresh, uncontaminated soil. Or the roots, after being removed from the pots, may be sprayed with carbon bisulphide. With regard to methods of destroying the perfect insects, the best is to group the plants together and stand them on a piece of sticky paper. After dark the cultivator should enter with a bright light; this will startle the weevils and cause them to drop from the foliage on to the sticky paper, and so be caught. The plants may also be shaken, to facilitate the fall of the insects. Another plan would be to fumigate the house late at night with hydrocyanic acid gas.

Japanese Grasshoppers : *W. A. T.* The insects are, as you suspected, the same as those shown by Mr. Goodacre at the R.H.S. meeting, namely, Japanese grasshoppers (Diestrammena marmorata) (see p. 207). They were probably imported from Japan in a bulb packing case or some such receptacle, and have hatched out on finding themselves in a warm place. The insects can be destroyed by means of strong fumigations with the XL All vaporiser on two successive nights. These will destroy the live insects, and the fumigations can be repeated if fresh eggs hatch out.

Names of Fruits : *H. W.* 1, Mère de Ménage; 2, Peasgood's Nonesuch; 3, Winter Hawthornden; 4, Warner's King; 5, Lane's Prince Albert; 6, King of the Pippins.—*A. E. B.* Worcester Pearmain, Cobham (Pope's).—*E. T.* Reinette Franche.—*H. C.* Domino.—*R. C. A.* 1, Greenup's Pippin syns. Yorkshire Beauty and Red Hawthornden; 2, Tyler's Kernel; 3, Lady's Finger; 4, Chelmsford Wonder.—*E. S.* 4, Winter Pearmain; 5, Winter Quoining.—*W. S.* 1, Tibbett's Pearmain; 2, Nancy Jackson; 3, Sturmer Pippin; 4, Syke House Russet; Pear Passe-Colmar.

Names of Plants : *Cuthbert.* 1, Cornus Mas var. variegata; 2, Picea orientalis; 3, Cupressus obtusa; 4, Abies nobilis; 5, Tsuga Pattoniana; 6, Cedrus Deodara; 7, Cupressus pisifera var. plumosa; 8, Sciadopitys verticillata; 9, Thuya dolabrata; 10, Cephalotaxus pedunculatus; 11, Berberis vulgaris; 12, Thuya plicata (T. gigantea).—*E. M. S.* 1, Helianthemum vulgare; 2, Helianthemum var. cupreum; 3, Aster Novæ-Angliæ pulchellus; 4, Aster Novi-Belgii var.; 5, Aster ericoides var.; 6, 7, 8, 9, Seedling forms of Chrysanthemums; 10, Tritonia crocosmiflora; 11, Rudbeckia laciniata; 12, 13, Varieties of Veronica speciosa.—*Journeyman.* 1, Aster Novi-Belgii Mala; 2, Aster Novi-Belgii Robert Parker; 3, Aster Novi-Belgii grandiflorus; 4, Aster diffusus; 5, Aster Novæ-Angliæ var.; 6, Aster Amellus; 7, Castanea sativa; 8, Chrysanthemum uliginosum; 9, Clematis paniculata; 10, Impatiens Roylei; 11, Œnothera biennis.—*J. S.* Senecio tanguticus.—*J. U.* We do not name varieties of florists' flowers. You should send the flower to one of the nurserymen who make a speciality of Dahlia cultivation. — *E. S.* 1, Probably Arundinaria falcata; 2, probably Phyllostachys aurea; 3, Sutherlandia frutescens.—*O. R.* Vanda lamellata.—*L. A.* 1, Selaginella involvens; 2, Selaginella filicina; 3, Selaginella Lyallii. — *T. T.* 1, Dracæna congesta; 2, Cyperus laxus; 3, Eranthemum pulchellum; 4, Isolepis gracilis.—*S. B. and Sons.* Cassia corymbosa.

Rubber Prices.—The article on this subject printed on p. 276 contained a star referring to a footnote which was inadvertently omitted. The footnote read as follows:—"At the time of writing the market prices in London are as follows:—Fine hard Para, 3s. 2d. per lb.; Plantation, 2s. 0¼d. per lb."

Vines : *R. H. L.* The Grapes you send are attacked with Vine mildew (Oidium Tuckeri). The cause is probably either a lack of water at the roots or a defect in ventilation. The atmosphere of the house should be kept dry, and air should be freely admitted; but it is very important to avoid extremes of heat and cold, or anything in the nature of a draught of cold air. The best cure for mildew is an application of sulphur to the hot-water pipes; the powder should be mixed with water and applied as a paint on the surface of the pipes. With reference to the suggestion of a top-dressing to the outside border, it is easy to imagine that if it were covered to a depth of a foot with stable manure the border itself might get far too dry without the cultivator being aware of it.

Vines Failing : *W. B., Dalton-in-Furness.* The soil of your outside Vine border has been poisoned by mulching each winter with farmyard manure, which has prevented proper aeration. Mulching should only be resorted to during the summer after the border has become warmed, and then the covering of manure should not be so thick or so close as to prevent air passing through it. A depth of 5 feet is far too much for a Vine border, and many good Grapes are grown with a depth of only 2 feet, where the bulk of the soil consists of moderately heavy loam. If you decide to keep the Vines you may at once apply some newly-slaked lime, about a peck to the perch. Then break the surface of the border up roughly with a fork, a spit deep, except just near the Vine stems (there are not likely to be many roots near the surface), leaving it rough during winter and spring. Do not apply any nitrogenous manure for the next 18 months, but give a dressing of steamed bone flour, 5 or 6 pounds to the yard, during the winter, and some ashes from wood or burnt vegetable rubbish. Fork over again the already loosened surface, and unless the weather is very dry next summer the border may not require artificial watering for the next 18 months, the object being to make the soil sweet as far down as possible. The surface should be moved frequently with a hoe when the weather is dry. If the border is very wide you might cut a trench now, 6 feet from the stems of the young Vines, sever any stray roots that may be found there, and mix a little lime, or preferably old mortar rubble and burnt vegetable rubbish, with the soil before returning it to the trench. A crop of some kind of vegetable grown on the part of the border so severed for one season would help to sweeten it.

Viola : *J. A. F.* The Viola blooms were quite shrivelled on arrival here. You should send fresh blooms to some nurseryman, who can compare them with the growing specimens. Varieties of yellow Violas are numerous, and some of them so much alike as to be scarcely distinguishable from each other.

Violets Diseased : *R. P. K.* The disease from which the Violets are suffering is known as Ascochyta violæ The pest is very difficult to eradicate, as the spores fall from the leaves on the soil at the base of the plants. If this has occurred the best thing to do is to burn the plants, sterilise the soil, and disinfect the frames. Fresh plants can then be planted in new soil; and to prevent a recurrence of the disease the plants and soil should be sprayed every fortnight (when well established) with a solution of one ounce of potassium sulphide to three gallons of water.

Communications Received.—Violets—J. H., Preston—E. C. D.—Hampshire—A. R.—Autumn—H. P.—H. W.—H. F., Ireland. [Photographs received with thanks.]—A. H.—D. R. and Son—A. T.—N. A. G.—F. W. B.—F. W. N.—G. J.—L. C. R.—E. M., White Rose—J. D.—H. C. L.

Photographs by H. N. King.

GUNTON PARK, NORFOLK, THE RESIDENCE OF LORD SUFFIELD, P.C.

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CONTENTS.

ILLUSTRATIONS.

THE ABSORPTION OF IRON BY PLANTS.

THAT iron is an indispensable element to plants is well known, but the exact rôle which it plays is obscure. Without iron, chlorophyll fails to develop, yet chlorophyll contains no iron. The physiologist is driven, therefore, to the supposition that just as light, except in some rare cases, is essential for the production of chlorophyll, so iron plays an essential part in the preliminary processes of chlorophyll manufacture. The amount of iron which suffices to satisfy the needs of plants is very small. For example, when for experimental purposes plants are grown in sand containing mere traces of iron, they are very apt to become green. Indeed, in order to demonstrate that iron is essential for chlorophyll formation recourse has to be made to water cultures in which the inorganic salts supplied to the plant may be controlled. The addition of a mere trace of an iron salt to the solution is sufficient to admit of the development by the plant of its normal green colour. So far as is known, any ordinary salt of iron, sulphate, chloride or nitrate serves the purpose, and the fact that the relatively small quantities of iron contained in the soil satisfy the requirements of the plant suggests that this substance may be taken up in many different forms. Nevertheless, another series of facts points to the view that certain plants under certain unknown conditions are unable to absorb iron from the soil. As a consequence of this disability the foliage remains yellow, and the plants are said to suffer from chlorosis. Recent investigations (see *Gardeners' Chronicle*, p. 188, March 22, 1913) indicate that chlorosis of fruit and other trees may be of more than one type; but experiments both old and recent show that, at all events in some instances, the disease may be remedied by injecting into the stem a solution of sulphate of iron. There is nothing remarkable in the fact that a plant may be unable to absorb from the soil a substance of which it has need. For it must always be remembered that every substance which is absorbed has passed across the sheet of living substance which lies beneath the wall of the root hairs. Wherefore, it is evident that for absorption of a given substance to take place not only must that substance be soluble in water, but it must also be one to which the protoplasm is permeable. Therefore, it may be that in chlorosis due to lack of iron the iron salts present in the soil are in such a form that they cannot penetrate the sheet of protoplasm which separates the root of the plant from the outer world. Or it may be that the iron salts may penetrate into the root hairs, but that they undergo such changes in those cells as prevent them from travelling any further. That this misfortune rarely befalls the plant is due, doubtless, to the fact that the soil is the seat of a ceaseless and complex series of chemical changes, in the course of which the various elements, including iron, undergo continuous transmigrations from one compound to another. The occasional failure on the part of the plant has encouraged various bio-chemists to make a more thorough study of the form in which iron is generally absorbed. As a result of this study it is suggested that iron is taken up by the plant in the form of bicarbonate, or as a salt of humic acid. An alternative suggestion has been put forward recently by M. Vaubel—namely, that a compound of iron and ammonium nitrate may be the form in which iron is taken up by the plant. These studies and hypotheses are of considerable practical importance, for iron is employed frequently as a remedy or preventive of certain plant diseases. An interesting example of its use in this connection is supplied in the communication by Mr. Molyneux on a method of combating Silver Leaf disease (see p. 293). If we recognise the facts that for iron to play its part efficaciously it must not only pass readily into the plant, but also travel expeditiously from cell to cell, we see that for iron to be used with the best prospect of success we require to present it to the plant in its most available form. Now the investigator referred to already is of opinion that the compound of iron and ammonium nitrate possesses this property of availability, and that iron presented to the plant in this form is absorbed readily, passes without change from cell to cell, and so arrives quickly at the tissues in which it is destined to be used. Therefore we recommend anyone engaged in experiments in the use of iron for the prevention or remedy of plant disease to make a trial with this compound of iron and ammonium nitrate. It may be prepared by boiling ferrous sulphate with ammonia, and must be applied in solution.

THE EFFECT OF SUMMER DROUGHT UPON TREE GROWTH.

During the past summer the south-eastern part of Ireland has experienced what was probably the most severe drought that has occurred there for many years. At Avondale, Co. Wicklow, with an average annual fall of about 40-45 inches, the rainfall for the first five months of 1913 was 22.03 inches, as compared with 19.87 inches in 1912. From June 1 to August 31 3.36 inches fell in 1913 and 16.35 in 1912. The first ten days of September, 1913, were also without measurable rain, the drought finally breaking up on September 12 and 13 with a continuous fall of over 1 inch. During the three months of the present year nothing more than light showers fell between June 9 and August 22; .58 and .32, which were registered on these dates, were the heaviest falls during the whole dry period.

The wind during the dry spell was almost entirely from a northerly or easterly point, with not more than half a dozen hot days, varying from screen maxima of 72° to 81° in May and August respectively. The spring months were entirely free from destructive frosts. The weather throughout the summer, therefore, may be regarded as quite normal as regards temperature, the low rainfall being the only factor to account for the differences in growth noted below. As May was an exceptionally wet month, with a rainfall of practically 5 inches, the whole of the deficiency occurred after June 1, the previous winter and spring having been wetter than the average.

So far as the effect of the drought upon old or middle-aged trees is concerned, Ash, Horse Chestnut, Lime, Norway Maple, etc., appear to have suffered most, and the leaves of all but the first-named put on autumn tints a month earlier than usual. The chief effect upon Ash was the drooping or wilting of the foliage, much in the same way as the leaves of trees in pots or tubs droop when left too long without water. The older leaves of Birch, Poplar, and most Maples were also yellow; many of them fell before their time, and old Beech put on autumn tints to an unusual extent in September. Birch and Oak growing on thin, rocky spots were brown and shrivelled in August; but these sites may be regarded as exceptionally subject to rapid desiccation.

Coming to trees planted within the last four to eight years, the effect of the drought is more easily observed, and the following statements and figures refer to plantations formed on 2 to 3 feet of light loam resting on a broken, schisty subsoil, and standing at about 400 feet elevation.

In the first place, it may be stated that few trees have been fatally injured by the drought, apart from those planted the previous winter, and which might have died in an average season. Here and there a tree has lost its leaves or has a parched appearance, and the majority of species have obviously made less growth than usual; but the deaths due to drought alone are extremely rare, except in the case of one species—Japanese Larch. As was the case in England in 1911, this species has proved incapable of bearing even a moderate drought without injury or loss of vigour, and in the details given below it will be seen that a large percentage of deaths occurred on a plot of dry ground planted with this species six years ago. On damper and deeper ground the growth of this species has been normal, while the European Larch has make a good, healthy growth generally.

To ascertain the relative growths in height made during 1912 and 1913, trees of

various species were selected, and those were measured which showed a similar rate of development since the time of planting in 1905-6, and which followed each other in the same row at distances of 3 to 4 feet, or formed a square made up of three or four adjoining rows. The growths made by the leading shoots in the two years were measured in inches at the end of September, and the aggregate growths in height of the ten lots are given in the following table:—

Species.	Average height.	Aggregate growth in inches.	
	Feet.	1912.	1913.
(1) Norway Spruce ..	7–8	188	172
(2) Do.	8–10	237	184
(3) Do.	10–12	234	189
Red Spruce (P. rubra) ..	5–7	146	95
Abies grandis	8–10	274	249
Corsican Pine	8–10	240	210
Austrian Pine	6–8	170	151
(1) Japanese Larch ..	5–7	205	124
(2) Do. ..	10–12	314	144
Scots Pine	9–10	201	214
		2,209	1,732

With the exception of the Scots Pine, which had finished its growth in height before the effects of the drought were felt, the above species show an average diminution in height growth varying from 18 inches in Japanese Larch to 1½ inch in one set of Norway Spruce growing on rather heavier ground than the other two, equal to 20 per cent. on the 100 trees. Bearing in mind the heavy rainfall in May, it is probable that the effect of the drought only made itself felt towards the end of June, and that the dry condition of the soil during July was the chief cause of the falling off in height growth. Of the first nine sets eight trees only showed an increase in 1913 over 1912, and four of these were A. grandis growing on fresh ground; so that differences in growth due to individual weakness or vigour did not account for the reduced growth in 1913.

The only fatal effect of the drought noticed was on a quarter of an acre of thin, light soil planted with Japanese Larch. On this area about three hundred trees were either killed outright or badly injured by losing their leading shoots and crowns. European Larch planted alongside them showed no ill effect beyond a shorter growth.

The general conclusion that may be drawn from the facts recorded above is that summer rainfall is clearly necessary to maintain an adequate amount of moisture in porous soils for the normal, or at any rate rapid, growth of most species of trees. On the majority of soils a month's dry weather is sufficient to remove all water not held by capillarity above the normal water table, and on dry soils the latter is usually out of reach of the roots, and affects them to a limited extent only.

It appears to be a fairly well-established fact that the effect of drought upon tree growth increases with the earliness at which the dry weather sets in. A dry spring followed by a droughty summer invariably results in a poor growth being made on dry soils, whereas drought in July and August usually comes too late to injure or affect the growth of the shoots of the majority of trees, while it benefits many broad-leaved introduced species by ripening their wood. Another invariable effect of a dry autumn is to bring forth an exceptional number of flower-buds, and in the event of these developing into fruit during the following summer a great deal of the energy at the disposal of the trees is diverted from wood to seed production. The effect of a dry summer, therefore, cannot always be measured during the year in which it occurs, and in the event of two or three dry years following each other in succession harm of a permanent character may be done to many individuals, while the average growth of all must be reduced over a considerable period. *A. C. Forbes, Dublin.*

ORCHID NOTES AND GLEANINGS.

HABENARIA IANTHA.

THIS distinct and pretty Orchid seems to have escaped general notice. I cannot find any reference to it under the name given above in any Orchid work at my disposal, and I feel pretty sure it has not been exhibited very often at the Royal Horticultural Society's meetings, if at all, previous to July 29 last. On that date a fine, healthy plant was shown in a small group of Orchids contributed by Messrs. Sander and Sons. As I did not remember having seen it before, I made the sketch (see fig. 110) to place its appearance on record. The plant itself was about 16 inches high and was growing in quite a small

FIG. 110. HABENARIA IANTHA: COLOUR OF SEPALS AND PETALS CREAMY-WHITE, LIP ROSE-PURPLE.

pot—2½in., I believe. It had a single erect, fleshy stem; which was deep purple except near the top, where it gradually became greener in colour. There were several ovate-lanceolate, pale green leaves, without stalks, and clasping the stem at the base. Each leaf was from 2½ to 3 inches in length, soft in texture, and with one conspicuous vein on each side of the mid-rib. As shown in the illustration, the plant bore five flowers, which, owing to the shortness of their stalks, are close to the stem. The sepals and petals were creamy white in colour, the upper sepal being hooded, and partly enclosing the narrower erect petals, these organs forming a kind of long arch over the column. The lateral sepals are spreading with a distinct median nerve. The lip, however, constitutes the most attractive part of the flower. It is large and spreading, somewhat wavy on the margin, and with a broad and conspicuous zone of soft rose-purple surrounding a distinct white triangular basal area. On this, from the bright yellow crest at the base, two long lines of crimson-purple dots and streaks run parallel almost to the point of the lip, and on each side are shorter radiating lines of similar spots. The dark space shown at the very base of the lip indicates the opening of the white short spur behind. The column is conspicuous owing to its darker colour against the white petals, and is composed of two sausage-shaped lobes with short appendages. I understand from Mr. Cooper, who was in charge of the group for Messrs. Sander, that the plant has tuberous roots, and is deciduous in character. *John Weathers, Isleworth.*

LÆLIO-CATTLEYA MOYRA.

THE first flower of this hybrid (Cattleya Warscewiczii × C. Lælia-Cattleya Clonia) we have received from the raiser, Mr. F. C. Puddle (gr. to W. H. St. Quintin, Esq., Scampston Hall, Rillington). Lælio-Cattleya Clonia was obtained by a cross between C. Warscewiczii and L.-C. elegans, and consequently the second crossing with C. Warscewiczii brings it near to that species in its general features, although later flowering forms from the same batch may display more likeness to the other parent. The flower is of the size and shape of an ordinary C. Warscewiczii, pale lilac, with violet-purple lip, having lines of yellow from the base to the centre, where the patch of yellow on white, characteristic of C. Warscewiczii, appears.

CATTLEYA HARRISONIANA ALBA STANLEY'S VARIETY.

A FLOWER of this very fine white Cattleya taken from a spike of seven blooms is sent us by Mr. H. G. Alexander (Orchid-grower to Lieut.-Col. Sir Geo. L. Holford, K.C.V.O.). It received a First-class Certificate in 1908, and was then pronounced by far the best of the section, and under Mr. Alexander's skilful treatment it has greatly improved, the broad-petalled blooms being 4 inches across. It is pure white with a pale yellow tinge in the centre of the lip, which is rounded, crimped, and openly displayed, showing in a marked degree the difference from C. Loddigesii, under which some place it as a variety, but which always has a clearly-defined somewhat stalked front lobe to the labellum.

FRUIT REGISTER.

WOLF RIVER APPLE.

UNDER the above-mentioned name I have received by the last American mail from a niece living at Bremerton, Washington State, U.S.A., a fine specimen of an Apple named Wolf River, which her husband, a commander in the American Navy, brought from the Wenatchee Valley, Washington. The fruit weighs 1¼ lbs., is 15 inches in circumference, 14¼ inches in depth, and brilliantly coloured all over. The record established weight of the Wolf River Apple grown in the Wenatchee Valley is 46 ounces! In shape the fruit resembles the Warner's King Apple. Perhaps some American correspondent of the *Gardeners' Chronicle* would be able to furnish some particulars of this unusually large and grandly coloured Apple. *H. W. Ward, Lime House, Rayleigh.*

PEAR DURONDEAU.

THIS variety usually gives a good crop planted on a south or south-east wall, especially if trained on the cordon system. Here it has

yielded a good crop, where most varieties have given but few fruits. It is a good grower, a free setter, highly coloured, and of splendid flavour. It makes good, clean growth but requires plenty of water. The ground should be moderately stiff, with good drainage. *A. B. Wadds, Englefield Gardens, Reading.*

APPLE GRAVENSTEIN.

The above-named Apple is seldom considered worthy of notice, and yet it has remarkable properties as a dessert fruit. It is exceedingly rich in juice, and possesses a distinct and aromatic flavour. Here, in South Yorkshire, growing on a light and sandy soil, it was ready for the table early in October. It is also suitable for culinary purposes, which is a great advantage, some of the fruits being too large for dessert. In some localities it might be found an uncertain cropper, but here, during the last two seasons, it has fruited well. The fact that the tree will grow on either stock is worthy of note, for where, in a particular district, it may fail on one, it will probably succeed on the other. The Apple authorities in Germany speak highly of the variety; it is a greater favourite in the Fatherland than in Great Britain. *H. Turner, Sulby Hall Gardens, Bawtrey.*

THE ROSARY.

NEW ROSES.

The Rosarian's year has fulfilled its course, and planting time again approaches. The Rose-grower is now in all probability thinking less of the flowers in his garden than of those he hopes to secure in the year before him. He is reviewing his experiments, and considering the varied attractions offered by the catalogues, estimating the ground he has to spare in his Rose garden and how he may best occupy it.

In the notes which follow I propose to give some account of such of the new Roses brought out in the years 1910, 1911 and 1912 as I happen to have tried in my own garden. It must be borne in mind that the plants were in many instances only acquired last autumn, and in some cases I have only had a single plant and in others three or four plants of the variety. In such cases my statements must be taken to be those of first impression only, liable to alteration or correction as a result of further experience. I fear that I shall have to give some domestic details of success and failure, and though I apologise for doing so, and will restrict them so far as practicable, it would be difficult otherwise to indicate the material on which I base the conclusions at which I have arrived.

Taken as a whole, I am inclined to regard my experiments this year as somewhat disappointing. Any one who is in the habit of trying new Roses is well aware that he can expect but few of them to become permanent residents in his garden, and this year has not, I think, been particularly good for freshly-planted Roses. The planting conditions were not very favourable, while the unusual mildness of the early spring forced the young plants into premature growth, perhaps before their roots were ready to supply the sap required by the growing plants; then suddenly came the frosts which proved so fatal to our Pears and Plums, at least in this district; and later on, in May and June, and again in July and August, we experienced a period of drought, which, though it gave us some delightful flowers from established plants, and particularly from those which will not stand rain, must have proved something of a strain to Roses which had still to perfect their hold upon the soil. In fairness to the new-comers all these things should be borne in mind, and due allowance made for them in forming our opinion of their relative merits.

Alexander Hill Gray (Tea, A. Dickson, 1911) is the first Rose on my list. I had a few plants in pots, and was delighted with the flowers they gave me. The description that has been given of this Rose, "a Mme. Hoste of better form than the type," is by no means a bad one. The flowers have a high-pointed centre, and almost always come of a good shape and colour, the latter a deep lemon yellow. Out-of-doors the plant is not a very big grower, but seems hardy for a Tea Rose, and makes nice bushy little specimens. The flowers are of moderate size, but probably will only occasionally be found large enough for the exhibition box, and it seems likely that it is on its merits as a garden Rose that it will have to rely. Being a Tea Rose, it is constantly putting up new shoots, but it seems to take some time in perfecting its flowers, so that it is not quite so continuously covered with blossom as are some of its race. This, which is something of a defect, will, I hope, get less noticeable as the plants become established.

Alice Lemon (H.T., Hill, 1911), on the other hand, seems, so far as I can judge, to be likely to become useful to the exhibitor. I have only had one plant, but that gave me a few very nice flowers early in the season. The flower is white, with a blush centre, and the form good.

Alice de Rothschild (Tea, H. Dickson, 1910).—This Rose seems a good grower, and under glass and at its first flowering in the open gave us some quite pleasing flowers of a deep citron yellow, approaching but not quite reaching the Maréchal Niel tints. The later flowers, however, have been wanting in colour and character, and seeing that the chief attraction of this Rose is its colouring, this has necessarily been rather disappointing. Still, it seems well worth further trial. It is a good grower, and did not suffer from frost last year.

Angele d'Arnex (H.T., Bernaix, 1912) has, I think, proved on the whole the most successful of my experiments of the past year. The plant is a good grower, and produced quite a number of beautiful flowers. The buds are long and pointed, and the flowers well shaped, with a good centre, and large enough for exhibition. They are a soft pink colour, of a tint not far from that of Königin Carola, but I think the flowers better built than those of the last-mentioned Rose. If it continues as satisfactory as it has been here this year it should become a popular variety.

Beauté de Lyon (Aust. Hyb., Pernet Ducher, 1910) is a good grower, of novel colour, between strawberry and rose, but the plant has not been free enough since its first flowering.

British Queen (H.T., McGredy, 1912).—I formed a high opinion of the flowers of this Rose at the shows last year, and held great hopes of its success. Much to my regret, my plant has failed to realise them. It has produced a few flowers, and all that I have seen have been of good form and texture, in which respect it somewhat resembles a whiter Mrs. Arthur Munt; but my flowers have all been small. The growth has not been good, and the habit of the plant is too depressed. It is hardly fair to judge a Rose from a single plant. One may always have got a plant from too high a bud, and the form is so good that I shall certainly give it further trial; but I do not expect any great things of it, and from the observations of one or two of my friends I gather that their experience has not been very different from mine.

Carine (H.T., A. Dickson, 1911) is a thin flowered decorative Rose of a beautiful combination of colours, in which salmon, orange and cream are found. Fairly vigorous and rather straggling in habit, it is one of the H.T.'s approaching the Teas rather than the Hybrid Perpetuals.

Claudius (H.T., B. R. Cant, 1910).—This Rose grows satisfactorily and flowers freely enough, making flowers large enough for exhibition, and it is reliable in the sense that one can generally find a flower for a box when it is wanted. It is also one of the most fragrant of Roses, but the colour of a carmine Rose does not interest me, and the form of the flower is too rounded and incurved to be quite pleasing.

Desdemona (H.T., Paul and Son, 1911) is of stronger and more spreading growth than the last, and the colour is light rose-pink; but otherwise it is open to much the same criticism, and it possesses merits of a similar type to Claudius.

Dorothy Radcliffe (H.T., McGredy, 1911) is undoubtedly a pleasing flower of the Lyons Rose colouring, and seems a good grower. If it proves free from the black spot that so troubles the Lyons Rose we ought to be grateful. I have a few plants, which I am proposing to increase this year, but I shall watch with some anxiety whether they are sufficiently free and continuous to retain as garden Roses. I hope they may prove so, but am not free from doubt.

Edward Mawley (H.T., McGredy, 1911).—The rich crimson colour of this Rose and its undoubtedly free-flowering habit make it noticeable in any garden, and it is delightfully fragrant. As I intimated last year, this Rose will be unlikely to be frequently of use to the amateur exhibitor: it comes 60th in Mr. Mawley's analysis of exhibition Roses, and its permanence must depend on its value as a garden plant. There are two points on which I am yet unable to pronounce with the certainty that I could wish. One is whether the plant is a good enough grower, and the other whether it sufficiently often produces flowers of good form! My own plants had the misfortune to suffer from a bad attack of black spot, though planted in new soil, so that in all probability they brought the disease with them, and this seriously weakened them. While, therefore, the growth of my own plants has been indifferent, I incline to think the answer to the first query may prove favourable; I am more doubtful as to the second. That Edward Mawley will sometimes produce beautiful flowers appears certain. I am less clear that it will usually do so, but my materials for forming a definite conclusion on this point are inadequate as yet.

Elizabeth (H.T., Ben Cant, 1911) produces shapely flowers of a rose-pink colour. Though included among the exhibition Roses, the fact that it has as yet attained no place in the analysis indicates that it is scarcely large enough for this purpose, though no doubt a flower may often be found to fill a place in the front row of the box. However that may be, the plant is a very fair grower, and flowers with tolerable freedom, and I place it among my moderate successes of this year.

Ethel Malcolm (H.T., McGredy, 1910) has now secured a place at 33 in the analysis of exhibition Roses, with Lady Ursula and Oberhofgärtner Terks on either side of it, and seems to justify the good opinion I formed of it last year. Its colour is white and blush, not a very decided one, somewhat near that of Mildred Grant. The want of decided colouring is the chief thing against Ethel Malcolm, for it is quite free-flowering and not much affected by disease, so far as my observation goes.

Evelyn Dauntsey (H.T., McGredy, 1911).—This is really one of the bicolour flowers, the reflexes being a soft salmon and the outer surface of the petals and centre of the flower a carmine pink. It is a good grower of branching habit, but the colouring of the flowers is often a little crude.

Ferniehurst (H.T., A. Dickson, 1911) is a good grower and the flowers well formed but perhaps a little tightly packed. The colour is blush, with a curious cinnamon shade, but not sufficiently decided in character.

Florence Haswell Veitch (H.T., Wm. Paul, 1911).—This Rose has a fine perfume and colour, which is scarlet-crimson, and the flowers are nicely formed. It is a strong-growing Rose, a semi-climber. When established it seems to flower freely, but my own plant of only one year's growth has occupied its energies in growing rather than flowering. I do not mind this, however, for I think it will be rectified next year. I am proposing to grow a few plants up a 7-foot bamboo tripod. It seems a decided addition to our decorative red Roses of free growth. *White Rose.*

(To be continued.)

NURSERY NOTE.

A HARDY PLANT NURSERY.

AMONGST the pioneers of hardy plant culture was the late Thomas S. Ware, a native of Barnard Castle, Durham, who started a small nursery at Tottenham in 1857 for the cultivation of hardy plants and bulbs. He acquired about forty acres of land, part of Hale Farm, and the Hale Farm nurseries soon developed into a business of large proportions. Mr. Ware retired from active work in 1890, and settled again in his native town, where he died in 1901. Mr. F. Fell, manager to Mr. Ware for some years, became head of the firm and continued in that position until his death in 1896, when the business was formed into a private company, with Mr. W. G. Valentine, who had been connected with the business since 1887, as managing partner.

In the meantime the Hale Farm Nursery became unsuited for the growing of choice plants in the open, as Tottenham had become a densely populated suburb of London, so in 1900 the firm acquired fresh land at Feltham, where the business is now installed, under the style of Thos. S. Ware, Ltd.

The new nursery is on the main road from Twickenham to Staines, midway between the railway stations of Feltham and Sunbury. The soil is a rich loam, on the heavy side, and very suitable for plant-growing. The main entrance opens on a broad roadway, which runs to the opposite boundary. Broad borders on either side contain a variety of choice plants, representing some of the finest and freest-flowered of their types, and interspersed with ornamental shrubs, with a background of taller shrubs and trees. Our visit was made early in October, and we were surprised to find so many beautiful plants in bloom. The borders still presented a summer-like appearance, whilst the quarters in the nursery were full of the blossom of subjects that "parting summer's lingering blooms delayed."

FIG. 111.—ERYNGIUM PANDANIFOLIUM IN MESSRS. WARE'S NURSERY; COLOUR OF FLOWERS, PALE RED.

One of the brightest patches of colour in the broad walk referred to was a big clump of a decorative Dahlia, named Barlow's Bedder. The rosy-crimson blossoms are borne in great profusion on tall, stiff stems, well above the foliage. This new variety is of dwarf, bushy habit, and just the type of Dahlia for garden purposes. Not far from the Dahlia were broad bands of colour, representing selections of dwarf bedding Begonias of the tuberous-rooted section, the two finest sorts, Bertini and Surpasse Rosamunde, having orange and salmon-pink coloured flowers respectively. Messrs. Ware have also a Begonia nursery at Bexley Heath.

Another plant that attracted notice was Eryngium pandanifolium (see fig. 111), with a stately spike of pale-reddish flowers arising, like a candelabra, from a mass of elegant foliage, suggesting some beautiful long-leaved Cactus.

The stocks of choicer plants are propagated in cold houses or unheated frames, and are grown in small pots. In one batch were 10,000 Rock Roses (Helianthemum), including the varieties Yellow Standard, Rosy Gem, Garibaldi, light pink; and Red Dragon, a fine red sort. One frame was filled with large plants of Saxifraga longifolia, whilst another was almost hidden with the Swiss Daisy, Erigeron mucronatus. The selection of Japanese Windflowers (Anemone japonica) is very extensive, and the plants were in full bloom. We noted the following as being specially good:—Rose of Autumn, a semi-double, rose-coloured flower; Vase d'Argent, white; Géant des Blanches, the finest single white variety; elegantissima, satiny-rose; Prince Heinrich, the deepest coloured of all; and two novelties, Loreley, semi-double, rose coloured; and Kriemhilde, reddish lilac. Crispa, sometimes known as Lady Gilmour, has deeply frilled foliage, like a crested-leaved Primula. A batch of the orange-flowered Cheiranthus Allionii furnished a fine bit of colour. Aster Thompsonii, a Chinese species, is an ideal border plant. Specimens about 2 feet in height were in full flower, and we were informed that the pale-blue or lavender blossoms first appear in June. The fine, blue-flowered Plumbago Larpentæ was in bloom, also the old double-flowered Matricaria (M. inodora grandiflora plena); Caryopteris Mastacanthus, the Moustache plant or Blue Spiræa, with flowers something like those of Trachælium cœruleum; the edges of the petals fringed and hairy; Veronica candidissima, with grey foliage and pretty blue spikes of flowers something like V. incana, but taller and more bushy; V. corymbosa, with deep-blue flowers, a splendid autumn bloomer; Potentilla Gibson's Scarlet, a glorious flower for the border or rockery; Erigeron intermedium, with large blush flowers; E. The Quakeress, a delightful Michaelmas-Daisy-like plant, with large heads of light lavender-coloured flowers; and Nepeta Mussinii, splendid for the border, rock-garden, or water-pool, with grey foliage and light mauve flowers—a continual bloomer. Amongst the large collection of border Asters, all in their full beauty, we specially noted Beauty of Ronsdorf, with rosy-lavender blossoms 2 inches across (like all those of the Amellus type, the plant is a dwarf grower); acris albus, or Mrs. Berkeley, a dwarf plant, smothered with pure white starry blossoms; Norah Peters, white; Chastity, of the vimineus type, and Feltham Blue, a seedling raised in these nurseries. The Michaelmas Daisies, grown in batches of distinct varieties, look in the distance like great splashes of blue, white, or purple. Rudbeckia Neumanii is the finest of the Coneflowers, and a glorious autumn border plant. The Shasta Daisies are excellent plants for furnishing cut blooms; a new variety named Dorritt is an improvement, being a compact grower, about 1½ feet tall, with all the blooms on a level.

Many houses and frames are filled with newly-potted Saxifragas, of which there were large batches of Griesbachii, Boydii, B. alba, Faldonside, apiculata alba, sanguinea superba, and other gems of the family. The stock of Androsaces in pots numbered 10,000 plants. One plant house was filled entirely with seedling Delphiniums estimated to number 10,000, and another contained Violas, Antirrhinums, and Pentstemons, of which very large quantities are raised yearly. The rare Moræa Robinsoniana, with its fugitive, white, Iris-like blossoms, flowered in one of these plant houses last year.

In the nursery fields hedges of Hornbeam 10 feet apart afford protection to seedlings, giving shade on the one side and full exposure to sun on the other, like a north and south wall.

Anemone magellanica, for instance, is planted in the sun, whilst Primula Sieboldii flourishes in the shade. We pass by large beds of Iris stylosa, Alstrœmerias, Montbretias, Aquilegias, Liatris pycnostachya still in flower; breadths of Mulleins (Verbascums), until a stream is reached, where great plantings of Pampas Grass, Eulalias in variety, Bamboos, Miscanthus sacchariferi, and other ornamental grasses are made along the banks. A solitary plant of the tall-growing Helianthus orgyalis was in its full beauty; this Sunflower is a splendid plant for the back of a border. The Thistle-like Stobæa purpurea, with whitish flowers and purplish disc; Chrysogonum virginianum, a yellow flower, which we were informed is scarcely ever out of bloom and grows as well in shade as in sunshine; Coreopsis Eldorado, an improvement on grandiflora; Salvia patens, a magnificent shade of blue; two choice varieties of Lobelia cardinalis—Gloire de St. Annes scarlet, Andrew Barlow salmon, and Aconitum Fischeri, bright blue, are all worthy of notice. We can only refer in passing to the stocks of Irises, Pæonies, Spiræas, Poppies, Clematis, Ivies, Roses, Begonias, Antirrhinums, Delphiniums, Phloxes, Pansies, Violas, and Violets. There are several acres of Dahlias and a number of glasshouses.

Fig. 112.—Begonia socotrana.
(See note on Coloured Plate, p. 307.)

New Secretary of the National Sweet Pea Society.—Mr. Henry D. Tigwell, who was appointed secretary of this society at the recent annual meeting (see p. 297) requests that all communications relating to the society should therefore be addressed to him at Harrow View, Greenford, Middlesex.

SAXIFRAGA AIZOON.

Mr. Farrer asks (see p. 213) if other travellers will compare notes with him as to whether this very variable plant is chiefly a lover of limestone or of granite or sandstone; for though he now realises that S. Aizoon does not avoid limestone altogether, and rightly says the plant is too universal, yet he has observed it more frequently and finer on granite, "and capable, here only, of yielding varieties worthy of recognition." Then he asks, "Will someone record a first-class Aizoon from the limestone?"

If it were not for the fact that several persons, including myself, have stated that this beautiful Saxifrage is calcicole by choice, I should have thought enough attention had been given to the matter, but I must admit frankly that in both my books on Alpine plants I appear to have gone slightly astray here, and I agree with Mr. Farrer that S. Aizoon often grows particularly finely on granite. But it also sometimes grows finely on limestone.

Even down in the South of France, on the imposing and most interesting limestone chain of Sainte-Baume (3,400 feet), within easy access of Marseilles, I found on June 6 last such fine and tall specimens of S. Aizoon that at first I wondered if they were S. lantoscana, which here attains its western limit in Europe, and good examples of which I found and sent to Dr. Mader at Nice, to Kew and elsewhere. They were growing on well-shaded rocks with a northern aspect, at an elevation it may be wiser to leave unmentioned, for the plant is very scarce.

These latter plants are very glandular, and they are identical with the form of S. lingulata which grows on a mountain in the north of the Var. Why Shuttleworth thought it necessary (as Dr. Mader tells us in his important article, *Gard. Chron.*, August 23) to coin the name S. Sanctæ-Balmæ is difficult to say. It was simply placed under S. lingulata by Hanry and by Robert.

Merely in answer to Mr. Farrer's inquiry I may say that again in July, without referring to previous years, on the limestone Diablerets in Switzerland I saw fine specimens of S. Aizoon, though very few where I happened to go, on the north side of the range.

I also have again and again noticed S. Aizoon, "dowdier and smaller in flower," and, I may add, yellower, on the limestone; indeed, in my experience it is more variable on calcareous rock—so variable and often so puny that I long since abandoned the idea of trying to separate varieties. I have also ventured to express the hope that no horticulturists will be tempted to give names to any of these forms unless the latter remain constant, which most of them certainly do not.

There is a beautiful picture, of which the original is before me as I write, of S. Aizoon growing naturally on granite rocks near the Col de la Forclaz, with Anemone sulphurea close by, in Flemwell's *Alpine Flowers and Gardens*, p. 120. But that accurate observer also speaks of it on the limestone Rochers de Naye "varying greatly as regards the red spots on its creamy-white flowers."

Neither Schinz and Keller, in their *Flore de la Suisse*, nor Gremli, in his *Swiss Flora*, particularise the kind of soil S. Aizoon is found on, but both books say it grows on the (limestone) Jura, as all who know those mountains must have noticed. Godet (*Flore du Jura*, p. 257) also said, "Répandue sur tout le Jura."

Dr. Newell Arber in *Plant Life in Alpine Switzerland*, pp. 75-77, describes the chalk glands of this Saxifrage very clearly, and remarks that "it is a curious fact that Saxifrages with chalk-glands may often be found growing in abundance on rocks composed of granite or on schists which contain very little or no lime. Yet by means of their roots these plants can obtain from the soil sufficient lime or chalk to render the incrustation-mechanism of the leaves quite efficient." *H. Stuart Thompson.*

SAXIFRAGA STABIANA.

The question raised by Mr. Farrer on the subject of the growing of Saxifraga Aizoon on limestone or sandstone is an interesting one, and I should like to be permitted to state that here, in South Italy, the plants are growing exclusively on limestone. Never having collected plants on the Alps, I am unable to make any reference to their native habitat on those mountains; but I have obtained Saxifraga Stabiana Ten. (which is synonymous with S. Aizoon var. Stabiana), and S. neglecta Ten., in many places. They grow in rich profusion among calcareous stones on the Monte San Angelo near Castellaman, at a height of 1,140 metres, but I have never seen them in very large tufts, the usual size being twenty to thirty centimetres in diameter, or smaller. Besides the foregoing species I have also come across a few tufts of S. marginata Sternb. This species grows to perfection in sunny and half-shady places; in the former mingled with Onosma stellulatum var. montanum, and Wahlenbergia graminifolia; and in the latter associated with Viola pseudogracilis. Certainly in South Italy Saxifraga Stabiana and S. marginata grow only on limestone. *Willy Müller, Naples.*

Delphinium Monarch of All. — Messrs. Kelway and Son send us a specimen of Delphinium Monarch of All as cut from the open field. The plant is 6 feet tall, and the flowering portion 3 feet in length, whilst the flowers themselves are a purplish-blue colour, and measure 2 inches in diameter.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

EULOPHIELLA AND PHAIUS. — The young growths of E. Elizabethæ have now made considerable progress, and the plant is beginning to root freely from the rhizomes. The present is a good time to re-pot the plant. Being a vigorous-rooting species it requires a rather large receptacle to grow in. Each new growth extends from 4 to 5 inches, and the plant has such a rambling habit that is useless to try to make it conform to pot treatment. The grower must adopt some plan so that the roots from each new pseudo-bulb will find sufficient compost to root into. A long, narrow, teak-wood basket with plenty of drainage answers the purpose admirably. A good depth of compost is necessary, and this may consist of Osmunda-fibre, with a covering of about half an inch of Sphagnum-moss; the species requires generous treatment, and delights in having the Sphagnum growing luxuriantly around the base of the rhizome. The rare E. Peetersiana is a strong-growing plant, and where it is necessary to remove it from the stems of the Platycerium, upon which it was imported, it should be treated as previously advised for its congeneric species. Place both plants in a moist, shady corner of the hottest house, and as new roots become numerous abundance of water must be afforded. Phaius tuberculosus should be similarly treated. As plants of the three species mentioned are extremely liable to thrips and red spider constant attention will be needful.

EPIPHRONITIS VEITCHII.—This lovely hybrid is from a cross between Epidendrum radicans and Sophronites grandiflora, and may be treated almost in the same way as E. radicans, but being a dwarfer-growing plant it prefers a light position in the Cattleya house. My plan is to take about 15 or 20 young growths off the old stems and insert them in a mixture of Osmunda fibre and Sphagnum-moss, three parts of moss to one of the fibre, and for receptacles I prefer shallow teak-wood baskets. The plants thrive well if sprayed lightly overhead two or three times a day when the weather is bright, but in cold, dull weather a morning spraying is sufficient. Should red spider or thrips persistently attack the leaves, remove the plant to the slightly less high temperature of the intermediate house, and periodically dip and clean them as advised in a former calendar for Miltonia vexillaria.

VANDA.—This is the most suitable season for the examination of Vanda tricolor and V. suavis sections. The plants should not be re-potted in spring, as disturbance in the early part of the year, when the heat of the sun is increasing, causes a loss of foliage. In the autumn, however, when the air outside is cool and moist, it is not difficult to maintain in the house the correct temperature which is so essential to the speedy re-establishment of the plants. Moreover, re-potting at the present time is favourable to the production of new roots from the stems; the old roots will also make numerous laterals, which will have time to become firmly rooted in the compost and around the inside of the pot during winter. Each plant should be examined, and scale insects removed; particularly the brown species, which adhere very closely to the leaves. The decayed potting material should then be removed, and the crocks well washed before replacing them. Over the crocks a layer of Sphagnum-moss should be placed. The first plants to receive attention should be those which have lost many of the lower leaves. Those which are well furnished with foliage down to the rim of the pot need not be disturbed; in fact, Vandas are so liable to lose foliage if disturbed that they should not be re-potted unless really in need of more rooting space. Plants from which much of the lower foliage has dropped should be cut off at the stem far enough to allow the bottom leaves to be on a level with the rim of the new pot. Plenty of drainage should be supplied, and the compost may consist of clean, picked Sphagnum-moss, mixed with small and medium-sized crocks. The roots must not be broken or injured during the operation of re-potting, but the material should be pressed well down. When this is finished each stem should be tied to a stake so as to prevent the plant from swaying or bending. The re-potted plants must be protected from direct sunshine; if the moss is damp no water need be given for about a week, after which the plants may be thoroughly watered, so as to keep the roots moist for a considerable time. After this the moss may be sprinkled every time it becomes dry with a sprayer or fine-rosed watering-can. A cool intermediate temperature should be maintained, and the surroundings kept moist.

SCHOMBURGKIA.—Plants of S. tibicinis, S. Sanderiana, S. Kimballiana, S. Thomsoniana, S. Humboldtii, S. chionodora and its variety rosea, which are showing flower-spikes, should be kept in the lightest position available in the warmest house. When the new pseudo-bulbs are fully matured large clusters of fresh roots will appear at their base. It will then be advisable to isolate each plant by standing it on a pot placed in a pan of water in order to protect it from cockroaches.

CYMBIDIUM. — Plants of C. Lowianum, C. Lowio-eburneum, C. L.-e. concolor, C. Tracyanum, C. Colmaniæ, C. Gattonense, C. Doris, C. Woodhamsianum, C. Holfordianum, C. giganteum, C. Wiganianum, C. Gottianum, C. insigne and C. Pauwelsii, which are sending up their flower-spikes should be given plenty of water at the roots; but those not yet showing their spikes should be kept rather dry for several weeks longer. Those on which the flower-spikes are showing should be kept in a light situation and moist atmosphere, spraying them overhead on fine, sunny mornings.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

HARD-WOODED PLANTS. — During bright, sunny weather, Indian Azaleas, Camellias, and Rhododendrons should be allowed plenty of ventilation during the day, and be well syringed in the mornings. If possible, it is a good plan to place all these plants in a Camellia house on two successive evenings, and fumigate them. Camellias must not be allowed to become dry at the root or the flower buds will drop. Roses growing over roofs or on walls should now be pruned less or more severely, according to the variety, removing all the weak wood. In the case of Maréchal Niel and Niphetos good results can be obtained at Christmas and onwards by only removing the very weakest wood, well manuring the border with cow manure, watering it in, and growing the plants in an ordinary greenhouse temperature, preventing draughts. Varieties such as Cheshunt Hybrid, Gloire de Dijon, and other old climbers, should be spurred back and started gradually into growth, increasing the temperature as the growth develops. It is a good plan to put flowers of sulphur on the pipes from the beginning, so as to prevent mildew.

SALVIA GRANDIFLORA.—These plants will now be coming into flower, and can be placed in a light, dry house, where a temperature of 50° to 55° is maintained at night, with a good circulation of air during the day if the atmosphere is clear. On damp, foggy days, keep the house as dry as possible by reducing the ventilation and using more fire-heat.

PELARGONIUMS.—Pelargoniums need a dry, light house, and a minimum temperature of 55° to 60°, the latter heat only on very warm nights. Pelargoniums kept in this rather high temperature flower well, last a long time, and retain the foliage.

RETARDED PLANTS.—As the autumn advances and retarded plants of Lilacs and Azaleas are wanted, they should be placed in an atmospheric temperature of 55° to 60° at night in a light house. Do not syringe the Lilacs overhead, nor shade the plants after the flower trusses have made their appearance.

FREESIAS.—Batches of Freesias should now be removed into a warm house, the night temperature of which is 55° to 60°, and given weak supplies of Clay's Fertiliser, either dissolved in water or applied as a top-dressing.

THE KITCHEN GARDEN.

By JOHN DUNN, Foreman, Royal Gardens, Windsor.

DIGGING AND TRENCHING.—These operations will form an important part of kitchen garden work for some time to come and should be taken in hand as early as possible. Trenching should be practised as largely as possible in order to create a greater depth of soil suitable for the cultivation of vegetables, and as this cannot be accomplished as often as one would like a good dressing of farmyard manure should be applied whenever it does take place, so that the land may retain as long as possible the benefit of this necessary operation.

TURNIPS.—The crop of Turnips should be lifted before the roots become too large for use. They can be placed in an open shed, covered with Fern or straw, to keep them from frost. Unless the roots are perfectly dry, very many should not be placed together, or decay will be set up. Later-sown crops can be left in the ground until frosts occur, when they should be lifted and stored.

CELERY.—Let late plantations of Celery be partially earthed up before the frosts begin, but do not get too forward with this work, because the plants will grow for some time yet, and will keep better if left comparatively free than if choked with soil so early in the season. The final earthing-up can be left until the appearance of frost, when the foliage should be carefully gathered together with the hand, and tied with some soft material, which may be removed when sufficient soil has been placed about the plants.

GREEN VEGETABLES.—Collect all decaying foliage from green vegetables, so as to admit as much air as possible between the rows. The plants will then become hardened before the season is far advanced. The soil between the rows should be stirred and the ground cleared of weeds.

CABBAGES.—It is not yet too late to plant Cabbages for use during May; they will make sufficient root to keep them through the winter, and will probably not suffer so much from frost as those which were planted out in September and have made a quantity of soft growth. All vacancies in early plantations should be made good. Let small plants remaining in the seed-bed be pricked out into a sheltered part of the garden, allowing 4 inches each way between the plants. These will be useful for filling vacancies in the spring.

CUCUMBERS.—Cucumbers planted in August should now be making good progress, and may be allowed to carry a few fruits. If, however, the winter supply depends on these plants they should be treated generously, and only permitted to develop as many fruits as are absolutely required. The growth should be kept well regulated and decaying foliage removed. The bed should be lightly top-dressed with loam and leaf-soil in equal proportions as often as the roots appear through the surface. The house should be syringed twice daily in fine weather and the foliage lightly sprayed with soft water. The temperature should be maintained at 70° at night during mild weather, falling to 65° if the weather is cold. Plants raised from seeds sown in September to produce fruits in the spring should not be allowed to bear fruit before the beginning of the year. A temperature of 65° at night will be suitable for them.

MUSHROOMS.—Mushroom-beds which were spawned early in September should now be producing a regular supply. The temperature of the house should be kept at 55°. The beds, if dry, should be sprayed with rain-water through a fine rose, but this may be rendered unnecessary

if the syringe is freely used for damping the walls and floor of the house. The top ventilators should be kept open, so that the atmosphere may not become stagnant, but draughts must be prevented. Material for successional beds should be collected and prepared. The droppings should be placed in a dry, open shed and turned over every second day. When sufficient material is collected for a bed the whole should be mixed and placed in a heap, allowing it to remain until the temperature has reached 85°, after which it may be removed to the Mushroom house and left until the temperature has again risen to 85°. It should then be rammed tightly together and spawned when the temperature has fallen to 80°, the spawn being broken into pieces the size of a Walnut and inserted at 2 inches under the surface of the bed at a distance of 9 inches apart.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Early-Forcing Houses.—The early-forcing houses and the plants and trees to be placed in them should now be prepared. The interior of the houses will need to be cleansed with soap and water; if red spider or any other pest is present the surfaces should be sprayed with a strong insecticide, afterwards coating them with limewash or paint. If the outside walls and roof are at all dirty they should also be washed. Vines, Peaches, and Fig trees should be carefully cleansed with a soft brush and a solution of Gishurst Compound, taking care to reach all the crevices. For the thorough eradication of mealy bug strong measures are necessary. Fumigation with hydrocyanic acid gas (carefully following the directions given by the vendors) is one method; and, as previously stated, a mixture of gas tar and clay, mixed with water into a paste, is another effectual measure. No time should be lost in any necessary planting of fresh trees, or renovation of borders.

Early Figs.—Figs are very successful plants for early forcing. If they are not doing well, and the border is suspected to be at fault, the soil should be removed (with care, so as not to injure the roots) and the drainage renewed. If the subsoil be gravel a few inches of prepared drainage will be enough; but if the subsoil be of damp clay the surface should be covered with concrete. Over this 9 inches of broken bricks should be placed. The fresh soil for the border may consist of a light, fibrous loam, with lime rubble thoroughly mixed into it, and free from manure. Let the soil be 20 inches deep, and the width of the border 4 to 5 feet. The roots should be replaced near the surface, after cutting away some of the stronger ones. When the border becomes filled with roots a top-dressing of fresh soil can be applied, and also manure, both solid and liquid. In order to keep Fig trees in good bearing condition in a heavy soil it is sometimes necessary to confine the roots of each tree to a small space by means of brick walls.

Peaches.—If fresh trees are to be planted in the early Peach house the work should be done at once. In order to have young trees always at hand to supply the place of old or worn out ones it is a good plan to obtain some young trees every season from the nurseryman and plant them against a wall out-of-doors, keeping them there for a year or two, and then taking them into the houses as occasion requires. The young trees may grow somewhat strongly outside, and it may be necessary to root-prune them the season before removing them indoors. Before planting trees in the house the drainage should be carefully examined, and a border prepared 20 inches deep. The soil should not be too rich, and it should contain some lime-rubble. Do not train the trees to the trellis until the border has subsided. After planting, the soil should be watered in order to induce it to settle around the roots of the trees. If any root-pruning is necessary among the trees in the house it should be done now, so that fresh roots may be made before the trees are forced. If the trees have still any foliage upon them they should be syringed daily with clear water.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Planting.—When planting or renovating a fruit garden it is a good plan first to consider all the circumstances, as careful arrangement of the trees is an important factor in successful culture. If a border is to be planted with fruit trees it should be occupied entirely with them. It is a common method to plant vegetables around the trees, but this is not satisfactory, and the practice should be avoided if possible. For the first few years the ground under young trees should be kept clear of crops and of weeds. Immediately after planting a mulching is beneficial, and a frequent use of the hoe should be made in the succeeding summer. November is a good time for planting, and preparations should now be far advanced. If the trees are on order from the nursery the ground should be made ready in order that they may be put in immediately on arrival. The soil should be even and well pressed down, with a slight incline upwards towards the outer edge of the plot. During the planting the fibrous roots of the tree should be well spread near the surface. The main roots should be shortened, the cut being made with a sharp knife in an upward direction; any which are bruised should be cut away altogether. A small quantity of well-rotted leaf-mould should be worked in amongst the roots. Too great a quantity is inadvisable, but a small amount will assist them in becoming established. All freshly planted trees will need staking for a time. Standard trees planted in the open should be fastened to the stake with some soft material, to prevent the stem from becoming bruised or chafed; the use of tarred twine should especially be avoided. Trees planted against a wall or a wire standard should be allowed to stand for some months before being secured in their final position, as they will sink a little as the soil slowly consolidates.

General Work.—On estates where loam can be obtained easily it is advisable to proceed at once with cutting, carting, and stacking. The stack should be covered with a span or sloping roof, so that rains may run off, and it should be built on a foundation of old bricks or clinkers, otherwise the bottom portion will become sour and spoiled. Leaf-mould should also be stored, Beech and Ash leaves being the most useful. If sand is to be obtained from a river for potting purposes, it should be dug at once and carried to the sheds before the wet season swells the river and makes it impossible to obtain the sand. Lifting, root-pruning, and other such work should now be pursued as fast as the labour at hand will permit. Old trees in full bearing should receive a top-dressing and a little stimulant such as bone meal, working it in among the roots.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Early-Flowering Chrysanthemums.—The present season, in which no frost has yet occurred, has been very favourable to the early-flowering Chrysanthemums. Notes should now be taken of those varieties which have shown themselves most suitable for the flower garden in order that any which are not satisfactory may be rejected when the flowering season is over. The roots of those which are to be kept should be lifted and planted closely together in boxes, each variety being carefully labelled. Place the boxes in cold frames until the spring, when they may be propagated by cuttings, or by division of the old plants.

Montbretia.—If corms of Montbretia are planted in a damp position they may be lifted as soon as the foliage has died down and placed in boxes of dry soil, the boxes being stored in cold frames. In any case, the corms should be lifted every two or three years, for the purpose of dividing the large ones from the small, or the clumps will become weak and cease to flower. In fact, it is a good plan to lift them every year, and plant only the large flowering bulbs in the spring in the flower border, the small bulbs being planted closely together in well-prepared ground, where they will quickly grow to the flowering size.

Gladioli.—Corms of Gladioli may now be taken up and stored for the winter. After removing them from the ground they may be laid out thinly in frames for a week or two until the foliage has died down; they may then be cleaned and stored in boxes in a dry, frost-proof shed, carefully labelling each variety.

Lawns.—Bare patches and irregularities in the lawns should be attended to at once, if the ground is dry enough, so that any new turf that has to be laid may be completely settled down by the spring. Worms are often troublesome on tennis lawns, and as they are now close to the surface this is the best time to destroy them. Lime-water is a cheap and effective remedy; it should be applied in the afternoon, and the dead worms can be removed the following morning.

Protecting Plants.—During severe weather some of the more tender plants will require slight protection. Gunneras, Anchusas, Hollyhocks, Romneya Coulteri and Fuchsias are liable to injury by severe frost. Gunneras can be protected with Heather or Bracken; or, failing these, mats can be used. A few coal ashes placed over the roots of Hollyhocks and Anchusas will save the plants from the severest cold; but Romneya Coulteri should be removed to a sheltered situation, such as the foot of a south wall. The weak growths should be cut out, leaving only those which are strong enough to flower; and these should be protected with a few pieces of Heather during the winter. A good store of Bracken Fern should be kept in a dry shed for the protection of some of the more tender Roses if necessary.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Nursery Beds. The pricking out of the Lettuce seedlings will be completed within a week if the weather remains propitious. A few hours might be spent weekly until the middle of November in looking through the beds, replacing any plants that have died, but transplanting must cease as soon as the plants have begun to grow, or they will obstruct the seedlings. The bell-glasses must be examined every morning for slugs, picking these out by hand. Naphthaline, soot and lime are good specifics against slugs, but their effect is only temporary at this time of year, when there is so much moisture, and they are apt to injure the tender growth of the Lettuce. When the leaves begin to spread out, ventilation may be admitted with advantage.

Winter Crops.—The Spinach sown in August will now be weeded out by hand and all the large leaves removed. A few frames and lights set over one or two of the beds will lengthen the supply during cold weather. August-sown Onions should also be weeded out to prevent damping during December and January. Endives set in August are now ready for bleaching. This operation can be performed in various ways—inverted pots may be placed over the plants, or the bed covered with hay, straw or leaves. The best specimens may be lifted, with a good ball of soil round the roots, and set in frames, where they will keep longer, and can be bleached by covering the lights with mats. The Batavian Green is left growing until Christmas, or until severe weather sets in, when the beds are covered.

Old Manure Beds.—The Carrots sown in July will now have been sent to market, and the beds will be empty, except for the Celeriac. This latter can be left until the end of November, if the weather continues mild, when it should be lifted, all the leaves broken off, and the roots set in sand. They must be kept in a moist place free from frost, such as a cellar, and need not be used until well into the New Year. The old manure is now turned once more, and broken up finely, the wettest portions being left on the top, where they will drain off and decay. The outside edges should be brought to the centre, reducing the width of the bed, if possible, by about 2 feet.

APPOINTMENTS FOR NOVEMBER.

SATURDAY, NOVEMBER 1—
Soc. Française d'Hort. de Londres meet. Co. Clare Fruit and Farm Produce Sh. at Ennis. Loughborough Hort. Soc. Sh.

TUESDAY, NOVEMBER 4—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. Edward White on "The Principles of Garden Design.") West of England Chrys. Sh. (2 days). Nat. Amateur Gard. Assoc. meet. Scottish Hort. Assoc. meet. Plymouth Chrys. Sh. (2 days). Sevenoaks Hort. Soc. Sh. (2 days).

WEDNESDAY, NOVEMBER 5—
Nat. Chrys. Soc. Exh. at the Crystal Palace (3 days). Putney and Wandsworth Chrys. Sh. (2 days). Highgate Chrys. Sh., at Alexandra Palace (2 days). Bath Gardeners' Sh. (2 days). Wargrave Gardeners' Assoc. Exh. Barry Hort. Sh. (2 days). Bideford Sh. Bromley Hort. Soc. Sh. (2 days). Guildford Sh. (2 days). Folkestone Hort. Sh.

THURSDAY, NOVEMBER 6—
Colchester Hort. Soc. Sh. Forest Gate and Stratford Chrys. Sh. (3 days). Exeter Chrys. Sh. (2 days). Linnean Soc. meet.

FRIDAY, NOVEMBER 7—
Windsor Chrys. Soc. Sh.

TUESDAY, NOVEMBER 11—
Birmingham Chrys. Sh. (3 days). Belfast Chrys. Sh. (2 days). Manchester Chrys. Sh. (2 days). Brighton and Sussex Chrys. Sh. (2 days).

WEDNESDAY, NOVEMBER 12—
Dulwich Chrys. Sh. (2 days). York Florists' Chrys. Sh. (2 days). Liverpool Hort. Sh. (2 days).

THURSDAY, NOVEMBER 13—
Scottish Hort. Assoc. Chrys. Sh. (3 days). Newport (Mon.) Chrys. Sh. Nottingham Chrys. Sh. (3 days). Sheffield Chrys. Sh. (3 days). British Gardeners' Assoc. (London Branch). (Lecture by Mr. C. P. Clayton on "Soils and Soil Sterilisation," at Carr's Restaurant, Strand.)

FRIDAY, NOVEMBER 14—
Bradford Chrys. Sh. (2 days).

MONDAY, NOVEMBER 17—
National Chrys. Soc. Executive and Floral Coms. meet.

TUESDAY, NOVEMBER 18—
Roy. Hort. Soc. Coms. meet. (Lecture by Mr. Edward White on "Formal Garden Design.") Hort. Club Dinner and meet. (Lecture by Mr. Reginald Farrer). Chester Paxton Soc. Sh. (2 days).

WEDNESDAY, NOVEMBER 19—
Newcastle Chrys. Sh. (2 days). Bristol Chrys. Sh. (2 days). Roy. Meteorological Soc. meet.

THURSDAY, NOVEMBER 20—
Norfolk Chrys. Sh. (3 days). Paisley Chrys. Sh. Linnean Soc. meet. Aylesbury Chrys. Sh., in the Town Hall.

FRIDAY, NOVEMBER 21—
Bolton Chrys. Sh. (2 days). Blackburn Chrys. and Orchid Sh. (2 days). Dunfermline Chrys. Sh. (2 days). Dundee Chrys. Sh. (2 days). Stockport Hort. Soc. Sh. (2 days). Hawick Hort. Soc. Sh. (2 days).

SATURDAY, NOVEMBER 22—
Morley and District Paxton Soc. Sh.

MONDAY, NOVEMBER 24—
Nat. Chrys. Soc. Floral Com. meet.

SATURDAY, NOVEMBER 29—
Watford Hort. Soc. Sh., at Clarendon Hall, Watford.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 46.3.

ACTUAL TEMPERATURES:—

LONDON, *Wednesday, October* 29 (6 p.m.); Max. 63°; Min. 54°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, October* 30 (10 a.m.): Bar., 29.3°; Temp., 57°. *Weather.*—Fair.

PROVINCES.—*Wednesday, October* 29, Max., 58°, Yarmouth; Min., 53°, Shields.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—
Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris at 10.30.

MONDAY, WEDNESDAY AND THURSDAY—
Roses, Bulbs, Plants, etc., at Stevens' Auction Rooms, King Street, Covent Garden, W.C.

MONDAY—
Nursery Stock at Marden Park Nurseries, Woldingham, by order of Mr. E. Vince, by Protheroe and Morris, at 12.

TUESDAY—
Nursery Stock, at Lindfield Nurseries, Haywards Heath, by order of the Executors of the late Mr. J. Box, by Protheroe and Morris, at 11.30.

WEDNESDAY—
3,250 cases Japanese Liliums, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 2.30.
Palms, Azaleas, Bays, etc., at Protheroe and Morris' rooms, at 5.
Nursery Stock at Shortlands Nursery, Shortlands, Kent, by order of Mr. J. B. Bryant, by Protheroe and Morris, at 11.

THURSDAY—
Roses, at Protheroe and Morris' rooms, at 1.

FRIDAY—
Plants, Roses, Fruit Trees, etc., at Protheroe and Morris' rooms, at 1.

Cold Storage for Retarding Plants and Preserving Flowers.

An interesting paper on the above subject was contributed to the recent Vienna Congress on Refrigeration by Prof. L. C. Corbett. A report of the paper is published in the *Scientific American*, and also in the *American Florist*.

Prof. Corbett drew attention to the fact that the large commercial nurseries of America have abandoned the old method of "heeling in" the stock which has to be lifted for distribution in spring, and have adopted instead the system of storing in "retarding houses." In some instances the retarding house is an underground structure, but in places where the temperature is subject to sharp fluctuations an insulated building above ground is preferred. A condition requisite for success is less the lowness than the uniformity of temperature in the house. Experience shows that in general a temperature of about 43° F. is best, and at that temperature nursery stock may be kept for a twelvemonth without injury or great loss. In America the stock is lifted in November and December, packed carefully in Sphagnum-moss—which is preferable to straw—and placed in the retarding-house.

The use of retarding in the case of plants destined to be forced is well known, and Prof. Corbett referred to the commercial application of this method in the cases of Rose, Hydrangea, Spiræa, and Lily-of-the-Valley.

He also referred to the practice of American florists of "chilling" flowers of Roses and Carnations immediately after they are cut, in order to prolong the lasting powers of their blooms. The chilling must not be too great, and as is also the case in retarding houses the air to which the flowers are exposed must not be dry. A temperature of 40° F. is suitable for the chilling of Roses and Carnations; but certain flowers, such as Orchids, are not amenable to this treatment. Prof. Corbett urges that further tests should be made in the direction of chilling and retarding, and that these tests should be accompanied by a physiological investigation of the processes which exposure to low temperatures set up in the plant. A note by Mr. T. C. Joy appended to the report in the *American Florist* describes the method employed by his firm of retarding hybrid Tea Roses during the winter months. Retarding is essential in the Mid-Southern States of America owing to the frequency of spells of warm weather in January and February, followed by March frosts.

The Roses are dug in late November, cut back to 10 inches, packed upright in damp moss, and stacked in the "Apple or egg room" of the local cold storage warehouse. There they are left at a temperature of from 31-32° F. till March 15. The plants when they come out are frozen solid. They are allowed to stand a day or two to thaw. Such plants start to grow at once, and make a fair crop in 10 weeks. Tea Roses do not keep well in storage, but only the hybrids and hybrid Teas.

Experiments conducted in France by Fourton and Ducomet on the preservation of cut flowers are of interest, both from a practical and scientific point of view, for these investigators set out on their inquiry with a well-established physiological fact in their minds. This fact may be stated briefly thus. If a plant tissue be placed in water many of its cells may be ruptured owing to the greediness with which they take up water. The taking up of water is due to the occurrence in the cell sap of sugars and other substances which attract water into the cell. The force of the attraction set up in this way is called osmotic pressure, and the substances which exert the attraction are known as osmotic substances. A lump of sugar in a teaspoon held over a cup of tea and so that some of the liquid reaches the base of the lump provides a familiar example of an osmotically active substance and of osmotic pressure.

From these facts Messrs. Fourton and Ducomet argued that if the cut stems of flowers be put, not in water, but in an osmotic solution—*e.g.*, of sugar—the tissues will not be ruptured, and the flowers will remain longer without wilting. For the sugar solution balances that in the cell sap, and hence their effects cancel out. Experiment confirms this conjecture, and it is found that if the cut ends of the stems of Carnations are placed in 15 per cent. and those of Roses in 7½ per cent. sugar solution, the flowers last longer than if the stalks are put directly into water. Lilac is not benefited by sugar solution alone, but if its stems are immersed in a 12 per cent. solution of sugar, with a mere trace (one hundredth part of a 1 per cent. solution) of manganese sulphate, the flowers last much longer than usual, and improve in tint. Chrysanthemums, Tulips, and certain other flowers are not benefited, but there is no doubt that further experiment with different kinds of flowers will lead to the discovery of means whereby these difficult subjects may be induced to prolong their lives in the cut state.

The Autumn Exhibition at Ghent.

The third and last flower show of the series arranged in connection with the International Exhibition at Ghent was noteworthy for the prominence given in the schedule to Fruit and Chrysanthemums, though it must be confessed that it contained very many classes for fruits which are entirely out of season. A detailed report of the Chrysanthemum section is given on another page, and we need only here congratulate the two British exhibitors on having provided the most artistic exhibits of these flowers.

The exhibits of Orchids were numerous, and, on the whole, of good quality, but there was a lack of any attempt at colour grouping, and the very obvious stages on which most of the plants were placed did not add to the effect.

Other flowers were not largely represented, but some few Dahlias of ordinary quality were shown. The "awful example," so far as arrangement was concerned, was provided by several shallow tin pans, filled with decapitated flowers. Never again can it be said that the show board provides the worst method of arrangement of exhibition blooms.

The groups of greenhouse plants were few, but the exhibit of Messrs. Sander and Co. contained some interesting plants, amongst which were Alocasia Micholitzii, Anthurium papillosum, Trevesia Sanderi, and a magnificent specimen of Arachnanthe Lowei, carrying four spikes each bearing some 35 flowers.

An exhibit of much interest was that of M. Leon Frissen of Maastricht, which consisted of a number of new forms of Araucaria excelsa. The most striking were excelsa glauca, gracilis, a compact pea-green form; and Leopold II., of unusually compact habit.

The fruit was of very varying merit, some being first-class and others scarcely worthy of exhibition. That of the Royal Society of Tournai was in every respect admirable, and well merited the Diploma of Honour which it received. Perhaps the finest exhibit of Apples was that staged by Notaire Ruison of Heer. Seldom can such fruit have been seen at any show. Many English varieties were staged, such as Peasgood's Nonesuch, The Queen, Warner's King and Bismarck, and the last was of a size we have never before seen. Several varieties as yet unknown in England seem to merit trial; for example, Reinette Descardres and Triomphe de Boulinger. A variety much shown, Chancelier of Oxford, looked extremely good. The finest exhibit of Pears came from the Société Regionale d'Horticulture de Montreuil. Beurré Diel, Charles Ernest, Beurré Baltet Père were almost unrecognised on account of their extraordinary size.

Reinette de Canada and Calville Blanc, the great dessert apples of the Continent, were equally magnificent. An exhibit of Cider Apples formed an interesting feature, and the names of these sorts have many associations with the Middle Ages.

Grapes were exhibited by the Syndicat des Viticulteurs Belges and also by the French Research Station at Montpelier. In the former, varieties well known in England, such as Muscat of Alexandria, Black Alicante and Gros Colmar, were well shown, as were also Alphonse Lavalee and Almeria varieties, which are, so far as we know, not yet grown here. The French collection contained very many varieties of great interest, such as the Algerian Olivette de Provence, Servan, and the curious Santa Paula, in which the berry is even more elongated than in the better-known Cornichon.

Coloured Supplement.—The Coloured Supplement represents one of the most recently introduced varieties of winter-flowering Begonias, belonging to the section which has been obtained by crossing the fibrous-rooted Begonia socotrana (a species introduced from Socotra by Balfour in 1880) with the tuberous-rooted varieties. The first variety of this section was named "John Heal," and was raised by Mr. Heal for Messrs. Jas. Veitch and Sons by crossing B. socotrana with a tuberous variety known as Viscountess Doneraile. For many years this variety was greatly admired, and the persistent efforts of Mr. Heal brought about first one novelty and then another, including amongst the earlier ones Winter Gem and Adonis. Visitors to the shows in recent years have observed fresh varieties possessing superior claims to their forerunners, in regard either to brightness and pureness of colour, size of flowers, erectness of habit, or vigour in growth and flowering. Some of the collections shown by the Chelsea firm in recent years have covered a table half as long as the Royal Horticultural Society's Hall, exhibits of similar size being often presented several times during the same season; for instance, in November, December and January successively, thus showing their floriferous character. The development of this type of Begonia has remained for the greater part in the hands of Messrs. Veitch and Sons; but there is one other firm which has turned its attention to hybridising them, namely Messrs. Clibrans, of Altrincham. This latter firm exhibited at Westminster some novelties of extremely fine quality only last season, awards being obtained for the varieties Lucy Clibran, Splendour, Eclipse and Scarlet Beauty. The variety Emita, illustrated in the Supplement, was raised by Messrs. Veitch from a cross between B. socotrana and a single, orange-scarlet tuberous-rooted variety. While the novelty bears some resemblance to the earlier variety named Optima, the habit is more compact, the foliage more handsome, and the colour a distinct advance on that of Optima. There has existed some prejudice against this type of winter-flowering Begonia, on the grounds that its culture was difficult and often unsatisfactory. The fact is that gardeners have to remember that the type is the effect of a union between a fibrous-rooted and tuberous-rooted species. The illustration (fig. 113) shows one of the hybrids, which can easily be seen to possess the characteristics of both species: it produces fibrous roots and yet is forming a tuber. The hybrids should not be subjected to the same amount of "drying off" as the tuberous-rooted varieties; but at the same time they would be considerably injured if too much moisture were allowed to be present about the roots, after the flowering stage is past. The temperature during growth should be about that of a warm greenhouse, with abundance of ventilation whenever outside conditions will permit. It will be noticed in the illustration (fig. 113) that young growths are pushing up from the axils of the leaves and a small tuber is beginning to form at the base of the stem. The photograph was taken in March and shows the condition of the plant soon after the flowering season. From that point onwards the culture should be directed towards encouraging the tuber to swell and mature, for which purpose the leaves should be kept green and healthy as long as possible. When the young growths are large enough, they can be removed from the axils of the leaves and used as cuttings for the increase of the stock.

Fig. 113.—Winter-flowering Begonia, showing growths from axils of leaves and formation of tuber at base of stem.

The Lawes and Gilbert Centenary Fund.—This fund has now been in existence for a little over a month, and the sum of £1,836 has been raised out of the £6,000 wanted. It will be remembered that the object of the fund is to erect a laboratory in commemoration of the centenary of the birth of Sir John Lawes and Sir Henry Gilbert. The sum of £12,000 is required for the purpose, but it is understood that if £6,000 can be collected by public subscription the remainder will be provided from a grant. Substantial help has been given to the fund by the Rt. Hon. Sir John Brunner, the Marquess of Salisbury, Chilean Nitrate Committee, Mr. W. M. Morrison, Mr. M. R. Pryor, and the Fertiliser Manufacturers' Association. The large number of small subscriptions which have been received indicates a very widespread interest in the movement. A sub-committee has been formed to collect small subscriptions from horticulturists and others who are not in a position to write large cheques, and among the members of this sub-committee are Mr. R. Hooper Pearson and representatives of the British Gardeners' Association, Royal Agricultural Society, the Farmers' Club, Surveyors' Institute, and other bodies. This committee is particularly anxious to secure a large number of small subscriptions, which may be sent either to members of the committee, or to the secretary, the Rothamsted Experimental Station, Harpenden, Herts.

Proposed Hall of Horticulture for Scotland.— For some time past there has been a desire on the part of horticulturists across the Tweed to achieve something for the future that will prove worthy the traditions of Scottish gardening. Down to the present, and notwithstanding the efforts of several of the principal members of both organisations, they have failed in their first and excellent policy, which aimed at the union of the two leading societies, namely, the Royal Caledonian and the Scottish Horticultural Societies. But the desire to do something of real service to gardeners has survived this failure, which after all may be only temporary, and it now finds expression in a general movement for the purpose of acquiring a representative building. The "Horticultural Institution" Fund has already to its credit a sum of £500, and for the purpose of giving much-needed help to the fund the Scottish Horticultural Association has arranged for a bazaar or sale of work to take place in Edinburgh in conjunction with the Chrysanthemum Show on the 14th, 15th, and 16th of the present month. In a circular signed by the president, Mr. David King, we are told that the institution that is desired will be national in character and will form a home for horticulture in Scotland. It is suggested that it should contain at least a lecture hall, library, and reading-room, and suitable office accommodation. The Executive Committee in furtherance of the bazaar are Mr. John Phillips, Convener, and the following ladies and gentlemen: Miss Burton, Mr. A. Chalmers, Mrs. Chalmers, Mr. R. Fife, Mrs. Fife, Mr. T. Fortune,

Mrs. FORTUNE, Mr. DAVID KING, Miss KING, Miss C. A. KING, Mr. J. W. M'HATTIE, Mrs. M'HATTIE, Mr. W. H. MASSIE, Mrs. MASSIE, Miss PHILLIPS, Mr. W. SMALE, Mr. H. THOMPSON, Mr. W. J. THOMPSON, Miss TODD, Mr. JAS. WHYTOCK, and Mrs. WHYTOCK. In addition, there are appointed upwards of 100 receivers of work, who will assist the various stallholders in getting together articles for sale. It is scarcely necessary for us to plead that the objects of the Horticultural Institution Fund merit the interest and help of all horticulturists; the proposition is self-evident, and we trust the efforts that are being made will meet with abundant success. In order that this may be the case gardeners in England, especially perhaps those whose homes are in Scotland, should lose no time before sending donations to the bazaar fund, or, failing this, suitable articles for sale at the stalls.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees of this society will take place on Tuesday, November 4, in the Vincent Square Hall, Westminster. At the 3 o'clock meeting of Fellows a lecture on "The Principles of Garden Design" will be delivered by Mr. EDWARD WHITE.

EDINBURGH ROYAL BOTANIC GARDEN GUILD.—The annual general meeting of the Edinburgh Royal Botanic Garden Guild will be held in the Royal British Hotel, Princes Street, on Friday, the 14th inst., at 6.45 p.m., followed by a dinner at 7.15 p.m. Mr. W. W. SMITH, M.A., assistant keeper, will occupy the chair. It is hoped that as many past members as possible will be present, this being the first dinner held under the auspices of the Guild.

SOUTHAMPTON ROYAL HORTICULTURAL SOCIETY.—This society has made fixtures for 1914 as follows:—Rose Show, July 1, at South Stoneham Park: Summer Show, including Carnation Exhibition, July 21 and 22, at Royal Pier; Autumn Show, November 3 and 4.

THE WATER HYACINTH IN QUEENSLAND.—The Queensland rivers and lagoons are at certain seasons covered with a weed with a beautiful blossom, the "Water Hyacinth," which is an embarrassing pest, in obstructing navigation. It is suggested that this pest may be turned to practical advantage by being used for the manufacture of paper, and experiments with this end in view have recently been made.

COMING-OF-AGE CELEBRATION.—On Thursday, the 23rd ult., Mr. FRANK CYPHER entertained the employees of Messrs. J. CYPHER AND SONS at dinner, in commemoration of the coming-of-age of his eldest son, B. FRANK CYPHER. After dinner several speeches were made and toasts were drunk. The employees presented Mr. B. F. CYPHER with a handsome clock, and the rest of the evening was occupied with a musical programme.

POTATOS IN GERMANY.—The Board of Agriculture state that the German Potato crop this year is, generally speaking, considered good as regards both quality and quantity, with the exception of a few cases in the east and south. The later varieties show no sign of disease, and, owing to the dry and favourable late summer weather of the last few weeks, the harvest is expected to be an early one. It is generally considered that Germany will not have to import Potatos this season, but, on the contrary, will be able to export to some extent. Prices will probably be lower this year than in 1912.

SALE OF FRUIT TREES AT THE LANGLEY NURSERIES, SLOUGH.—The sale of the first portion of the stock at the Langley Nurseries of Messrs. JAS. VEITCH AND SONS took place on Monday, Tuesday, and Wednesday this week. The sale was opened by the auctioneer (the manager of Messrs. PROTHEROE AND MORRIS), who made a few observations on the fact that this was a further step in the disposal of the Veitchian nurseries. The stock sold consisted almost entirely of fruit trees. As our readers are already aware, some thirty-six acres of the freehold land at Langley have been sold to Messrs. SUTTON AND SONS, of Reading, which necessitated the clearance of the stock, except the Rose and fruit trees in dormant bud. Nearly 1,500 lots were entered in the catalogue, including the special collection of fruit trees in pots and tubs which were exhibited by Messrs. VEITCH at the International Horticultural Exhibition, 1912, and were awarded a Gold Medal. There was considerable competition for these trees, which were sold on the second day. The younger fruit trees also were in good demand. The attendance on the second day was much larger than on the first, probably owing to the attraction of the exhibition trees. Representatives of many of the best-known private gardens were there, most of whom were regular customers of Messrs. VEITCH AND SONS, and members of the nursery trade were in attendance from parts so distant as Durham and North Wales.

ICELAND POPPY AT SALEINAZ.—M. H. CORREVON writes to us from Geneva as follows:—In Mr. STUART THOMPSON'S interesting note on "A Glacier Moraine" (see p. 286) he mentions the Iceland Poppy, "which the guide looked upon as 'tout à fait sauvage.'" Allow me to state that the guide must have been a stranger to the country of Saleinaz, for everyone knows (and I have myself repeatedly published the fact for the guidance of botanists) that I planted it myself in the little garden which was made the year after the hut was built. It is interesting to learn that the Poppy has increased and now covers the ground near the hut; but I have never tried to mystify anyone by my action. I may add that I have also sown this Poppy (which I obtained from the centre of Mongolia twenty years ago) on the Augsbordpentor, above Meiden, and that there, 9,000 feet above sea-level, it has lived for many years with Androsace glacialis and flowered well. I did this in order to provide material for my studies and observations on the acclimatisation of Alpine plants, and not at all, as suggested by Mr. THOMPSON, to "improve nature."

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE APPLE CROP.—The Apple crop has turned out much better than anticipated, late varieties having swelled to their usual proportions, and matured rather earlier than in most years. There have been two outstanding circumstances almost peculiar to the past season, the one being the persistence with which the fruit has fallen from the trees; the other the extent of the ravages of red spider, beyond anything I have ever seen. The abundant rains succeeded by an abnormally fine October, will, no doubt, enable the trees to recuperate to a very large extent, and, on the whole, we may look forward to Apple and other fruit trees being in the very best order for meeting the vicissitudes of another season. A peculiarity worth mentioning is that trees on grass have not dropped their fruit to an appreciable extent, and, still more strange, red spider has not attacked them, and, as usual, the best-coloured fruit has been produced on grass land. I have never had Cox's Orange Pippin finer, a variety which in the North does not succeed unless favoured with a position on a wall. *R. F. Brotherston, Midlothian.*

CRINUM POWELLII AND C. POWELLII ALBA.—In your issue of September 20 (p. 198) Mr. H. J. Elwes mentions these beautiful subjects as being hardy in warmer districts. I have this week picked the last flowers from bulbs which had no protection other than the soil, and are growing in quite an exposed position at Messrs. Hinton Bros.' nursery at Leamington Spa. For lovers of Amaryllideæ, who have little greenhouse room to spare, this species will prove quite safe in the open border, and if undisturbed will increase almost as quickly as by greenhouse treatment. It deserves a wider cultivation. *H. B. P.*

APPLE "NELSON'S GLORY" (see p. 279).—For the last five or six years I have grown an Apple here under the name of "Nelson's Glory," which is totally dissimilar in every way from "Warner's King." My tree of the former variety is a very upright grower, not of spreading habit nor so strong in growth as Warner's King. The fruit of Nelson's Glory is also totally different, being much smaller and firmer in flesh, and keeping much longer than the better-known variety. I have hitherto been under the impression that the variety I planted here originated in New Zealand, and took its name from Nelson in that country, and have heard it is largely grown by fruit-growers there. *Wilmot H. Yates, Rotherfield Park Gardens, Hants.* [The variety that is generally found bearing the name of Nelson's Glory is stated by Hogg in the *Fruit Manual* to be synonymous with Warner's King.—EDS.]

SWEET PEAS IN POTS.—At the Birmingham show in July last there was a special class for Sweet Peas in pots or boxes, and the number of plants in each pot or box was limited to six, the pots measuring 13 inches. Generous prizes induced a very spirited competition, whilst, judging from the special interest the exhibits aroused, there is every probability that the 1914 exhibition will see a yet bigger entry. The Sweet Pea is a liberty-loving plant, and the helpful aid of cord netting enables the plants to develop to their fullest extent, allowing an abundance of room in which to grow; they branch freely and form splendid bushes. During the season I tested this method of training upon cord netting against the old method of training upon sticks, all the other conditions as to soil, feeding, position and varieties used being precisely similar. The result was vastly in favour of the cord netting. The feature that more particularly surprised me was the astonishing length of the flowering period, whilst the regular and healthy appearance of the plants, the rich colour and fine size of the flowers, together with their fragrance and length of stems, not to mention the abundance of foliage, all spoke volumes in favour of cord netting. This year's experience has induced me to discard pea-sticks. In the case of six large pots, each containing six plants, I had a continual "show" of bloom from the third week in July until the first week in October, and even as I write they are still pretty. Then there is the economical standpoint, for the netting is not a bit the worse for the season's wear. *William G. Carradine, Secretary, Birmingham Horticultural Society.*

THE TRADE A CENTURY AGO.—The interesting article in last week's issue (see p. 283) induces me to add my quota to the information given. I should call the present-day seedsman an evolution from the old-time herbalist, apothecary and corn-dealer. The first growers of plants for sale were undoubtedly the monks at the various monasteries. It is recorded in 1345 that the gardeners of the earls, barons and bishops accustomed to sell their seeds, vegetables and other wares on a piece of ground near St. Paul's Churchyard were requested to remove elsewhere, owing to a noisy interference with the priests singing and praying in St. Austin's Church near by. The earliest reference I have been able to trace with regard to a seed shop is that made by Sir Richard Weston in his Legacy to his sons on Agriculture in Brabant and Flanders, 1645, where it states: "If any desire to have the great Clover of Flanders or the best sort of Hemp or Flax seeds of those parts, let them enquire at Mr. James Long's shop at the Barge on Billingsgate, and they shall upon timely notice have them procured new and very good at reasonable rates." Quite an instructive catalogue was issued by Benjamin Townsend in 1724. He describes himself as

gardener to Lord Middleton, and his seeds were obtained by writing to him at the "Three Crowns and Naked Boy" over against the new church in the Strand. A copy from my collection is in the Lindley Library of the Royal Horticultural Society with others of later date. Perhaps the greatest of the early London nurseries were those of Messrs. London and Wise (about 1680) where Brompton cemetery now stands, and Fairchild of Hoxton (about 1720) who wrote *The City Gardener* also in the Lindley Library. Many of the old London seedsmen have been from time to time absorbed into the firm in Southwark Street, now known as Messrs. Cooper, Tabor and Co., whose back record could furnish a pedigree that would be exceedingly interesting in this connection. The first London seedhouse on modern lines would, I should fancy, be put down as Messrs. Gibbs and Co., Piccadilly, but they have now retired from business. Messrs. James Carter and Co., still well known, are almost as old. These peeps into the history of a trade with which one has been associated for nearly half a century are both pleasant and instructive. *Donald McDonald.*

Michaelmas Daisy Beauty of Colwall (see p. 280).—I have experienced the same thing complained of by Mr. Long. I have cultivated the variety for four years, and until this season it has always come double, but several plants were raised from cuttings taken last autumn, and with one exception all have come single this season. *John Phillips, Briar Court Gardens, Lindley, Huddersfield.*

"A Glacier Moraine."—A friend in Switzerland writes: "But did you really find Colchicum alpinum growing on a wall at Praz-de-Fort, or have I misread it?" (*Gard. Chron.*, p. 267). As the sentence is ambiguous may I say that the wall with Herniaria at the foot was covered with Sedum album only; and that Sempervivum arachnoideum, Chelidonium majus, Campanula Trachelium and Colchicum alpinum were by the roadside near the clumps of Herminium Monorchis. Nevertheless it was "truly a somewhat wonderful association!" *H. S. Thompson.*

The Effect of Mild Weather on Plant Growth.—The present season has been a very peculiar one, and many plants are now flowering which do not usually bloom until the spring. This will naturally tend to make the spring display much less effective than usual, as there is an excessive quantity of flower bud, with which a severe frost would play havoc. The following species of Rhododendron are in flower here:—R. ponticum, R. campylocarpum, R. Thomsonii, R. decorum, R. setosum, R. intricatum, R. præcox, R. amœna and R. Nobleianum album. Erica lusitanica is also showing colour; Choisya ternata is in full flower; Dendromecon rigidum is in splendid growth and flower; while Acacia retinodes is carrying some fine blooms; this variety has a delicious Almond perfume. The specimen here has been planted out three years and is now twelve feet high. Crinodendrum Hookeri is in bloom for the second time, and Myrtus Jennie Reichenbach is in full flower. The Roses are flowering everywhere and the Alpine garden is bright with blossom. Cosmos are better than usual and Aponogeton distachyon is flowering more freely than during the whole season. The Camellias are making young growth, but all are well supplied with buds. The Acers and Liriodendrons are a blaze of colour. Those who have not before grown Larix Kæmpferi should do so, if only for its autumn colouring. It is now, in October, a lovely sight. The deciduous Azaleas are splendid; the flowers and the foliage vie with each other in beauty and brilliance. *W. A. Cook, Leonardslee Gardens, Horsham, Oct. 28.*

Annuals for Exhibition.—The R.H.S. of Ireland has just issued its second *Record of Proceedings*, and in it may be found some remarks in regard to annuals for exhibition which should claim the consideration of the parent society in London. The writer, who judged the hardy flowers at the recent exhibition of the R.H.S. in Dublin, apparently ignored the authorised code of "Rules for Judging," wherein it reads, at p. 42: "Plants which, though they can be flowered from seed within twelve months, are capable also of being propagated by cuttings, and in that way preserved through the winter for following years, such as Verbenas, Petunias, Lobelias, . . . Phlox Drummondii, etc., cannot be considered true annuals or be exhibited as such." The absurdity of this rule must be obvious to everyone who is called upon to judge "Annuals." We read: "Capable also of being propagated by cuttings," and yet one of the simplest and loveliest annuals of all can, and is, propagated from cuttings. Does it mean that if we adhere to the code the Sweet Pea cannot be shown as an annual, any more than Phlox Drummondii? I witnessed a most beautiful collection of 12 vases at a recent show which gained the 1st prize, and yet included Phlox Drummondii; but the question arises, could not the other exhibitors put in a protest when it is stated: "Exhibits will be judged by the R.H.S. code of rules for judging"? What a responsibility for any judge! *A. J. Elgar.*

Gas Tar and Mealy Bug (see pp. 279, 293).—I am sending you foliage taken from vines that were painted last winter with the mixture of tar and clay I recommended this time last year. The foliage on the same vines was very much damaged by mealy bug, and the foliage now sent, both in vigour and cleanness, shows no bad results from the tar application. For several years past these vines at each winter cleaning received carefully applied dressings with Gishurst's Compound, as well as other insecticides, and in addition in two successional years received two fumigatings each year with hydrogas, and at the end of each year, as I have already indicated, the vines were still much infested with mealy bug. This year, after the one dressing of tar mixture, the vines are entirely free from mealy bug, and have finished a very fine crop of fruit, in size of bunch, size of berry, and bloom on berries. The vinery is 70 feet long, 22 feet wide, and 20 feet high at the highest point; the varieties grown are Mrs. Pince, Lady Hutt, Gros Colman and Appley Towers. I give these details to show that I have proved to my satisfaction that a tar mixture judiciously applied is the most efficient and most economical for vines infested with bug, and I may add that this is by no means my first experience in using it with the same good results. *James Whytock.*

———It may interest some of your readers to hear how we eradicated mealy bug from a vinery of which I had charge a few years ago, which was badly infested with mealy bug. As I took charge in May, when the Grapes (Black Hamburgh) were colouring, it was not possible to attack the pest until the following autumn, but as soon as the leaves had fallen the work was undertaken. Before pruning the vines we gave them a thorough washing with the garden engine, using water very nearly at boiling point—in fact, it boiled as we took it from the copper to fill the engine tank. We kept the jet constantly moving, so that the heat, while killing the bugs, should not injure the vines. It was necessary to repeat the process more than once in order thoroughly to saturate the outer bark and make sure of getting into all the crevices. This treatment appeared to be effectual; but in order to make certain, the vines, after being pruned, were denuded of all loose bark and washed with a scrubbing brush, using a mixture made as follows: To quarter of a pint petroleum and quarter of a pound soft soap, add (stirring all the time) sufficient boiling rainwater to dissolve the whole. Rainwater up to two gallons should be added, and the mixture used warm. After being washed and dried they were painted—over young wood, buds, and everything—with the following mixture:—To half a gallon of clay mixed with water to the consistency of thick cream, add half a pint of gas-tar, the whole being thoroughly mixed, but not boiled. The mixture, being made of yellow clay, was brown; but after being well rubbed into the vines the tar came to the surface, so that after being painted they were of a dull black colour. We subsequently saw only two bugs, which were destroyed, and have never since then had any trouble. *Thos. Trollope, Oxford.*

Disease Resistance.—I note the remarks in the leading article on p. 256 with reference to the efforts made by scientists to obtain information on the many diseases which affect the crops of the horticulturist and the farmer. I am convinced that bad cultivation has more to do with the appearance of disease in Wheat than has any other cause. An excess of nitrogen, brought about by the too free use of nitrate of soda, will produce rust in the flag of the straw, and cause the corn to be deficient in glutin. It need hardly be pointed out that the presence of glutin is essential from the point of view of flour-production; and this is really the main object of the growth of this cereal. Again, if Wheat is sown on land which has been too heavily manured or too deeply ploughed the yield will probably be a large one, but the corn will be "weak"; that is, dull in colour, and with a scarcity of glutin—not nearly so valuable as "strong" corn, which would weigh considerably more per bushel. Disease is seldom found to any great extent on land which has been naturally manured by the presence of sheep feeding on a crop of Rape and Turnips, or Clover; nor where the land has been well dressed with farmyard manure, and the seed put in early in October. Bad farming, exemplified by soil over-run with Couch Grass and other obnoxious weeds, insufficient stimulants, or faulty methods of sowing the seed are the common causes of diseases in crops. *E. Molyneux, Bishop's Waltham.*

Definition of a Gardener.—It would be well if the Royal Horticultural Society in making out their fruit schedule for next year would state therein what they consider to be the strict definition of a "gardener" in the case of classes open to "gardeners and amateurs *only*." At the last Fruit Show there were gardeners exhibiting who had the sole management of anything from seven to over sixty acres of fruit grown specially for market work. Could such exhibitors be fairly called "gardeners" in the sense conveyed by the wording in the schedule? I am well aware that if taxed with it such exhibitors use their private grounds as a blind, and state that the fruit on exhibition was grown there. I submit that no grower, knowing that the fruit on his market ground was better than that from the orchard, would resist the temptation of exhibiting it. I wish at all costs to see fairness in these exhibitions. It is no wonder if some of the classes are not well represented when exhibitors know that market growers are posing as gardeners. There are plenty of classes for market growers—let them play "The King of the Castle" on their own ground. *An Exhibitor.*

Obituary.

John Burr.—Intimation has just been received at his place of birth, Fyvie, Aberdeenshire, of the death of Mr. John Burr, a well-known citizen of San Fernando, California. Born in the Schoolhouse, Lethenty, Fyvie, in 1849, where his father was parish schoolmaster, Mr. Burr received a good education, and afterwards served an apprenticeship in the gardens at Duff House, Banff, then the property of the late Duke of Fife, but which, with its fine gardens and woodlands, was presented by his Grace a few years ago to the towns of Banff and Macduff as a public gift. Thence Mr. Burr went to England, where he pursued his vocation for some years. Then he emigrated to America, where for a number of years he worked as a landscape gardener. In 1884 he purchased in Tulare County a large tract of land, whereon he raised vines and Wheat. Three years later he went to San Fernando, where he acquired a large tract of land, ultimately extending into hundreds of acres, but he still retained jointly with two of his sons large Orange groves in Tulare County. A keen business man and a thorough horticulturist, Mr. Burr's resolute and energetic nature soon brought him to a position of affluence and repute in his adopted country. He also took a keen part in public affairs, and served for four years as Sheriff of Los Angeles County. Mr. Burr paid a visit to his native land four years ago. On his return to California he had the misfortune to be seriously injured in an accident to his motor car, from the effects of which he never recovered.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

October 21, 1913.—*Present*: Mr. E. A. Bowles, M.A., F.L.S., F.E.S. (in the chair); Messrs. W. E. Ledger, A. Worsley, W. C. Worsdell, J. Fraser, W. Hales, F. J. Chittenden (hon. sec.), and R. Farrer (visitor).

Pelargonium hybrids.—Mr. J. Fraser continued his observations upon the origin of the garden varieties of scented-leaved Pelargoniums, dealing mainly with the varieties of P. citriodorum nearly allied to P. crispum. His full report will appear in the *Journal* of the Society.

Pears proliferous.—Mr. E. A. Bunyard sent a Pear, evidently from a summer flower, from the apex of which a stem proceeded bearing in its turn an apical fruit. Mr. Chittenden also showed somewhat similar fruits from Wisley, in one case bearing three buds at the distal end. Mr. Chittenden remarked that many but not all Pears produced from summer flowers, which were particularly numerous in the past season, were seedless, and showed examples in support of his statements. He had found, too, that the fruits borne when foreign pollen was prevented from reaching the stigmas were as a rule seedless, and in a few cases when the seeds had begun to form they had reached but a small size and were infertile. He showed fruits of the variety Conference, and these, like Durondeau and Hacon's Incomparable, were seedless and had no developed core.

Phascolus Caracalla.—Mr. Chittenden showed the flowers of this curious East Indian plant, with their curled keels looking very like snails, so that the plant has been called the Snail flower. The specimens came from Hampton Court, where the plant was introduced in 1690.

Lobelia hybrids.—Mr. Arkwright sent specimens of a hybrid between Lobelia cardinalis and L. syphilitica. The plants, which were tall, varied in the colours of their flowers and in the shades of their foliage. They gave promise of developing into handsome garden plants, though the colours were a little dingy at present. This may have been due in part at least to the late season of their flowering, and to the fact that they had been brought on in a greenhouse. The name L. × Arkwrightii was proposed for them.

Trials at Wisley in 1914-15

The following particulars of trials to be conducted at Wisley in 1914 are supplied by the Secretary :—

Fruit.

Melons.—Ten seeds of each variety to be sent in February.

Flowers.

Tulips of All Descriptions. — Five bulbs of each (named) to be sent at once. (See below.)

Herbaceous Phlox.—Three plants of each to be sent in February.

Early Flowering Outdoor Chrysanthemums.—Three plants of each to be sent in March.

Pentstemons.—Three plants of each to be sent in March.

Perennial Sunflowers (including Heleniums and Rudbeckias).—Three plants of each to be sent in February.

Asters, French, German, or China.—Seed to be sent in February.

Vegetables.

Broccoli.—One packet of seed of each to be sent in February.

French Beans (outdoor).—One pint of seed of each to be sent in March.

Trial of Tulips.

In view of the confusion existing in the nomenclature of Tulips, the Council of the R.H.S. have been requested to draw up a list of synonyms, and have consented to do so with the co-operation of the Dutch growers. It is accordingly proposed to plant this autumn at Wisley (where Tulips do so well) as representative a collection of all classes and descriptions of Tulips as can be got together. Growers in Holland are asked to send over their bulbs to be grown side by side with those from English growers. Five bulbs of each variety should be sent during this October. When they are in bloom a joint committee of Dutch and English Tulip specialists will be invited to meet at Wisley to determine the correct nomenclature. A synonymic list will then be prepared and issued in the *Journal* of the Society. It is important that all bulbs sent should bear the name under which they are known or sent out by the sender, and also an indication of their type—as Early, Late, Darwin, Parrot, Bizarre, Bybloemen, Rose, etc.

Trial of Horticultural Sundries.

The Council of the R.H.S. will continue their Trial of Horticultural Sundries in 1914 under the scheme introduced in October, 1912. The system then adopted has proved admirable after 12 months' practical test, and sundriesmen are again invited to send their specialities (not more than three articles in any one year). Full particulars, with entry form, can be obtained from the Secretary, R.H.S., Vincent Square, S.W., upon receipt of a stamped addressed envelope.

GHENT EXHIBITION.

LAST HORTICULTURAL SHOW OF THE SEASON.

October 25-28.—The final horticultural show in connection with the Ghent International Exhibition was opened on Saturday last and continued until the 28th ult. The schedule provided for a large number of classes for Chrysanthemums, Orchids and other flowers. There were large and imposing exhibits of fruit and vegetables, both from Belgian and from French growers. The show would have been of greater importance if the committee could have secured the use of the large hall in the Palais des Fêtes, but that was not possible and consequently the show was held in the adjoining hall, where the stove plants were exhibited on the occasion of the Quinquennial Exhibition in April.

Fruits, chiefly Apples, Pears, and Grapes, were shown in large numbers. A fine collection came from M. Nomblot Bruneau, Paris, many varieties of Apples and Pears being staged on two long tables. In the fruit classes there were also exhibits from M. L. Chesset, the Tournai Horticultural Society, M. Victor Capelle, Notaire Ruison, and M. Amedée Vroonen. The grapes of the Syndicat des Viticulteurs belges were shown in bunches in pairs—an attractive collection. M. L. Chevillot also exhibited Grapes. Vegetables occupied a large portion of the space, and some of the collections were remarkable for their variety. Special mention should be made of the exhibit shown by Messrs. Vilmorin Andrieux and Co. The Vinderhoute Society of Gardeners, the P.L.M. Railway Co. (a collective group), and the Syndicat des Agriculteurs Maraichers d'Avignon and of Aramon, were well represented in the vegetable section. Some good specimens came also from the Vilvorde Horticultural School.

Chrysanthemums received especial attention on account of the Annual Congress of the French Chrysanthemum Society, which coincided with the show. First and foremost in the cut-bloom section must be noted the British exhibits.

W. E. Mocatta, Esq. (gr. Mr. Thomas Stevenson) staged a superb collection of Japanese and single Chrysanthemums of the highest order of merit, and was awarded the 1st prize, with felicitations of the jury, who recommended an augmentation of the prize officially offered. At intervals there were huge stands containing massive bunches of large blooms, alternating with vases of singles, the whole display most artistically lightened with Maidenhair Ferns, autumn foliage and greenery. Lady Talbot, Queen Mary, Hon. Mrs. Lopes, Alice Finch, Frank Payne, Alice Lemon, Mrs. G. Lloyd Wigg, Algernon Davis, Pockett's Crimson and Bob Pulling, to mention only a few varieties, were especially fine. In all there were about 100 blooms in 36 varieties. The singles were quite a revelation to many of the visitors, who had never seen anything so fine before.

Fig. 114.—English Chrysanthemums at the Ghent Exhibition.

Miss Mabel Booth, Celia, Ben Ma Chree, Mrs. Garnar, Cardinal (new) and Portia were excellent.

Messrs. Wells and Co., Merstham, set up a most artistic group of beautiful flowers in the Japanese and single section. Ferns and autumn foliage were freely employed in this exhibit, making an effect quite different from that of most of the French and Belgian exhibits, which had a flattened appearance, resembling the Azalea displays in the Spring Show. Messrs. Wells had a fine novety, Wm. Vert, a crimson Japanese of large size, which made a most effective show. There were also Mrs. Gilbert Drabble. Queen Mary, Mrs. Keith Luxford, Mrs. R. Luxford, Mme. Morel de Westgaver and Rose Queen. Singles included Mensa, Elfrida, Celia, Altrincham Yellow, Sylvia Slade, Addie Mason, White Swan and numerous others. The same exhibitors also staged a collection of Carnations.

There was an excellent display by M. Firmin de Smet; a huge semi-circular group on one side of the hall, exactly opposite a similar one from Mme. Morel de Westgaver. The former exhibitor was awarded a Gold Medal, value 250 francs, and the latter a work of art. The lady's group had the finer flowers. Wm. Turner, Mrs. J. Wells, Mrs. R. Luxford, Mr. W. Meare, O. H. Broomhead, Tokio, Reginald Vallis, Vicar of Bray, Mrs. Coombes, Mme. Gustave Henry

were specially noted, but there were hundreds of other varieties, many of which were of foreign origin.

By far the most important exhibit of plants was that sent from Paris by Vilmorin Andrieux and Co. On a grass lawn of considerable extent three large beds were cut and filled with bush-trained plants in this firm's well-known style. At intervals were pyramids and trained specimens, the most curious being the Japanese square-shaped pyramids, in which the flowers are trained in straight rows. The best blooms in the others comprised Miss Alice Byron, Alice Lemon, Vivian Morel, Mrs. J. Neil, C. H. Totty, Rose Queen, Frou-Frou, Kara Dow, Safrano and many other novelties of the firm's raising.

Novelties were neither numerous nor exceptional. M. Remy, successor to Calvat, sent about a score of varieties set up in vases of five. M. Héraud also had a small collection.

The Van Houtte Establishment staged an important group of Chrysanthemums in medium-sized flowers.

The Society of Horticulture at Lille showed a large group of single blooms mingled with Cocos and edged with Asparagus plumosus. Sappho, Mary Mason, La Gracieuse, Mme. P. Radaelli, F. S. Vallis, Valerie Greenham and Mary Inglis were good flowers. A creditable exhibit of blooms all of show quality was shown by M. Paul Féron. Wm. Turner, Splendour, Mrs. R. Luxford, Mrs. D. Syme were among the best.

Mme. Morel de Westgaver had some freely-flowered, decorative Japanese varieties in bush plants. A very large flat group containing many varieties came from Messrs. Louis Sels and Co., and a French firm, Messrs. Dubuisson-Foubert, sent a fine collection of large Japanese. Thomas Lunt, F. S. Vallis, Wm. Turner, Reg. Vallis, Alec. Payne, Mrs. Gilbert Drabble and Col. Linel were a few of the most attractive.

Messrs. Rivoire and Sons, of Lyons, sent a mixed collection of Chrysanthemums and Dahlias. From the same city M. André Charmet sent Chrysanthemums and Carnations. Other exhibitors whose plants and blooms showed a high degree of culture included Messrs. J Chevalier, August Cornelis, Mme. Felix Beernaerts (a really fine group of good standard varieties), Victor Verellin and Sons, Robert Vandevelde (some good plants, each carrying 6 to 8 blooms), A. de Schryver, Ed. Adam, and Leopold Burger, who put up a collection of the Caprice family.

A fine group of 50 cut blooms of Mrs. Gilbert Drabble was shown by M. Pierre Degoes.

Orchids formed an important part of the show, and some of the exhibits were of great extent. We can only mention a few of the leading exhibitors by name, such as Messrs. Sander, of Bruges, Jules Hye de Crom, Ch. Dietrich, Chas. Vuylsteke, Charlesworth and Co., Dr. G. Ballion, Emilé Praet, René Behiels, Maurice Verdonck, Jean Van de Putte and Co., Th. Pauwels (a huge display) and Firmin Lambeau; to all of whom prizes were awarded.

Other exhibits worthy of note were the floral decorations by Van Haute-Bogaerts.

Messrs. Cayeux and Leclerc had a long table of Cactus Dahlias with a few Pompons.

Hydrangeas were shown by M. Schaffeman, and a collection of Lilacs by M. Graindorge.

There was a very large attendance of visitors. The weather was fine, and the authorities are to be congratulated on the final horticultural show of the 1913 International and Universal Exhibition. The judges' luncheon was held in the Azalea Restaurant, and presided over by M. Alexis Callier. M. Ph. de Vilmorin, president of the jury, replied to the welcome offered by the show authorities.

Fig. 115.—M. Pauwel's orchids at the Ghent exhibition.

HEREFORD FRUIT AND CHRYSANTHEMUM.

October 22 and 23.—This Society held its annual show in the Shire Hall, Hereford, and though hardy fruits are not so plentiful in this district as usual, there was, except in the chief class for Apples and Pears, no perceptible falling off in the exhibits. Chrysanthemums were not such a prominent feature as in earlier years. Vegetables of excellent quality were plentiful, whilst Grain, Farm Roots and Hops contributed to make a large and interesting display.

The familiar and kindly features of the late Mr. R. M. Whiting, of Credenhill, whose courteous bearing endeared him to all who knew him, were sadly missed. This was feelingly alluded to at the luncheon by Mr. Powell, in proposing a vote of condolence to Mrs. Whiting and her sons and daughters. The late Mr. Whiting will be remembered as a successful exhibitor of hardy fruit at the leading shows.

Open Classes.

Collection of Apples arranged in a space of 70 square feet.—Mr. C. W. Powell was awarded the 1st prize for the only exhibit staged. He had large fruits, somewhat deficient in colour. Of leading sorts were American Mother, Rival, Crimson Queening, Allington, Cox's Orange and Ribston Pippins, Lord Derby, Stirling Castle, Lawry's Cornish Giant, Alfriston, Cox's Pomona, Hambling's Seedling, Sandringham, Annie Elizabeth, Lane's Prince Albert, Hoary Morning and Newton Wonder.

Collection of Apples in a space of 40 square feet.—Captain Clive, Whitefield (gr. Mr. Stephens), was placed 1st amongst three exhibitors. He staged fruits of leading varieties. Mrs. Hill, Moreton Court, followed, and staged a very creditable set.

Twelve dishes of culinary Apples.—Five competitors took part in this class, Mr. Barker, gr. to F. Boddington, Esq., Burghill, being deservedly winner of the 1st prize with excellent examples of Golden Noble, Lane's Prince Albert, Lady Henniker, Annie Elizabeth, Bismarck, Stirling Castle, Warner's King, Bramley's Seedling, Newton Wonder, Beauty of Kent, Blenheim Pippin, and Golden Spire. Messrs. Getthing and Newton, Glewston Court (gr. Mr. Kelly), were 2nd.

Eight dishes dessert Apples.—Mr. Barker again took leading honours amongst four competitors. He staged fruits of Rival, Charles Ross, Adams's and Worcester Pearmain, Cox's Orange, Ribston and King of the Pippins, and Court Pendû Plat. 2nd, Mr. Kelly.

Single dish classes.—There was a fine display of excellent fruit throughout these classes.

Open only to Tenant Farmers and Amateurs.

For 6 dishes selected from sixteen specially named varieties Mr. Powell was the only competitor, and was awarded the 1st prize for capital fruits of King Edward VII., Rival, James Grieve, Lord Hindlip, Charles Ross and King's Acre Bountiful.

Mr. Liddle was 1st for 8 culinary and 4 dessert varieties, staging in good condition The Queen, Newton Wonder, Warner's King, Striped Beaufin, Mère de Ménage, Lord Derby, Blenheim Pippin, King and Ribston Pippins, Adams's Pearmain, etc. 2nd, Mr. Bott, Breinton.

Three classes were devoted to varieties suitable for market, viz., 18 dishes, 12 culinary and 6 dessert varieties. Here Mr. Kelly led amongst three exhibitors, and staged in fine condition Lane's Prince Albert, Stirling Castle, Newton Wonder, Beauty of Kent, Bramley's Seedling, Blenheim Pippin, Cox's Orange Pippin, and Charles Ross. Mr. Bott was a close 2nd. Mr. Kelly again led for 8 dishes of culinary varieties, with similar fine examples. Mr. Powell was 2nd.

With 8 dishes of dessert Apples Mr. Kelly once again secured the lead with Blenheim Pippin, Charles Ross, Adams's Pearmain, Rival, Cox's Orange and King Pippins, Wealthy and Worcester Pearmain; 2nd, Mr. Bott.

Champion Classes.

Mr. Liddle was 1st for a dish of culinary Apples, with Warner's King in grand condition. Captain Cox was 1st for a dish of dessert, with highly coloured large examples of Cox's Orange Pippin. Mrs. Abbott was 1st with a grand dish of Marie Louise for dessert Pears, and Col. Henry, Haffield House (gr. Mr. Sykes), was 1st for Grapes, with a perfect bunch of Gros Maroc.

Boxes Packed for Market.

There was good competition in 5 market classes, and comparatively little difference in the manner in which the packing was executed. Mr. Kelly was 1st for boxes of Bramley's Seedling, and for Lane's Prince Albert, amongst 4 exhibitors of each. Captain Cox was 1st amongst 5 competitors of Newton Wonder, and also amongst 4 for Cox's Orange Pippin. Mr. Powell was 1st of 4 for Blenheim Pippin.

Collection of Fruit.—The schedule provides only one class, that for 6 dishes, in which Mr. Sykes excelled, and staged good Muscat of Alexandria and first-rate Gros Maroc Grapes, Royal Jubilee Melon, Pitmaston Duchess Pears, Cox's Orange Pippin Apples, and Brown Turkey Figs; 2nd, Mr. Liddle.

Grapes.—The variety Gros Colmar was best staged by Mr. Liddle. For any other black variety Mrs. Woodhouse led with fine examples of Black Alicante. For any white variety 4 exhibitors staged Muscat of Alexandria, Mr. Liddle winning the 1st prize.

Pears.—There was a falling off in the number of Pears, but the quality was generally good. There were two collections staged in the class for 12 dishes. Mr. Parrott, gr. to A. W. FOSTER, Esq., Brockhampton Court, Ross, easily secured the 1st prize with excellent samples of Beurré Superfin, B. Box, B. Easter, B. Rance, Doyenné du Comice, Marie Louise, Emile d'Heyst, Pitmaston Duchess, Marie Louise d'Uccle, Beurré Alexandre Lucas, Glou Morceau and Durondeau; 2nd, The Rev. G. H. DEVONPORT, Foxley.

Vegetables.—Eleven classes were provided, in which excellent produce was staged, Messrs. A. G. BURNEY, W. STANSBURY, R. STEPHENS and F. HOLLINGS being the leading prize winners.

Chrysanthemums.—Six classes were provided for blooms arranged in vases. Messrs. LIDDLE, STEPHENS, WHITE, WILLIAMS, PARROTT and TALBOTT won the leading prizes.

Table Decorations.—Amongst 6 competitors Mrs. W. SPENCER, of Goodrich, was 1st with a very tasteful arrangement.

EXHIBITION AT BUDAPEST.

THE horticultural exhibition opened by the Hungarian Minister of Agriculture on the 19th ult. was very successful. Though the number of exhibits was not large the quality was excellent, and the show presented features of interest which distinguished it from the usual, rather stereotyped Continental show. There were some handsome examples of landscape gardening, notably that of the Royal Hungarian Gardeners' Academy. The Royal Correctional Institution of Aszod showed a fine group of Cyclamen and Chrysanthemums, and Messrs. MAUTHUER, of Budapest, exhibited some beautiful Cyclamen and Ericas. The fruit and vegetable sections were well filled, and some interesting exhibits were to be seen. The Apples and Pears of Prince NICOLAS ESZTERHAZY, the Grapes of the WINE-PRODUCERS' ASSOCIATION, and those of Mr. JOHN MATHIAS, were of high quality, and the varieties were accurately named. Mr. EDMUND MAUTHUER, Royal Seedsman, of Budapest, showed some extremely fine vegetables grown from seed. There were also some groups of vegetables, including Parsley, Celery, Carrots, Cabbages, Savoys, Tomatos, Red Pepper, and Onions, exhibited by the Royal Hungarian State Vegetable Grounds at Révfülöp, etc. The vegetables were, without exception, of first-class quality, and excited the admiration of visitors and jury alike. It may be mentioned that the Hungarian Government has shown creditable interest in this matter of vegetable culture. Already the high quality of certain vegetables is becoming so well known as to discourage importation, notably the Onions of Makó, the Red Pepper of Szeged, and the Parsley and Cucumbers of Vagy Körös. The vegetable groups of the garden farms in the metropolis of Budapest also showed a high degree of culture. The climate of Hungary is warmer than that of most European countries, and many fruits were to be seen which cannot be grown out-of-doors in Germany or Belgium. Such products as Melons, Squashes, Pumpkins, Gourds, smooth Tomatos, Egg-plants, Red, Blue, Yellow and White Peppers, and fruits of Physalis peruviana, lent a pleasing variety to the appearance of the exhibition. *S. Sávoly.*

CEMETERY SUPERINTENDENTS'.

OCTOBER 17.—At a well-attended meeting of cemetery superintendents held at the Kensington Town Hall, Mr. C. F. Tate occupying the chair, it was unanimously agreed to form an Association, to be known as the United Kingdom Association of Cemetery Superintendents.

Mr. J. D. Robertson, City of London, was elected President; Mr. A. King, Islington, Vice-President, and Mr. C. F. Tate, Kensington Cemetery, Hanwell, W., Secretary and Treasurer.

An organising committee was elected to draft rules. Full particulars may be obtained from the Secretary, who will be pleased to receive the names of intending members. The annual subscription will be 5s.

Kent Commercial Fruit Show.

OCTOBER 28 AND 29.—The third Kent Commercial Fruit Show was held on Tuesday and Wednesday last at Maidstone. The entries numbered 407, as compared with 363 last year, according to the catalogue, without allowing for a few absentees in each year. As on previous occasions, all but a very small minority of the exhibits were those of Kent growers. The judges were Messrs. H. A. Chanter, Covent Garden; G. Glenny, Wisbech; R. R. Robbins, Yiewsley, Middlesex; E. P. Norbury, Malvern; E. L. Vinden, London; C. Wray, Hull; W. Seabrook, Chelmsford; and Barnett Emmanuel, Covent Garden

The exhibition, on the whole, was even better than that of last year, and much larger, whilst there was also a striking improvement in the packing. The increase in the dimensions of the show was even greater than is indicated by that of the entries, in consequence of the addition of classes for Apples in barrels, which occupied a good deal of space. It is obvious that if the increase is to continue the Corn Exchange at Maidstone will not be large enough for the exhibition, and it was well suggested at the public luncheon by Mr. Nix, speaking for a deputation from the Royal Agricultural Society, that a migration to London might be advantageous. There is much to be said for this change of place. In the first place a London show would bring the excellence of the home supply of fruit before a vastly increased number of people at home and abroad, while it would attract from other counties than Kent a great many more exhibits than have hitherto been sent to the show. At present exhibitors from a considerable distance have a very poor chance of competing with Kent growers, as the former have to take the risk of damage from the bruising of their fruit in course of transport by rail, while most of the latter can send their produce by road in their own vans, with the exercise of the greatest care against its injury.

The judging was finished in good time, and all the awards were shown on the exhibits at an early hour on Tuesday morning, excepting those of the Cups and Medals, which were posted up in the afternoon. The maximum points in the judging were 25 for size, 15 for colour, 20 for condition, 10 for uniformity of grading, 20 for quality of pack, and 10 for general appearance, making a total of 100.

The first class consisted of 40 entries of Bramley's Seedling Apple, 6 boxes to an entry. It made an imposing appearance, and the general level of merit made a nearer approach to uniformity than was the case last year, though there were wide differences in colouring, and there was more specking than there was on the previous occasion. In some cases, owing to too much bulge being allowed, or to damage from some other cause, there was a considerable amount of bruising, which did not appear to have had as much disqualifying effect in the eyes of the judges as might have been expected, and this may be said also as to defects due to insect or fungous injury. The 1st prize in the class was awarded to Mr. S. SKELTON, West Farleigh, Maidstone, for Apples of great size, but not much colour, and this exhibit was afterwards awarded the Coupe Challenge Cup and the Silver-Gilt Medal of the Fruiterers' Company for the best exhibit grown in Kent, Surrey, or Sussex in Classes 1-4, comprising Bramley's Seedling, Newton Wonder, Lane's Prince Albert and Blenheim Pippin; also the reserve ticked to the Mence Smith Championship, and the Medal of the Fruiterers' Company for the best box of Apples in Classes 1-15. The excellent packing was that which is known as the 3-3 offset, which, with the 3-2 offset, appeared to be the most popular methods for this latest show, though there were many straight packs, including not a few among the prize-winning lots. It must be said that the straight pack, especially when the coloured sides of the Apples are uppermost, presents the most level and attractive appearance, and for short distances of transport it is probably the more advantageous. But most packing experts appear to have come to the conclusion that it leaves the danger of bruising greater than is incurred by other methods of packing. The 2nd prize in the class was won by Mr. G. E. CHAMPION, Linton, Maidstone, for an exhibit of high colour and excellence. Mr. W. W. HUBBLE, of Hunton, Maidstone, gained the 3rd prize for larger Apples of less colour; and the 4th fell to Mr. O. ELLIS, Bramley, Surrey, one of the few winners outside Kent.

Newton Wonder made an excellent class of 26 entries of 6 boxes each, though the fruit was hardly up to last year's size, which was remarkable. There was even more difference in the colouring of the several exhibits than in the case of Bramley, some being remarkably brilliant and others strikingly deficient by comparison. In soundness and freedom from blemishes this variety was excellent, and very little bruising was noticeable, as it is one of the best travellers. Mr. F. SMITH, Toddington, Maidstone, won the 1st prize with a splendid sample as to size and colour alike. His exhibits of the same variety last year were very striking. Very fine, but not highly coloured, were the Apples in the 2nd prize lot, sent by Mr. A. MISKIN, of Chart Sutton. The 3rd prize fell to a Sussex exhibitor, Mr. A. J. CARTER, of Billingshurst, for fruit of brilliant colour, but not great size. Mr. S. SKELTON, West Farleigh, gained the 4th prize for another well-coloured lot.

Lane's Prince Albert made a strikingly fine class of 23 entries, 6 boxes each, greatly superior to that of last year. The Apples were generally large and remarkably clean. Mr. A. MISKIN, of Chart Sutton, came to the top with large and fairly coloured fruit in a straight pack, followed by Mr. S. SMITH, of Barming. Mr. E. B. BURNS, of East Farleigh, and Mr. A. J. CARTER, of Billingshurst, Sussex, followed with other highly meritorious exhibits.

Blenheim Pippin was another excellent class, comprising 19 entries of 6 boxes each. In this class Messrs. GASKAIN AND WHITING, of Dargate, Faversham, who were so remarkably successful last year, took the first place with Apples strikingly remarkable for size and colour, presented very effectively in a straight pack. Messrs. SKINNER AND SONS, of Boughton Monchelsea, furnished a good 2nd, well packed in the 3-2 offset method. Good fruit in an ugly pack, showing great gaps, gained the 3rd prize for Mr. W. W. HUBBLE, of Hunton, Maidstone. The pack seems to be describable only as a 4-3 straight pack, though it may possibly have another name.

Lord Derby, which was excellent last year, was even more strikingly so on this latest occasion. There were 27 entries of 6 boxes each. Here again Messrs. GASKAIN AND WHITING came to the top, their Apples being of tremendous size for the variety, and beautifully clean. Other excellent lots gaining the 2nd, 3rd, and 4th prizes were exhibited by Messrs. A. MISKIN, E. B. BURNS and G. MOUNT AND SONS in the order given.

A small class of 13 entries of 3 boxes each of Worcester Pearmain was as good as could be expected for a variety past its proper season. Mr. S. SMITH, of Barming, gained the 1st prize for a brilliantly-coloured lot, and Messrs. MOUNT AND SON, of Canterbury, the 2nd for very fine fruit, Messrs. WAKELY BROS. being 3rd.

Allington Pippin was very strikingly represented by 25 entries of three boxes each. The size and colour of many lots were remarkable; but bitter pit was slightly manifest in too many of the exhibits. Great size and high colour gained the 1st place for Mr. H. M. COBB, of Higham, Rochester. Colonel HONEYBALL, of Teynham, came next with a well-coloured lot of a better dessert size, and Mr. KLEINWORT's 3rd prize fruit was brilliant.

Cox's Orange Pippin, in 18 entries of three boxes, was hardly up to last year's standard on the whole. There were some very fine exhibits but great unevenness and too much russeting were noticeable. This is not a Cox year. Large and splendidly-coloured, however, were the Apples which gained for Messrs. GASKAIN AND WHITING the 1st prize in the class, and the Mence Smith Champion Cup for the best box of Apples in Classes 1-15, comprising all the

classes of Apples but the one for half-boxes of a new dessert variety. Other winners in the order given were Mr. W. D. English and Col. Honeyball.

A class for any dessert Apple other than Blenheim, Worcester, Cox, or Allington, was represented by 20 exhibits. It was not particularly striking on the whole, though there were some brilliant specimens of Charles Ross, King of the Pippins, and Baumann's Red Winter Reinette. The last gained the 1st prize for Mr. A. Miskin, while Messrs. Gaskain and Whiting obtained the 2nd prize for a brilliant lot of unnamed Apples. Several of the exhibits of this firm were unnamed. If seedlings not yet christened, this should surely have been stated in the catalogue and on the exhibits. Mr. A. J. Carter was placed 3rd for King of the Pippins.

For any cooking Apple in season there was an entry of 28 of three boxes each. In this Messrs. Gaskain and Whiting came to the top with a magnificent exhibit of Apples not named, but understood to be Annie Elizabeth. This gained for them the reserve ticket to one of the champion prizes. The 2nd prize was to another unnamed variety, shown by Mr. D. Langlands, Chart Sutton, and the 3rd by Mr. H. M. Cobb for some admirable Gascoyne's Scarlet.

Mr. H. L. Webb, of Upchurch, Sittingbourne, was highly commended for a green Apple named King Edward VII.

Class 11, for the best-packed exhibit, attracted 26 entries of three boxes. Here Mr. A. Miskin, of Chart Sutton, came to the front for an excellent 3-3 offset pack, followed by the executors of the late Mr. R. Neve, of Tenterden, with a 3-2 offset, and Mr. S. Smith, of Barming, with another like the second. There were great variations in merit of packing in this class.

Apples packed in barrels were exhibited for the first time at this show, and the opening for the addition was indicated by an entry of 37 lots of four barrels each, two being of the first and two of the second grade. The class made a very imposing appearance. Some barrels were remarkably well packed and others not so. In this class Mr. T. J. Poupart, of Covent Garden, presented a prize of £10, while the *Fruit Grower* added a cup valued at 4 guineas, and a second cup, value 5 guineas, was presented by Messrs. Berger and Co., of London. Here Mr. A. Miskin was again successful, taking the first prize, the £10 prize, the first cup, and a Knightiar Medal presented by the Royal Agricultural Society. Bramley's Seedling, Newton Wonder, and Lane's Prince Albert were the varieties eligible in this class, and Mr. Miskin's winning exhibit was of the first two varieties. The second prize and the second cup were won by Mr. S. Smith, of Barming, for well-packed Newton Wonders.

Class 13 was for commercial growers in Kent growing less than 20 acres, all the preceding classes having been open to Great Britain and Ireland. The varieties were Bramley and Newton, and there were 15 entries of one box each. There were some exhibits of striking excellence in this class. The winners, in the order given, were Mr. H. E. Hutchinson, of Staplehurst; Mr. P. Cox, of Maidstone; and Mr. J. Dungey, of Cranbrook.

Class 14, for Lane's Prince Albert or Lord Derby, was another for the same class of growers, and it attracted 18 entries of one box each. Some wonderful Lane's Prince Alberts gained the first prize and the silver medal of the Fruiterers' Co. for Messrs. P. and E. Le Feaver, of Morden. Mr. P. P. Scott, of Leeds, Maidstone, and Mr. H. E. Hutchinson, of Staplehurst, were second and third.

Another class for small growers in Kent was for any variety of dessert Apples, of which 22 entries of one box were shown. One of the best boxes of Cox's Orange Pippin in the show gained the first prize for Mr. H. E. Hutchinson, while Messrs. Le Feaver were placed second.

Only 6 entries, of three half-boxes each, represented Pears exhibited by commercial growers in Kent. Messrs. Gaskain and Whiting were put first for an unnamed variety, followed by Mr. B. Cradin for another, and Mr. H. M. Cobb for Beurré Bosc. Another Kent class was for bottled fruits, of which there were 12 entries of a dozen bottles. The prizes were won by the South-Eastern Agricultural College, the Swanley Horticultural College, and Mrs. Hinds, of Smarden, in the order given.

Only 8 entries of one half-box each appeared in the class for a new dessert Apple, open to commercial growers or nurserymen in Great Britain or Ireland. The cup given as the only prize in this class was won by Messrs. Gaskain and Whiting for another of their several unnamed exhibits.

In a curiously small class of 5 entries of maiden fruit trees, the cup was won by Messrs. Ray and Sons, Teynham.

A sale of the exhibits took place on Tuesday, and some high prizes were realised for prize lots. There were two Apple-packing competitions on Wednesday, one for men and one for women.

The public luncheon on Tuesday was remarkable for testimony as to the excellence of the show by several speakers. Particularly are to be noticed what was said by the Agent-General for Victoria and a representative of a deputation of fruit-growers from Holland who have been inspecting some of our principal fruit districts. The former said that as a member of the Victorian Government representing agriculture before coming to England as Agent-General, it had been his duty to visit the numerous fruit shows held in his country, and that he had never seen as fine a display of Apples or such good packing as he had inspected at the Kent Fruit Show. The latter, who, as secretary to the principal fruit-growers' association in the Netherlands, has been in the habit of attending the chief shows in Continental Europe, gave similar testimony. *Southern Grower.*

[Particulars of the Awards granted by the R.H.S. deputation are held over until our next issue.—Ed.]

LAW NOTES.

A SUMMONS DISMISSED.

The dismissal by Lord Petre of his gardener, James Balsh, of Tyrene, Caterham, had a sequel recently at Oxted, where Balsh was summoned for stealing wood to the value of 9d. belonging to his lordship.—It was stated by Albert Hibblethwaite, butler, that the defendant was dismissed by Lord Petre on September 13, but refused to leave the gardener's cottage. On September 17 witness saw defendant take out of the garden a number of poles, which he removed in the direction of his cottage. He could not say what became of the poles.—Defendant said a civil action was pending between Lord Petre and himself, and the present case was not a prosecution, but a persecution. The poles were taken out of the garden to repair a fence to prevent cattle straying from a field into Lord Petre's garden.—A farmer named Tester having stated that defendant supplied him with stakes to repair the fence the Bench stopped the case and dismissed the summons.

AN ABORTIVE COMPENSATION CLAIM.

At the Guildford County Court recently, before his Honour Judge Harrington, William Smithers, gardener, of Newark Lane, Ripley, made a claim against Mr. C. F. M. Cleverly, J.P., of Newark Lane, Ripley, for compensation at the rate of 9s. a week in consequence of injuries received whilst in his employ.—Mr. Watson, barrister, was for the plaintiff, and Mr. W. H. Moresby was for the defendant.

Applicant said he was in the employ of Mr. Cleverly eight months before the accident as a gardener, his wages being 18s. a week. On December 22, 1912, he was digging up gravel for the Rose beds, and when wheeling a barrow up a plank the barrow overbalanced. As he fell he threw the barrow to save it coming on top of him. Soon afterwards he felt a pain in the stomach, but he went on working. On January 7 he consulted Dr. Pearse, who treated him.

Mr. Moresby submitted that as notice had not been given, applicant, in order to get compensation, had to prove either that the employer was not prejudiced, or, if he were prejudiced, that he did not give the notice because of a mistake within the meaning of the Workmen's Compensation Act. Applicant had not proved that the employer was not prejudiced, and on his own showing there was no notice of any kind until the end of January, and no written notice until April 22. It was clear, therefore, that his client had lost a proper opportunity of challenging and testing the man's story that day.

His Honour said while he had every sympathy with the applicant and had no reason whatever to disbelieve his statement that he fell with the barrow, he was not called upon to decide whether the injury was due to the fall. The requirements of the Act as to notice were stringent, and in that case it was admitted that the notice was not given. The onus of showing that the employer was not prejudiced was on the applicant, and his Honour's view was that he had not discharged that onus. The claim must, therefore, be dismissed.

ENQUIRIES AND REPLIES.

Nursery Trees.—Have I any claim against my landlord for trees on my nursery ground? I planted a quantity of Apple trees about 15 years ago, and now my landlord has given me notice to quit. Have I any claim—I mean legal claim—for the trees? If you will please answer this through your next issue I should be grateful. *A. B.*

———You can remove the trees, but unless your tenancy agreement specially provides for the point you cannot make your landlord pay you compensation for any which you may leave behind. The law with regard to nurseries is not the same as in the case of market gardens.

Self-fertile Pears.—In reply to *Willesden's* question printed in last issue I may say that the results of our experiments at Wisley go to show that while a considerable number of varieties of Pears are more or less self-fertile, few appear to set a large number of fruits without the intervention of foreign pollen. We have experimented with over one hundred well-known varieties, and have obtained fruits on perhaps 30 per cent. when all chance of the access of foreign pollen was prevented. The most reliable varieties setting fruits under these conditions appear to be Conference, Durondeau, and Hacon's Incomparable. These three set a very large proportion of their flowers and gave good, well-developed fruits *without seeds*, and without enlargement of the core. They are thus self-fertile in one way—that of fruit production—and infertile in the sense that they produce no seeds. This is, of course, in no way detrimental to the fruit from a grower's point of view. These will give *Willesden* three out of the six varieties for which he asks, and he may probably add Hessle, Doyenné Boussoch, and Petite Marguerite with assurance. Pitmaston Duchess, Williams' Bon Chrêtien, Louise Bonne of Jersey, Beurré Bachelier, and several other much-grown Pears are apparently self-fertile under certain conditions, but it is not clear yet that they are so dependable as those first mentioned. The available evidence goes to show that a few Pears may produce seed without the aid of foreign pollen, but the majority of those that are self-fertile from the grower's point of view are also seedless when pollen from another variety does not find access to their stigmas. *Fred. J. Chittenden.*

ANSWERS TO CORRESPONDENTS.

Begonia: *Hampshire.* A small mite is causing the damage. Spray with a solution of quassia, and see that the solution enters the points where the leaves join the stem, as it is there that the mites hide when not feeding.

Carnations Diseased: *A Reader all the Year Round.* The Carnations are attacked by the common fungus Helminthosporium echinulatum. Spraying with potassium sulphide has been recommended for this disease. As soon as the faintest sign of disease is detected do not hesitate to pinch off all leaves that show it and burn them, as well as those plants that are too much attacked to make good specimens

DRESSING FOR ASPARAGUS BED: *Dublin.* There is no better material for top-dressing Asparagus beds than thoroughly decomposed cow manure, provided it is well broken up before use. It should never be applied in sufficient quantities to produce a choking effect on the bed or the soil will become sour and unfit to produce a satisfactory crop. The surface of the beds should be gently forked over in December, after which a light dressing of manure may be applied and allowed to remain until March. The beds should then be forked over, and, if necessary, a quantity of light soil may be spread over the surface of the beds in order to blanch the young growths as they appear in May or June. It is good practice to dig a quantity of manure into the alleys every season, in order to lighten and enrich the soil for future surface-dressings. Salt may be applied in April or May, and a dressing of guano may be given with advantage before the shoots begin to show. No great quantity of manure should be applied while the roots are dormant. Asparagus delights in rich, sandy soil with a liberal supply of farmyard manure, and if the soil is of a stiff, retentive nature some means should be adopted which will render it open and porous. Rough river sand may be freely mixed with such soil.

ERRATUM, p. 283.—By an obvious misprint the date of Alexander Eddie's death in the footnote is stated to be 1887. It should read 1787.

GRAPES DISEASED: *N. R. L.* The berries are suffering from a condition known as "Shanking," which is generally the result of overcropping, or of the roots having got into a cold, badly-drained or otherwise unsuitable medium. To prevent an attack next year you should remake the border and prevent the vines from overcropping.

HERBACEOUS PLANTS TO FLOWER IN THE MIDDLE OF JULY AND SUITABLE FOR EXHIBITION PURPOSES: *C. B.* and *Constant Reader.* Assuming these to be staged in three rows, the back row may consist of Lilium testaceum, Spiræa Aruncus, Delphinium (pale blue preferable) in variety; Astilbe Arendsii Venus, Lilium candidum, Anchusa italica Dropmore var., and Lupinus polyphyllus as an extra if required to be used in place of one of the others already mentioned. Middle row: Campanula persicifolia (blue or white), Echinops Ritro, Chrysanthemum maximum King Edward, Lychnis chalcedonica, Inula grandiflora, Malva moschata, with Hemerocallis Thunbergii as an extra. Front row: Gladiolus Ne Plus Ultra, Gypsophila paniculata fl. pl., Iris Kæmpferi (in var.), Achillea Ptarmica The Pearl, Erigeron caucasicum, Lilium chalcedonicum and Geum Mrs. Bradshaw as an extra. *Note.*—In making this choice it is assumed that hardy bulbous plants are admissible.

INSECTS: *A. B.* The larvæ are those of a weevil. See reply to *J. A.* in our last issue (October 25), in the second coluumn of "Answers to Correspondents," under "Insects."—*R. R., Milland.* The name of the beetle is Ocypus olens, known commonly as the Devil's Coachhorse. It does no harm in the garden, but, on the contrary, from its inveterate insect-eating habits, is beneficial.—*M. B. G.* The soil is heavily infested with the larvæ of a species of Bibio, but we cannot definitely say which species. We can only add that it is probably B. marci or B. hortulans. The larvæ of these insects have been recorded as destructive to Clover crops, but we have known them to occur in enormous numbers in soil supporting a crop of Onions, and this without injury to the plants in question. We know nothing that will destroy them except the free use of bisulphate of carbon.

NAMES OF FRUITS: *L. C. R.* 1, Not recognised; 2 and 12, Melon Apple; 3, Sturmer Pippin; 4, Irish Peach; 5, Charles Ross; 6, Grosse Fenonulet; 7, Scarlet Nonpareil; 8, Baxter's Pearmain; 9, Margil; 10, Ord's Apple; 11, Early Harvest; 13, Yorkshire Greening; 14, Allen's Everlasting; 15, Golden Pippin; 16, Gogar Pippin; 17, Striped Beefing; 18, American Mother; 19, Scarlet Golden Pippin; 20, Dutch Mignonne (Reinette de Caux); 21, Lord Derby; 22 and 23, Mank's Codlin; 24, Gravenstein; 25, White Nonpareil.—*Autumn.* 1, Stirling Castle; 2, Blenheim Pippin; 3, Fearn's Pippin.—*W. B. S.* Franklin's Golden Pippin.—*H. S.* 1, Waltham Abbey Seedling; 2, Landsberger Reinette; 3, Edmund Jupp; 4, Blenheim Pippin; 5, Ord's Apple; 6, Scarlet Golden Pippin; 7, Warner's King; 8, Minchull Crab; 9, Pearson's Plate; 11, Norfolk Beefing; 12, Cellini; 13, Emperor Alexander; 14, Cox's Pomona; 15, Blenheim Pippin.—*F. S.* Lane's Prince Albert.—*A Reader.* Belle Pontoise.—*T. W. B.* 1, Christmas Pearmain; 2, Dutch Mignonne (Reinette de Caux); 3, Brownlees's Russet. Pears.—1, Autumn Nelis; 2, Nec Plus Meuris.—*G. J.* 1, Peasgood's Nonesuch; 2, American Mother; 3, Beauty of Kent; 4, Roundway's Magnum Bonum; 5, Cox's Orange Pippin; 6, Hambledon Deux Ans; 7, Cockle's Pippin; 8, Dean's Codlin.—*A. R.* 1, Beurré d'Amanlis; 2, Flemish Beauty; 3, Durondeau; 4, Hacon's Incomparable; 5, Beurré Sterckmans; 6, Comte de Lamy; 7, Beurré Diel; 8, Beurré Bachelier; 9, Beurré Rance; 10, Conference; 11, Le Lectier; 12, Marie Louise; 13, Fondante d'Automne; 14, Autumn Bergamot; 15, Chaumontel.—*H. R.* Vernlam; a fine specimen.—*H. W.* Warner's King.—*H. P.* 1, Ribston Pearmain; 2, Cellini; 3, Whiting Pippin; 4, Lady Derby; 5, King of the Pippins.—*A. C. H.* 1, Bramley's Seedling; 2, Tyler's Kernel; 3, Lady Henniker; 4, Catshead; 5, Pile's Russet; 6, King of the Pippins.—*J. S.* King of the Pippins.—*E. M.* 1, Brownlees's Russet; 2, Ashmead's Kernel; 3, Maltster; 4, Mère de Ménage; 5, Scarlet Golden Pippin; 6, Beauty of Kent; 7, Cullen; 8, Lord Lennox; 9, Radford Beauty; 10, Warner's King; 11, Lincoln Codlin; 12, Bitter Sweet.—*M.* 1, Alfriston; 2, Emperor Alexander; 3 and 4, Dumelow's Seedling (Wellington); 5, English Codlin; 6, Waltham Abbey Seedling.—*W. C.* 1, Loddington (Stone's Apple); 2, Yorkshire Beauty; 3, Not recognised; 4, Passe Colmar.

NAMES OF PLANTS: *G. R. V. and W. C. S.* We do not undertake to name varieties of florists' flowers. The Dahlia flowers should be sent to some nurseryman who makes a speciality of them, and where they can be compared with growing specimens.—*L.* 1, Orchis maculata var.; 2, Agrostis alba; 3, Viola canina; 4, Viola hirta.—*E. P. D.* Polygonum aviculare.—*E. C. D.* Rose Betty.—*J. J. F.* Abelia rupestris.—*W. and S.* Asphodelus fistulosus.—*F. G. B.* Phygelius capensis.—*M. B. G. A.* Nerium Oleander. Cut the "leggy" plants down and retain them in the same pots until they start new growths, when they must be repotted into rather larger pots, using as a material turfy loam with a little sand. When the plants are growing actively a little liquid manure will help them to perfect good flowering growths. The small growth sent is of Crassula (Kalosanthes) coccinea. It is not an uncommon thing for a recently-budded Rose to produce a terminal flower in the manner described.—*C. H.* 1, Sigmatostalix radicans; 2, Xylobium squalens; 3, Oncidium juncifolium; 4, Eria acervata.—*Foreman.* 1, Cyrtodeira fulgida; 2, Gesneria elongata; 3, Ruellia Portellæ.—*R. O.* 1, Oncidium dasystyle; 2, Odontoglossum Coradinei.—*L. V. D.* Veronica Andersonii variegata.—*H. H.* 1, Cheilanthes elegans; 2, Lygodium scandens; 3, Lastrea variā; 4, Nothochlæna Eckloniana.—*F. W. N.* 1, Pulmonaria saccharata; 2, Aspidium falcatum; 3, Rhododendron Nobleanum; 4, Cerastium tomentosum; 5, Othonnopsis cheirifolia; 6, Euonymus japonicus variegatus; 7, Geranium striatum; 8, Saxifraga cortusæfolia; 9, Borago laxiflora; 10, Campanula rotundifolia var.; 11, Podocarpus chilensis; 12, No specimen found; 13, Polypodium vulgare; 14, P. v. var. cambricum; 15, Abelia triflora; 16, Campanula Portenschlagiana.—*N. A. G.* 1, Polygonum amplexicaule; 2, P. vaccinifolium; 3, Send when in flower; 4, Prunus sp., send in flower; 5, Cytisus capitatus; 6, probably Carpentaria californica; 7, Vitis vinifera purpurea; 8, Polygala vulgaris; 9, Sophora tetraptera; 10, Send in flower.—*A. H.* Cratægus Crus-galli (the Cockspur Thorn).—*M.* Aster diffusus var. horizontalis.—*J. B.* 1, Limnanthes Douglasii; 2, Sedum spectabile.

POTATO TUBERS: *J. H.* There is no disease present. The outgrowths are not infrequent, but the cause of their appearance is unknown.

RICHARDIA AFRICANA (Arum Lily): *W. H. P.* We have not analysed the potting soil, but so far as can be judged by ordinary examination, it appears to be suitable for the Arum Lilies. These plants require a very great deal of moisture; and, especially after they have been lifted from the open ground where they have been growing during the summer, they need both a moist atmosphere until they have again become established and frequent watering at the roots. Without knowing anything of the situation in which your plants were placed after being brought into the house, it is impossible to make any definite statement as to the cause of their failure; but the shrivelled appearance of those sent suggests that after they were potted the pots were placed on a grid over the hot-water pipes, or some place of that kind. In this case the heat would keep the greater part of the soil in the pots dry, while the cultivator would be misled by the damp appearance of the surface. You will know whether this is likely to be correct or not. In any case, we do not find a trace of disease present on the specimens received.

ROSE LEAVES: *D. M. L.* The Rose leaves are attacked by the Shot Hole fungus (Cercospora circumscissa). Next season spray the trees with the ammoniacal solution of copper carbonate just as the leaves are expanding, and repeat the operation at intervals.

THUYA: *A. W. B.* Your tree being 35 feet high, and 40 years old, the shifting must needs be a risky operation. If the soil is of a retentive nature the chances of success would be greater, as a bigger "ball" of earth could be carried with it. No advantage will be gained by cutting round the roots now, at the end of the growing season. This should have been done last spring, and they should have been cut back to the limits of the ball of earth proposed to be moved. Messrs. Barron, of Borrowash, Derby, have had great experience in shifting large trees. They would give you an estimate. We cannot do so without an inspection of the tree and site.

VIOLET LEAVES: *Violets.* The disease on the Violet leaves is known as Cercospora violæ. Be careful to remove infected leaves as they appear, and spray the plants twice a week with liver of sulphur, 1 ounce in 4 gallons of water. Soak the soil with the liquid also.

WEEDS IN A LAKE: *W. E.* Sulphate of copper to kill weeds in ponds must only be applied with the greatest caution to ponds or lakes containing fish, some of which seem to be sensitive to sulphate of copper. It would not be advisable to treat any fish pond in this country even with a very dilute solution, such as one part in 5,000,000, without first determining by experiments with one or two fish in a few gallons of water the susceptibility of each species. It has been found, however, that during the last two summers sulphate of copper applied to the water in St. James's Park has proved to be not only harmless, but even beneficial to the fish. In former years many had been found to be badly attacked by a fungus, but at the last cleaning out the fish were found to be quite free from the fungus disease and remarkably clean and silvery. In cases reported upon they have not been injured by this method of treatment.

Communications Received—W. C. S.—L. L.—N. M., Hampstead—P., Newstead—G. H. T.—Curry—C. W. C.—W. C. S.—L. V. D.—L. D. K.—E. A. B.—W. W. & Son—G. H.—C. S. & Co.—U. S. A.—W. R.—H. C.—H. H. R.—R. W.—Willesden—E. C. V.—A. E. T. R.—Journeyman—C. H. P.—S. S, Budapest—Dr. M. F. V. T.—R. J.—E. W.—G. H. H. W.—E. F.—E. B.—W. S. & Sons—R. W. C.—F. R, Quedlinburg—J. B.—H. C. L.—W. M.—C. E. P.—W. G. K.—H. J. B.—Rev. D. R. Williamson—R. Veitch and Son—E. M.—R. J.—S. A.—H. Long—R. F.

WINTER-FLOWERING BEGONIA "EMITA"

A Hybrid from B. socotrana and a single-flowered variety of the tuberous-rooted section.

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CONTENTS.

ILLUSTRATIONS.

"THE AUSTRIAN FLOWER-GARDEN."*

MORE and more are all earnest gardeners beginning to crave for an accurate and compendious dictionary of hardy plant species, such as may be a lifeline to them in the weltering confusion of catalogues. As our collections and our ambitions grow new names are for ever besieging our purses in the pages of catalogues, and at present we have only the catalogues' word for it that these names indeed represent new plants and not some old friend under an expensive alias—as, for instance, Bellidiastrum Michelii suddenly asking half-a-crown for itself as a novelty under its proper name of Aster Michelii.

Graf Silva Tarouca's book is likely, therefore, to be of the greatest value, though its size does not admit of its dealing at length with all the species about which we are all anxious to know. It is, indeed, only a preliminary sketch, but as such of the very greatest value to all gardeners. Graf Silva Tarouca is president of the Austrian Dendrological Society, and this present volume is one of a series of four, the remainder of which deal exhaustively with Deciduous Trees and Shrubs, Conifers, and "Garden and Park." If its successors equal or surpass this initial work we must congratulate Austria and its Dendrological Society on the possession of an indefatigable and most successful worker, armed at all points with almost encyclopædie knowledge of his own, and further aided by a ring of experts no less considerable than himself. The book is, roughly, an up-to-date *English Flower Garden* in German, but far more complete and authoritative. It begins with chapters on various forms of gardening, and on various methods of cultivation and propagation. The bulk of the remaining pages is taken up by a running annotated list of hardy plants suitable or unsuitable for cultivation, and ends with a series of lists of plants for various situations, with a final comparative table of colours, dates, sites, uses, etc., of the species, with their forms. All these are of the most obvious utility, and the annotated dictionary contains a vast amount of valuable information unavailable elsewhere—*e.g.*, about such species as Weldenia, for which we were hitherto left to depend on the raptures of a catalogue, unless we took the toil of routing out original authorities. At the same time we doubt if Graf Silva Tarouca's volume is likely to meet a wide demand in England, even if translated. For to the general public it will seem to run too much on the lines of the *English Flower Garden*, that *monumentum aere perennius* by now as undisplaceable as the Bible in the hearts of English gardeners, except by something perfectly distinct in scheme and treatment. Further, there is, of course, the difficulty that cultural hints that apply to Central Europe are by no means safe guides in England. At present, however, the book is worth possessing, even by those who have not a word of German, for the sake of its illustrations alone. Of these there are 416, and for their sake the book is printed on glazed paper, which makes it heavy in the hand. Also, they are not paged with the plants they picture, which makes the work of reference more difficult. But when all is said, they give a rare gallery of interesting and beautiful portraits (often taken *in situ* on the wild hills). One's mouth waters over Cypripedium guttatum, Callianthemum anemonoides, and Anemone vernalis, for three examples out of 416. Specially admirable is the inclusion of so many rare and unpictured novelties, such as, for instance, Bidens Dahlioides, Weldenia, and Anemone mexicana. Of the twelve coloured plates I cannot speak so warmly; they show, indeed, the Pruhonitz rock-garden to be a compilation that we may all envy and admire; but in themselves they have that fault, so common in coloured photographic plates, of seeming sad and dim, as if their subjects were seen in an orange haze, through the medium of a tragic temperament at twilight.

To find faults in a book so delightful is alike difficult and ungracious. I note that the plate of Pyrola secunda clearly refers to P. minor, while "Nymphæa Frœbelii" simply presents some quite robust and ordinary white Water-lily. Nor must Graf Silva Tarouca ask us to say Epheméron, but Ephêmeron, and he, like the R.H.S., indeed, as well as all catalogues, falls into the terrible trap of the Greek neuter termination in -ma, and gives Dierama a feminine "pendula," though, like all catalogues and the R.H.S., he is sound about the neutrality of Aethionema. In treatment of European Primulas, too, he is a trifle brief and cavalier (owing to considerations of space), especially with the hybrids. His plate of P. Wulfeniana is at first a puzzle-picture "find the Primula," while he gives the name of P. × Silva Taroucana to the Cockburniana × pulverulenta hybrid, which is Unique, and Lissadell, and anything else that any garden may choose to call any of its own seed-raised variations. I do not know what authority or priority his name may have, but all rules, as well as horticultural convenience, make it an imperious necessity that a hybrid so indefinitely variable should have one certain name to cover and include all subsequent named varieties as they may arise in cultivation. Thus it should be P. × Unique (or Silva Taroucana) var. Lissadell, or var. whatever it may be, instead of being fought for by an increasing quantity of competing and unauthorisable names. Indeed, so dear a hybrid ought to have a proper Latinised name to itself, rather than the undignified fancy name of "Unique" (so singularly untrue by now! And always perilous and brazen to apply!) Were it not for the cumbrousness one would like to recognise the plant as Silva Taroucana, if only in gratitude to the Count for having given us a book so entirely delightful and valuable. He has shown us, incidentally, that the serious rock-garden is by no means a monopoly of England, and until the full descriptive dictionary, to which we are all looking so anxiously, appears, Graf Silva Tarouca's sumptuous manual will be in the hands of all German scholars who desire more information than is yet available, as well as in the hands of all, without respect of linguistic powers, who take delight in beautiful pictures of beautiful and interesting plants—either alone, or in combination with other species that enhance their charm, even as does Tussilago in his photograph enhance with its leaves the beauty of Narcissus poeticus uprising among them. *Reginald Farrer.*

* *Unsere Freiland-Stauden.* Edited by Ernst Graf Silva Tarouca. Wien: F. Tempsky; and Leipzig: G. Freytag. Price M. 15.

WEATHER GLASSES.

WE are all more or less interested nowadays in meteorological observations, for the weather is an important factor in the everyday life of some of us and in the pleasures of all. How often we meet the conditional clause, "Wind, weather and other circumstances permitting"! And yet how many of us either utilise the meteorological reports and forecasts, which are provided by the daily press, or study the instruments and charts set up for us by kindly disposed municipal councils and opticians?

Those who take a passing interest in the science will have remarked that the readings of greatest importance are those obtained from the Barometer or Weather Glass. This instrument is fairly well known and widely used. There are two forms of barometer in general use—viz., mercurial and aneroid. The latter is made without fluid, as its name denotes. The former type was invented by Torri-

celli, a Florentine pupil of Galileo, in 1643, and the remarkable thing about the invention is that the original form was so perfect that its essential features have not been superseded. In this type of instrument a column of mercury about 30 inches high is supported in a tube by the external pressure of the atmosphere on the cistern. Any increase or decrease in the atmospheric pressure causes the column of mercury to rise or fall.

About two centuries after Torricelli's discovery the aneroid barometer was introduced by M. Vidi, of Paris. This instrument depends for its action on an elastic chamber from which the air has been exhausted.

From time to time these two forms have been slightly modified and improvements effected, and to-day there is little to choose between them as regards accuracy. True, all the standard instruments in use at the Meteorological Office and at the various climatological stations are of the mercurial type, but for ordinary work the aneroid barometer is quite satisfactory. Moreover, the portability of the latter form—it can be carried in any position—has materially helped to bring about its present popularity. A mercurial barometer must be over 30 inches long—it is usually about 36 inches—whereas an aneroid can be made small enough to go in the pocket, and will be found quite a reliable instrument.

With the standard mercurial barometer great accuracy in the observations has been made possible by the introduction of a vernier. This improvement enables an observer to read barometric pressure to the nearest .001 of an inch. Verniers have also been fitted to certain forms of aneroid barometers used for surveying work, and it is possible to read off altitudes to the nearest foot with these instruments. We have certainly moved as regards barometer-making since Torricelli's day.

There are many people who, with just cause, do not put much faith in barometric readings. At some time or other some of them have possibly expected too much of the instrument and have been disappointed. In the first place, the weather words on the dials — viz., "Rain," "Change," "Fair," etc. — should be ignored. They are only relative terms, and it would be far better if they were left out altogether. It often happens that the barometer will be indicating "Fair" when rain is falling outside. When a barometer indicates "Fair" the meaning which it is intended to convey to the observer is that the atmospheric pressure is favourable to fair weather, but the result is conditional on other forces being equally favourable. Then the question naturally arises: "Why, if the words are worse than useless, do the makers put them on the dials?" The makers reply that people insist on having the dials marked with weather words. Really the question is whether the barometer is falling or rising, but even with this knowledge one cannot forecast the weather without considering the following points:—

(1) The rate of rise or fall.

(2) The relation of the present reading to the results of previous days.

(3) Direction and force of the wind.

(4) The humidity of the air.

It is now apparent that the barometer has its limitations, and a single observation of an instrument will not enable one to compete with the Meteorological Office in issuing weather forecasts. However, it is possible, by ignoring the words on the dial and employing the following information, to obtain useful results from most barometers. The information is taken from the explanatory card compiled by the late Admiral Fitzroy, F.R.S., who was at one time director of the Meteorological Office.

The barometer rises for northerly wind (including from north-west, by the north, to the eastward). It also rises for dry, or less wet weather, for less wind, or for more than one of these changes, except on a few occasions when rain, hail or snow comes from the northward with strong wind.

The barometer falls for southerly wind (including from south-east, by the south, to the westward). It falls for wet weather or for stronger wind. As with a rising barometer, more than one of these changes may occur simultaneously. Occasionally a falling barometer foretells moderate wind, with rain or snow from the northward. A fall of half a tenth or more in an hour is a sure warning of a storm, and a rapid rise indicates unsettled weather!

The following couplets are useful:—

Long foretold—long last;
Short notice—soon past.

First rise after very low
Indicates a stronger blow.

It might be mentioned in conclusion that those long bottles filled with liquid and known as storm glasses are not considered to be weather-glasses. A weather-glass is a barometer, whereas a storm-bottle, which is filled with a mixture of camphor, nitre, sal ammoniac, alcohol and water, is useful only in giving the direction of the wind—not its force.

Then there are those old "Swiss" weather-houses, mostly of German make. The figure of the woman should come out for fair weather and that of the man for wet weather. These articles are only toys and should not be taken seriously.

NEW OR NOTEWORTHY PLANTS.

THE WAHLENBERGIAS OF AUSTRALIA AND NEW ZEALAND.

In June last year it came under my notice that two very distinct species of Wahlenbergia are in cultivation under the name of W. saxicola, and that another is known as W. gracilis, to which that name does not belong.

This induced me to examine the whole of the Australian and New Zealand species of Wahlenbergia, with the result that I find their nomenclature in a remarkable state of confusion, which I will here attempt to reduce, leaving the other names not here mentioned to be dealt with upon a future occasion, as a considerable study of types is involved in order to clear them up completely.

Taking first the Australian species, upon turning to Bentham's *Flora Australiensis*, vol. 4, p. 137, I find that only two species (W. gracilis and W. saxicola) are there described. Taking these in order, I find that the description of W. gracilis covers a mixture of at least half a dozen perfectly distinct species, one of which may be a form of the true W. gracilis. The others are W. vincæflora, W. multicaulis, W. quadrifida and at least two others, without names, but possibly referable to W. Sieberi, W. simplicicaulis, or W. Priessii, which I have not seen. This confusion was begun by Robert Brown, who, in his *Prodomus Florae Novae Hollandiae*, p. 561, placed four distinct plants as varieties of Campanula gracilis. In this he was followed by A. De Candolle (*Monogr. Campan.*, p. 142), who placed them all under W. gracilis, and subsequent authors have treated them in the same manner. The authority for the name W. gracilis has always been attributed to A. De Candolle, but, as defined by him, that name covers several species. It is doubtful if De Candolle had any knowledge of the true Campanula gracilis; and as Schrader, when establishing the genus Wahlenbergia in *Blumenbachia*, p. 38, had three years previously distinctly stated that Campanula gracilis, Forster, belonged to that genus, without at the same time confusing it with any other species, I think we may by implication assume, as has been done in so many other cases, that Schrader intended it to be called Wahlenbergia gracilis. Below I adopt this view, and think it will be justifiable in future to accept Schrader as the authority for the species, since by so doing all trouble as to what plant was really meant by the name will be avoided.

W. saxicola, as described in the *Flora Australiensis*, is a mixture of two species. One (the true W. saxicola) is a native of Tasmania, the other is a New Zealand plant. It is difficult to understand how they could possibly have been confused, as they are easily distinguishable in the dried state, and when seen alive, side by side, their perfect distinctness is too obvious for anyone to mistake one for the other.

Turning next to the various Floras of New Zealand, the following three species will be found described, viz.:—W. gracilis, W. saxicola and W. cartilaginea. Of these, W. cartilaginea is the only one that is correctly dealt with.

The description of W. gracilis obviously includes a mixture of species, but is too general to disentangle or admit of being properly quoted.

As to W. saxicola, as above stated, that species is a native of Tasmania and does not occur in New Zealand at all. The correct name for the supposed W. saxicola of New Zealand is W. albomarginata.

The following are the distinctive characters of some of the species involved, those of W. vincæflora, W. saxicola and W. albomarginata being taken from living specimens cultivated at Kew, the remainder from dried material. Under each species the synonymy is given in chronological order:—

I. Annual Species.

W. gracilis, Schrader, *Blumenbachia*, p. 38 (1827).—Annual, 10-18 inches high. Stem with the lower part simple or branched and very leafy for half its height, hairy with spreading (not deflexed) hairs at the base only, glabrous above. Leaves numerous and rather closely placed, alternate or some of the lower subopposite, ascending-spreading, sessile, ¾-1½ inch long, 1-3 lines broad, linear-lanceolate or lanceolate, acute, all with very wavy thickened subcartilaginous margins and spreading scattered hairs on both sides. Inflorescence a simple terminal raceme or once or twice forking into simple racemes of 2-4 flowers. Pedicels erect,

⅔-1½ inch long, glabrous; calyx 5-lobed, glabrous; tube (ovary) elipsoid-obconic or somewhat pear-shaped, slightly narrowing in to the base of the lobes, in fruit becoming 2½-3 lines long and 1¼-1¾ lines in diameter; lobes 1 line long, subulate, very acute. Corolla very small, 5-lobed; tube equalling the calyx-lobes, 1 line long, tubular, slightly widening upwards; lobes nearly 1 line long, lanceolate, acute. Stigma 2-lobed, well exserted from the tube.—Campanula gracilis, Forster, *Ins. Austr. Prodr.*, p. 15 (1786); R. Brown, *Prodr. Fl. Nov. Holl.*, p. 561 (1810). Wahlenbergia gracilis, A. DC., *Monogr. Camp.*, p. 142, partly? (1830); A. Richard, *Essai Fl. Nouv.-Zél* (*Voy. Astrolabe*), p. 225 (1832); A. DC. in *DC. Prodr.*, vol. 7, p. 433, partly (1839); Hook, f. *Fl. Nov.-Zel.*, vol. 1, p. 159 (1853), and *Handb. New Zeal. Fl.*, p. 169, partly (1864); Cheeseman, *New Zeal. Fl.* 402, partly (1906).

A native of New Caledonia, New Zealand and Australia.

The above description is made exclusively from the type specimen from Forster's own Herbarium, now at Kew. It is localised "New Zealand and New Caledonia," but I have not seen any other specimens from either New Zealand or Australia that exactly match it, yet I think some from those countries may be forms of it. It is extremely doubtful if this plant enters in any way into the composite W. gracilis of A. DC.

W. QUADRIFIDA, A. DC., *Monogr. Campan.*, p 144 (1830).—A slender annual 2-7 inches high. Stems 1-5 to a root, erect, slender, slightly hairy with deflexed hairs at the very base or nearly glabrous, 1-3-flowered. Leaves not very numerous, lax, mostly on the basal 1-2 inches of the stems and radical, alternate or opposite, ⅛-1 inch long, ½-2 lines broad, the lower spathulate-oblanceolate, the upper linear, glabrous on both sides or the lower with hairs along the midrib, sometimes wavy, with slightly thickened entire or distantly toothed smooth margins. Pedicels 1-4½ inches long, glabrous. Calyx 4-5-lobed, glabrous; tube (ovary) obconic, in fruit 2-4 lines long; lobes erect ¾-1 line long, subulate from a broader base. Corolla very small, 4-5-lobed, in dried specimens 1½-2 lines long, with a slender cylindric tube ⅔-¾ line long and lanceolate acute lobes.—Campanula quadrifida, R. Brown, *Prodr. Fl. Nov. Holl.*, p. 561 (1810).

A native of Australia.

W. COLENSOI, N. E. Brown.—A slender annual, 1½-6 inches high, sometimes with a single stem, but usually with 3 to many stems to a root, erect, slender, roughly hairy with spreading (not deflexed) hairs on the basal part for ¼-½ of the total height. Leaves alternate or opposite, usually extending ⅓-½ of the way up the stems, 1-9 lines long, ½-2 lines broad, the lower mostly obovate or spathulate-oblanceolate, passing into lanceolate or linear on the upper part of the stems, all more or less pubescent with spreading hairs on both sides or the uppermost glabrous, usually wavy, with the margins very distinctly thickened or hardened and scabrid (not smooth), sometimes toothed. Pedicels 1-2½ inches long, glabrous. Calyx 3-4 (rarely 5)-lobed, glabrous; tube (ovary) ellipsoid in fruit and 1½-2 lines long; lobes erect, ½-¾ line long, linear or deltoid-linear, subacute. Corolla very small, 3-4 (rarely 5)-lobed, in dried specimens 1-1½ line long, with a cylindric tube ¾-1 line long and lanceolate acute lobes ¾-1 line long.—Wahlenbergia gracilis var. capillaris, Hook f., *Fl. Nov.-Zel.*, vol. 1, p. 159 (1853), and *Handb. New Zeal. Fl.*, p. 170 (1864).

A native of New Zealand.

This is similar in appearance to W. quadrifida, but differs by its stems being more hairy, with shorter spreading (not deflexed) hairs, by the scabrid margins of the leaves and shorter and more ellipsoid ovary and capsule. *N. E. Brown.*

(To be continued.)

SACCOLABIUM GLOMERATUM, ROLFE.

Our illustration represents a pretty and singularly-constructed Saccolabium, which Mr. R. A. Rolfe has described as a new species for the *Kew Bulletin*, under the above name, and which flowered in the gardens of the Hon. N. Charles Rothschild, at Ashton Wold, Oundle (gr. Mr. C. Wright), from plants collected in Borneo. It also flowered with Sir Marcus Samuel, The Mote, Maidstone (gr. Mr. W. H. Bacon), in June this year.

In habit of growth it resembles the section placed under Sarcanthus, the stems being trailing, and when growing naturally often 1 to 3 feet long. The leaves are tinged with vinous-purple. The dense raceme, which is rather stout, is decurved, pubescent, the downy covering also extending along the pedicels, and more sparsely on the backs of the sepals. The sepals and petals are pale yellow spotted with red, the lip produced into an inflated spur abruptly recurved at the tip, the upper part having a linear-hooked blade. The lip is ivory white in the early stage and lemon-yellow when mature.

It is a very interesting species, with well-defined characters which render it easy to determine.

Fig. 116.—SACCOLABIUM GLOMERATUM SP. N.: SEPALS AND PETALS PALE-YELLOW SPOTTED WITH RED.

Hardiness of Crinum Powellii (see p. 308).—There are large clumps of Crinums growing in Major Dent's interesting gardens at Ribston Park, near Wetherby, in this county. Judging by their size they have been planted for several years. They are growing in a border under a wall at the end and front of a Muscat vinery, and produce flowers each season. The old Ribston Pippin Apple tree has produced a good crop of fruit this year. *Yorkshire Gardener.*

ORCHID NOTES AND GLEANINGS.

ORCHID DENE, TWYFORD.

Mr. E. H. Davidson's model Orchid establishment has answered the expectation of its enthusiastic proprietor. At the commencement Mr. Davidson was fortunate in securing the services of Mr. J. Lakin, who had been so successful in raising Odontoglossums and other hybrids when with Messrs. William Bull and Sons, at Chelsea, as manager, and his experience is strongly in evidence in the design of the neat block of houses, and especially the range devoted to the raising of hybrids and perfecting the young plants. Nothing which could be suggested by an experienced practitioner has been omitted. A site in the open country was selected, and a block of four ranges erected, connected at the ends by a corridor, together with the necessary offices. The whole block is comfortably and evenly heated by two improved Robin Hood sectional boilers, which are worked at low pressure.

The main object of the establishment is to raise hybrids, and in order to be well abreast of the times, some of the best procurable varieties of species and rare hybrids have been obtained to work on. For many of these Mr. Davidson has secured awards at the Royal Horticultural Society, and already there are seedlings raised from them. Hybrid Odontoglossums of the large-flowered class have for their parents the very beautiful O. Lakinæ, one of the largest, best shaped, and richest in colour of any known Odontoglossum; O. Hélène, O. Empress Eugénie, O. eximium and O. Aireworth Orchid Dene variety, all of which have secured

awards. In Odontoglossum Woodroffeæ (F.C.C., September 24, 1912), still well in flower, Mr. Davidson claims to have the best of his favourite O. Rossii rubescens hybrids, and certainly its richly coloured flowers, with their large rose-purple labellums, compare favourably with O. Ceres, O. Smithii, and others of the class in flower beside it.

In the seedling house were serried ranks of seed-pots, seedlings in store pots, and small plants in single pots. Pricking off the small seedlings is a delicate operation, in which, as in all other matters about the establishment, Mr. Davidson spends a great deal of time. Filling the store pots was an operation that engaged his attention on the day of our visit, the subjects being Odontiodas, Sophro-Cattleyas, in which the fine S.-C. Saxa Orchid Dene variety, and Sophro - Lælio - Cattleya Sandaghe had some very handsomely blotched seedling O. crispum. Others noticed were O. Twyford Gem, O. eximium, some showy seedlings between O. Rolfeæ and blotched O. crispum; some pretty Brasso-Cattleyas, the two most prominent being the fragrant white, B.-C. Pocahontas alba, and an attractive form of the large white B.-C. Princess Alexandra, with a small ruby blotch on the lip. These and other showy Orchids, including Vanda cœrulea, arranged with Palms make a charming display for the middle of October, some finely flowered Odontoglossum grande, with large yellow and chestnut brown flowers, being some of the most effective.

In the first range specially interesting features were a good batch of Miltonia vexillaria, with its various hybrids, several of the specimens of M. vexillaria having from twelve to fifteen new leading growths each, which cannot with white ground and also rose flowers, but both connected by the evenly distributed red-brown spotting on the inner halves of the segments. A batch of Odontoglossum Edwardii crosses has several in flower; Miltonia spectabilis Moreliana is sending up a good show of blooms, and in connection with this dark-flowered variety it was interesting to see some small seedlings of a cross between it and Miltonia Bleuana, which should prove both novel and pretty. Many of the plants in this house have seed sown on the surface, and the seedlings in their first stage can readily be seen.

In the next house are some of the finest varieties bearing seed capsules, and others in flower for hybridising, specially good ones being Odontoglossum illustrissimum, O. Lambeauanum, and O. Nathaniel var. Eric, a very large and finely

FIG. 117.—CORRIDOR AT ORCHID DENE, TWYFORD.

played a part, and some new combinations of Brasso-Cattleya. The stage in the long connecting corridor is used for arranging plants in flower, and a fine show is made with the many beautiful forms of Cattleya labiata, C. Dowiana, and other Cattleyas, Odontoglossums, and hybrids. Among them were the pretty Cattleya Bertii (labiata × Harrisoniana), well displaying characteristics of both parents; some good forms of C. Warscewiczii flowering late; C. Bowringiana violacea, the flowers bluish with violet lip; C. Hardyana, dark forms of C. Fabia, good varieties of C. Iris and C. Adula; a fine show of yellow Oncidium varicosum; some excellent Odontoglossums, the O. crispum having for their best the Twyford favourite, O. crispum Louis, a large model flower of the clear white of O. crispum Solum, which unique variety it also imitates in the large dark purple blotch on the lip, and the occasional dark spot on one of the sepals; and fail to give a fine display of flowers. A good specimen of M. vexillaria Leopoldii had several spikes of its rose-pink flowers, with dark ruby-crimson mask to the lip. Late flowering has occasioned a slight variation, the triangular blotch of dark colour at the base of the lip being continued in spotted lines; an interesting case of colour variation brought about by circumstances. A batch of Odontoglossum Rossii rubescens crosses has the fine O. Woodroffeæ still in flower, and careful manipulation has resulted in three good plants from the original, which was only a small specimen not long ago. O. Aurora and O. Ceres of the same class are flowering with it. A small lot of hybrid Odontoglossums show interesting variation, some forms of O. eximium (ardentissimum × crispum) being very finely blotched like the blotched O. crispum used in crossing, while two others have reverted near to typical white O. crispum. Similarly forms of O. Jasper (amabile × crispum) has flowers coloured flower. Here also the natural hybrid O. Duvivierianum was in bloom.

In the third range Cattleyas, Lælio-Cattleyas, and Sophro-Cattleyas were in grand condition, forms of C. Fabia, C. Iris, etc. Specially fine were a very distinct Lælio-Cattleya, between C. Iris and L. tenebrosa Walton Grange variety, with primrose-yellow sepals and petals veined with purple and deep velvety maroon lip; and L.-C. Isis, a neat blush-rose flower with deep violet-coloured lip, with a clear yellow patch on each side. Others noted were Lælio-Cattleya Sidneyana, with yellow flowers, Sophro-Cattleya Chamberlainiana, Sophro-Lælio-Cattleya Pandora, with good orange-tinted red flowers; S.-L.-C. Jeanette, deep scarlet; and other rare hybrids. Grown cool, it is found that carrying seed capsules does not interfere with the health of the plant, and several good examples of this are given by seed-bearing plants being again in

bloom, or showing flower. One good instance is seen in the fine white Brasso-Cattleya Cliftonii var. Dora, which has a mature fruit and two new growths in sheath for flower. Among species a batch of imported Cattleya Mendelii show good cultivation, the new pseudo-bulbs being of great size and furnished with flower sheaths. One specimen has eleven new growths. The Cattleya labiata, many of them in bloom, are equally good, and the white C. labiata alba Orchid Dene variety, bearing flower sheaths. C. Mossiæ alba and other albinos promise well for flower, and a small healthy specimen of C. superba alba was noticed; also C. Harrisoniæ alba Orchid Dene variety, which is seeding, and bears two flower sheaths. A row of C. aurea and the variety chrysotoxa is suspended overhead, a position in which the plants thrive well.

The other range has a fine lot of Phalænopsis Rimestadiana; a good selection of Cypripediums, and many promising hybrids. *B.*

THE IMPROVEMENT OF HILL PASTURE.

For several years past I have been making experiments on hill pastures—those we have here being a little over 400 feet high, and known in this country as "downs." Some seventy years ago these downs (which measure some hundreds of acres in extent) were cultivated, and according to the testimony of old residents produced really good crops of Oats, Barley, Sainfoin, and Turnips. When the market for corn became less good the downs were allowed to pass out of cultivation, and are now fit only for sheep runs. In many parts the grass is of so poor a quality that the ground serves as nothing but an exercise ground for lambing ewes. The subsoil is chalk, often within 4 inches of the surface, though in some places the soil is about a foot deep. In a note on this subject on p. 257 it is stated that sheep do not eat the coarser grasses, but select the finer herbage. We do not find here that this is the case; they usually eat whatever they can find, especially during frosty weather, though naturally they prefer the finer grass. About twelve years ago we ploughed up twenty-four acres of this hill-land, and subsequently obtained therefrom exceedingly good crops of Oats, Barley, Potatos, Turnips, and even Mangolds, which convinces me that the whole question is one of good management and culture. Thousands of acres of similar land, now lying idle, could be brought into cultivation, and made to yield excellent crops.

With reference to the various experiments made, the methods pursued were naturally calculated to suit the different portions of the ground. One plot was so full of thistles and plantains that I cut the turf an inch or so thick, stacked it until it was decayed, and then used it on other parts. After cutting the turf I heavily dressed the plot with farmyard manure (in the month of February), ploughed it carefully, and pressed down every furrow, to make the soil solid. Early in April of the two years, 1910 and 1911, I sowed the plot with a selected mixture of permanent-pasture seeds, occasionally rolling the ground during the summer to make it firm. The sheep were allowed to run over the plot and lightly nibble off the grass. So well did the grass grow that there is already quite a thick turf; and from one portion a crop of hay was cut in July of this year. Since then the sheep have many times fed on the plot, and have always found a considerable quantity of food. The plot is now quite free from thistles, and promises to become a really good sward in the near future.

Another plot of ten acres was given a dressing of farmyard manure in February, 1909, to the extent of 20 tons per acre. The plot was thickly infested with moss, and had to be harrowed several times. When the manure had disappeared the sticks and stones were collected, and the land was well rolled. The first year's growth consisted of White Dutch and broad-leaved Clover in profusion, although no Clover of any sort had grown there before. Since that time the plot has become a favourite feeding ground of the sheep, as an abundance of choice, succulent grasses has sprung up, in addition to the Clover. I look upon this plot as one of the most profitable parts of the farm. In November, 1912, I applied basic slag to a 10-acre plot right on the side of a hill, at the rate of five cwt. per acre. To my knowledge this plot had never before received any attention. The result was almost magical, though I had been told that basic slag was of no value applied to a chalk soil. Clover of a small-leaved type with a yellow flower came up quite thickly, making the whole patch green. The difference between this plot and the next one, which had not been treated, could easily be seen a mile away. I do not think farmers value basic slag highly enough, considering its favourable results. It is a capital and easily-applied stimulant, suitable for all grassland where Clover of any variety is required for feeding stock. Those who do use it frequently err in delaying its application until March, when it is too late to expect definite results the same year; it is very slow in assimilation, and requires a long season for the process of disintegration. *E. Molyneux.*

[*Photograph by W. Irving.*

Fig. 118.—Erythræa Massonii: flowers rose-coloured.

ERYTHRÆA MASSONII.

Erythræa Massonii (see fig. 118) is a charming little rock plant from the Azores. It is of dwarf creeping habit, growing only 2 or 3 inches high and producing its pretty, rose-coloured flowers during the whole of the summer months. It flourishes best in a partly-shaded position, or planted amongst very low-growing shrubs that are not too close together. As it is somewhat tender and often gets killed outside in winter, it is always advisable to keep a stock in frames. The species may be increased freely by means of cuttings, and it also produces plenty of seeds. It is sometimes known as E. diffusa, and is quite the best of its family. *W. I.*

DESTRUCTIVE INSECTS AND PESTS
SCHEDULED BY THE BOARD OF AGRICULTURE AND FISHERIES.

XVII.*—AMERICAN PEAR BLIGHT.

A disease which has caused widespread damage to Pears, Apples and Quinces in the United States and Canada is that known as Pear Blight, Fire Blight or Twig Blight, which is due to the Bacillus amylovorus, Burrill. There are both loss of foliage of the affected trees and damage to the wood. It appears to have been first observed about 1780 by William Denning, who wrote of it in 1794. In his *Cultivation of Fruit Trees*, published in 1817, William Coxe described it in the following terms:—"That species of blight which is sometimes called fire-blight frequently destroys trees in the fullest apparent vigour and health in a few hours, turning the leaves suddenly brown as if they had passed through a hot flame, and causing a morbid matter to exude from the pores of the bark of a black ferruginous appearance." Much has been written about the disease since that date, and about 1878-81 Burrill discovered the specific cause to be a bacillus. Arthur confirmed Burrill's conclusions in 1885.

Among the authorities who have prepared accounts of fire blight are Burrill, Arthur, Waite, Chester, Hutt, Halsted, Taft, Whetzel, Sackett, Jones and Stewart. The most recent reports are a well-illustrated and exhaustive bulletin of 63 pages by D. H. Jones, published in 1909 by the Ontario Department of Agriculture; Bulletins 138 and 177 of the Colorado Experiment Station, by W. C. Sackett, issued in 1909 and 1911 respectively; an account of the migration of the bacillus in the host-tissue by Freda M. Backmann, in *Phytopathology*, February, 1913; and Bulletin 329 of the Cornell Agricultural Experi-

* The previous articles appeared on September 27, October 12, November 2, and December 7, 1912, and on February 1, March 1, March 15, April 26, May 3, May 24, June 7, August 16, September 6, September 13, October 4, and October 18, 1913.

ment Station, by V. B. Stewart, issued in April, 1913, with illustrations and an extensive bibliography. To these and other American reports the writer is indebted.

The plants chiefly attacked are the Pear, Quince, Apple and Apricot, of which the Pear suffers most, but other plants may be infested or damaged, e.g., Plum, Pyrus americana, Crataegus, sp., Jane Berry (Amelanchier canadensis), Eriobotrya japonica, and Californian holly (Heteromeles arbutifolia). The damage done to Pear, Quince, Apple and Apricot is widespread and serious, many Pear orchards having been wholly destroyed, often in a single season. It is stated that in 1876 one grower lost 10,000 Apple trees owing to the fire blight. According to Stewart, "the most important epidemic of recent years was the appearance of the blight for the first time beyond the Rocky Mountains, reported by Pierce ('02), as having occurred in the Pear orchards of California in 1902. In this and the succeeding two years it is reported by Smith ('06) to have wrought such havoc as has seldom been seen." In 1908 practically every nurseryman in one section of New York State suffered heavy losses from the disease, in some cases entire blocks of Apples, Pears and Quinces being destroyed. Three years is considered to be about the limit of life of Pear trees when once they have contracted the disease, unless steps are taken to arrest its progress.

The fire-blight disease is rampant in Canada and the United States, occurring almost wherever pomaceous fruits are grown, but so far as we are aware it is unknown in Europe or any other part of the world. In North America, however, it is held to be "the most important disease affecting the pomaceous fruits." It has continually invaded fresh territory and caused heavy losses.

The disease attacks the blossoms, immature fruit, larger fruit, twigs, branches and trunk, even extending to the roots, and so eventually killing the tree. The first obvious evidence of fire blight consists in a brown to blackened appearance of the blossoms and young tufts of leaves. The twigs may be early affected and resemble "green brush that has been only partially burned"; a viscid whitish exudate forms in drops on the surface of affected twigs, and becomes yellowish to brownish, and finally dark-brown to black, resembling gum. With the progress of the disease down the branches and stem the exudate is characteristic, and when the blight is checked by diminution of sap supply at the end of the growing season diseased bark shrinks, leaving a marked subsidence or "canker." In all affected species of plants the ultimate result of infestation is the same—"the leaves shrivel, turn brown or black, and resemble foliage that has been killed by frost. One of the most striking symptoms of fire-blight to be recognised is the twig or limb with dead, brown or black leaves clinging to it, contrasting sharply with the dark green foliage in summer and the naked branches of the trees in winter. In no other disease of the pome fruits do the leaves cling so tenaciously to the dead twigs." (Stewart.)

In general only the young growth of Apples is affected, and trees may survive attack for several years, but in Pears the disease spreads rapidly, and, as stated above, may destroy the host in one season, with three years as a limit. Discoloration of the leaves may occur suddenly between May and September. Should the main branches or trunk be invaded by the bacillus the tree is usually killed. The bacilli destroy the cell contents; the specific name, amylovorus, means "starch destroyer." Burrill concluded that the organisms feed on the carbohydrate material in the cells. Bachmann (*Phytopathology*, April, 1913) found that "the cells die, apparently because of a loss of water, although chemical changes in the protoplast may accompany this loss." In Apple this investigator did not observe a diminution in the amount of starch in the cells, but says "if there is a process of cellulose digestion it certainly goes on very slowly and not uniformly over all surfaces."

The organism is a short, rod-shaped bacillus, with rounded ends, slightly variable in length (usually within the limits of .6 to .9 by 1 to 1.8 μ). The bacilli usually occur singly, but sometimes in twos, or even in chains of three or four. They are motile, having two or three peritrichic flagella.

Pear blight may be distributed in several ways—by the agency of certain insect pests (*e.g.*, Apple aphis, woolly aphis, bark beetle), and also by wasps and bees. Pruning knives and saws are also a fruitful source of distribution, as such tools which have been employed on diseased trees may subsequently be used to prune healthy trees. Bacilli may remain alive over winter in "hold-over" cankers, and becoming virulent invade the adjoining bark; the gummy exudate is laden with the organisms, and various insects which settle on the exudate serve to carry infection to the blossoms, which are infected through the nectaries, soon causing the blossom and twig blight, with the symptoms described above. The organism does not appear to be able to penetrate the cuticle, but only to enter through nectaries of the flowers or through wounds.

The blight is combated by pruning away and burning diseased twigs and branches as soon as seen, cutting well below the observed extent of the injury. Contaminated tools must not be used to prune healthy trees. Spraying and patent remedies have so far proved unsatisfactory. Regular inspection and pruning, with removal of all sources of infection, and destruction of wild Crab-apples and Hawthorns, should be carefully followed. All prune cuts should be disinfected with corrosive sublimate, 1 in 1.000. Various measures are recommended for the control of the disease in young nursery stock.

Note.—Reference may usefully be made here to the disease of Pear blossoms in the West of England and found at the University of Bristol to be due to small rod-like bacteria distinct from Bacillus amylovorus. This trouble was reported on by Mr. B. T. P. Barker in the *Gardeners' Chronicle*, May 3, 1913, p. 287. *H. C. Long.*

LAWN TENNIS COURTS.

Autumn Treatment.

In an article which appeared in the *Gardeners' Chronicle* of March 15 I dealt with the nature of the work to be done on lawn tennis grounds during the summer.

Grass courts should now be closed to players; but whereas the nets, and posts, and other furniture belonging to the club should be stored, weather permitting, both the roller and the mower may still be kept in use. The continued rolling and mowing will consolidate the ground, and tend to encourage a finer growth of grass.

The careful groundsman will use stout pegs driven in to an inch below the surface to mark the corners of the courts, after which he will concentrate his thoughts upon his autumn work.

Weeding should first claim his attention. The amateur may think lightly of this operation, but it really needs great care. To begin with, two strings, one yard apart, should be stretched from end to end of the court, daisies, plantains, and other weeds being removed as the work proceeds between the lines. The surface should be raised about 6 inches from the plant to be removed, and though a three-pronged kitchen fork may be used for this purpose, this has a tendency to break, and a far more serviceable implement may be found in a 1 inch carpenter's chisel. Cutting the crown only, of a deep-rooted plant should be avoided; for, in most cases, this practice results in a new growth of double crowns.

Clover presents another difficulty. A deeply-rooting plant, it is by no means easy to eradicate; but where it is found in patches these should be removed and replaced with well weeded turves two years old. Where, however, clover predominates the court should be top-dressed with a compost. Carter's anti-clover manure mixed with from two to three times its own bulk of finely-sifted soil may be sown broadcast at the rate of 2 ounces to the square yard.

Earth worms breed twice yearly. Advantage should be taken of mild, muggy weather to leave the ground unrolled for several days, so that the worms may open up their runs. Worms in the ground are responsible for a great deal of trouble, such as sinkage and soft turf, and excessive rolling in unsuitable weather cakes the court, and is liable to injure or kill the finer grasses.

The courts have had exceptionally hard wear this year. The service lines have been worn bare. These should be repaired immediately, so that the new turf may consolidate during the coming winter.

Re-turfing may or may not be a costly matter. For example, bare patches on the base lines may be renovated by the substitution of sound material, which may be removed from within 2 or 3 feet of the net. Some of the best turf, however, that can be bought comes from the roadside, or a common. In such places the turf is generally of long standing; the grasses, too, have become fine by having been closely grazed and kept "fed down."

But in the long run home-grown turf is by far the least expensive, and there is no reason why every grass lawn tennis club should not have its own turf nursery. This need not necessarily be costly. Taking two plots of waste ground within the confines of the club, these should be stripped of the old, rank sward. The soil should then be cleaned, trenched to a depth of from 12 to 18 inches, and levelled.

For the rest, autumn-sown grass seed needs no more than ordinary attention. If cut and rolled like the rest of the ground in twelve months' time the groundsman should have two plots of fine young grass; but for hard wear, two-year-old turf is preferable. Used alternately for repairs, directly the turf from one plot has been removed for patching the ground should be dug and manured and prepared for another sowing. Turf grown in this way and used as required would mean a considerable saving in the annual expenditure.

Guesswork in connection with the upkeep of a grass court is always a risky procedure. When cutting turf for spring repairs a thickness of 2 inches is preferable; but in the autumn, with a rainy time ahead, 1½ inches will suffice. The old turf should be removed with care, a level surface being left for the new piece of flag. This, when raised by a turfing iron, should be fairly uniform. To cut turf accurately, however, the groundsman will do well after the turf is raised to shave it to the dimensions required by using the turf box and knife. To make light work the groundsman will require a stout stool, or a bench of convenient height, a strong box 24 inches long by 12 wide by 1½ inches deep; the box, which is placed upon the stool, or bench, should be open at one end. Placing the turf face downwards it can then be trimmed down to the desired thickness. Where funds are plentiful the box, or turf box, and the turf knife should certainly be procured; but on the other hand, a strong, shallow box and a scythe blade, or even a piece of thin wire may serve, and in this way again the economic groundsman may save the club expense.

Sinkage in the grass court takes place almost imperceptibly throughout the summer, hence the necessity arises in the autumn for the use of the line, a straight edge, or piece of board, some wooden pegs, and a spirit-level. With these means at hand the groundsman will be able to

see at once where it will be necessary to raise or lower the turf.

And then there is the question of the nature of the various soils and the value of manures. Well-rotted dung, which should be spread over the ground in the fall of the year, may not always he procurahle; garden-soil and sharp sand, or bags of soot, may not be suitable for the ground. On most soils good results may be obtained from the above, or from a top dressing of basic slag; but failing these no groundsman will be far wrong in using a good chemical lawn manure. *Harry Danes.*

STREAM IN THE BRUSSELS BOTANIC GARDEN.

In the State Botanical Garden, Brussels, the water-garden is a very charming feature. A capricious little stream meanders through sloping ground, and on either side the borders are planted with a collection of flowering perennials suitable for the position. In spring the radiant blossoms of Lilies, Irises, and species of Ranunculaceæ make the banks gay with colour, and these in their turn are succeeded by summer and autumn blooming species. Even in winter there is no lack of harmony or grace; ornamental foliage and a few lingering flowers, such as the Hellebores, adorn the scene. In fig. 119 we reproduce a plan of the stream with the names of the plants employed, and in doing so desire to acknowledge the courtesy of the Editor of *La Tribune Horticole*, to whom we are indebted for the illustration.

KAPOK.

Some years ago the present writer was told of a wonderful substance, the virtues of which were such as to rob the sea of half its terrors; and this not because the substance—called Kapok—was suitable for internal application, but because—it was alleged—if made into a belt or pair of braces, it would impart such buoyancy to the wearer that were he shipwrecked he would float securely in the wildest sea. The origin and nature of this lightsome material were not divulged, and the writer, on his voyages, forgot to provide himself with a buoyant belt of mysterious Kapok, and continued to put a hesitating trust in the somewhat dilapidated canvas-covered cork belts which hang up in dark corners of the steamships. Now, thanks to the Philippine Bureau of Agriculture, from which Nature can keep no secrets, the mystery of Kapok is revealed to me, and I recognise it as a long-familiar friend. I recall the tall and slender tiered trees of Eriodendron anfractuosum—more properly known as Ceiba pentandra—the so-called Cotton tree of the Eastern tropics. I remember that this tree is at certain seasons one of the most striking objects in the landscape of Ceylon, and that it owes its prominence to its deciduous habit. Unlike the great majority of tropical trees, whose leaves ignore the changing seasons, the Cotton tree is deciduous, and during the dry season it stands forth leafless, whilst its neighbours are in full foliage. I recollect the thick, pointed pods which it bears, and that the seeds within the pods are covered with fine, silky hairs derived from the inner fruit cells. These hairs are Kapok. Each hair is composed of a single cell with a thin wall and large central air space, and microscopic examination reveals the source of its wonderful buoyancy. Each fibre consists of one-tenth solid elastic wall and nine-tenths air, so that a belt made of Kapok is an air cushion of most cunning natural contrivance. In future when I travel to the East I shall wear a belt of Kapok, if only for sentimental reasons—at least, I shall do so unless the price, which is rising constantly, gets beyond my reach. Fortunately, Java, which has hitherto had almost a monopoly of this material, is not the sole source of Kapok, for the tree is widespread throughout the Eastern tropics, and the energetic personnel of the Bureau of Agriculture in the Philippines is urging its systematic cultivation and exploitation. Needless to say the uses of Kapok are numerous and increasing. For filling cushions, sofas and mattresses it is without rival, for such is its lightness that a very little goes a long way. It stands at the head of the list of filling materials, and to stuff a mattress it requires one-third less of Kapok than of Alpine grass, horse-hair, straw or such-like materials. Until recently Kapok was held to be too brittle for textile purposes, but difficulties in the way of spinning have been overcome, and Kapok yarn is now an accomplished fact. It should make admirable shirts for aviators. To those who are concerned with developing the resources of our tropical possessions the virtues and promise of Kapok, and the Bulletin (No. 26) which extols these virtues, are to be commended. *Traveller.*

Fig. 119.—Plan of the stream in the Brussels Botanic Garden, showing the method of planting.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

MEXICAN LÆLIAS, ETC.—The weather during the past season has been in every way suitable to the Mexican Lælias, and many of them are now developing their flower spikes, Lælia anceps and its varieties predominating. Some of the more distinct varieties of this species are Barkeri, Dawsonii, Stella, Sanderiana, Amesiana, Veitchii, Leeana, alba, Chamberlainiana, Percivaliana, Crawshayana, Schröderiana, Schröderæ, and Waddonensis. Mention may also be made of the beautiful L. autumnalis, and its variety alba, the distinct L. Gouldiana, the pretty small-growing L. albida and L. furfuracea. The latter species comes from higher elevations than L. anceps, and requires a few degrees less heat whilst making its growth, a very light position in the intermediate house being the most suitable place for it during growth, while a dry shelf in the cool house is the best place when the plants are at rest. This will also apply to the rare L. majalis, a variety which produces its lovely flowers from the half-formed bulbs during the month of May. At the present time the night temperature of the Mexican house should range from 55° to 60°, and the day temperature from 60° to 65°, by fire heat, and higher by sun heat if this is present, but fresh air must be admitted in favourable weather, and no more shading employed after this date. When grown in a well-aired house Mexican plants will enjoy almost any amount of sun heat, with a moderate supply of water at the roots and a good spraying overhead each afternoon when the sun is bright. They will thus make far larger bulbs and stronger flower spikes than when grown in a moist, shady position in a close house and kept saturated at the root. From now until the flowers open the plants require only very little water at the root, and, after the blooms fade, only just sufficient to prevent the pseudo-bulbs from shrivelling. Plants that are not flowering will soon produce a number of roots from the current season's pseudo-bulbs, and in such cases, if the plants need re-potting, they should be attended to before such roots lengthen, otherwise some of them are almost sure to get injured. These plants succeed well in a properly drained compost of Osmunda fibre, the usual Sphagnum-moss being omitted. Hollowed out pieces of Potato and Apple laid on the surface of the compost are necessary as traps for wood-lice, and the surface of the compost should be examined a short time after each watering, as numbers of wood-lice are often found at such times. Lælia rubescens is another Mexican species; it is sometimes known as L. acuminata or L. peduncularis. It is a compact-growing species, with pretty white or rose-flushed flowers This species being now at rest, a light position close to the roof glass of the house is preferable for it. Being a dwarf-growing plant, it is advisable to use well-drained pans and a shallow compost of Osmunda fibre. Epidendrum atropurpureum (macrochilum) and the variety album should now be showing their flower spikes, and they will need very careful watering at this season, as the flower stems are liable to turn black and the flower buds drop. This is a useful and beautiful species, particularly the white variety, the sweet-smelling flowers lasting a long time in perfection. The plant should be suspended to the roof of the Mexican house, and be afforded the same kind of treatment as advised for the Lælias. Among other Orchids which thrive well in the Mexican house are Epidendrum dichromum, E. aromaticum, E. alatum, Dendrobium Hughii, D. sanguinolentum, Brassavola Martiana, B. Perrinii, B. venosa, B. Madouxiana, Brasso-Cattleya nivalis, B.-C. striata, Oncidium Cebolleta, and Cattleya Lawrenceana. The last-named species, not yet having completed its growth, should be placed in the lightest position available. The new growths should be examined occasionally, as sometimes the flower-sheath adheres so firmly to the side of the growth that, unless loosened, the flower spikes are deformed. Much judgment must be exercised in affording water at this stage, the young growths being liable to decay if there is any excess, especially in dull or wet weather. Barkerias are Orchids that are now seldom seen, but the pretty spikes of bloom are useful in many ways. These plants, when growing, should be kept well up to the roof glass of the Mexican house. The ends of the stems should be fixed firmly in a shallow pan filled with crocks and surfaced with growing Sphagnum-moss. The best varieties are B. spectabilis, B. elegans, B. Lindleyana, B. Skinneri, and B. cyclotella.

THE FLOWER GARDEN.

By EDWARD HARRISS, Gardener to Lady WANTAGE, Lockinge, Berkshire.

PLANTING ROSES.—Provided the ground is in a suitable condition, the planting of Roses should be proceeded with at once, as autumn planting is in all cases the most satisfactory. Should the soil be in a sodden condition when the plants arrive from the nursery, lay them in for a few days. Most Roses need replanting every two or three years. At these times the soil should be trenched, and plenty of decomposed farmyard manure mixed in with it. Artificial manures must only be used with extreme care, and natural manures are to be preferred, but failing this, finely crushed bones may be used with beneficial results. Lift the plants carefully and lay the roots in the ground on a sheltered border till the beds are ready for planting. Dwarf Roses should be planted from 20 inches to 2 feet apart, and standards about 2½ feet. Planting in all cases must be done quite firmly, and standards will need to be neatly and securely staked directly they are planted. In planting climbing Roses against walls, a hole should be made large enough to take a good barrow-load of fresh soil. The practice of top-dressing recently-planted Roses with rotted manure is not to be recommended. If protection is needed during severe weather, bracken fern or straw is the more effective protection, but these materials must be kept dry for the purpose.

VIOLETS IN FRAMES.—Except when frost is imminent, or during very wet weather, the lights should be drawn off the frames containing Violets both by day and night at the present, as the hardier the plants are grown the better they will flower. Remove dead leaves and flowers regularly, and keep the ground between the plants free from weeds. Slugs will do considerable damage by eating both leaves and flowers unless a watch is maintained. It is a good plan to dust the sides of the frame with lime once a week to keep these pests away. Surplus plants in the open ground will produce plenty of flowers for some time to come, if given slight protection against frost.

LILY-OF-THE-VALLEY. — These need lifting every two or three years to prevent the crowns becoming weak through overcrowding. It is better to deal with half the bed in one season, as the flowers are usually not so fine the first year after re-planting. The ground must be thoroughly prepared by trenching and manuring, and should the nature of the soil be heavy and retentive, leaf-soil should be incorporated with it. Let the crowns be carefully divided and graded, planting the larger ones by themselves, as they may be depended upon to flower. In planting, dig out a shallow trench and plant the crowns in rows in an upright position about 2 feet apart, leaving a space of about 9 inches between the rows. The crowns should be slightly covered with soil when planted.

THE ROCK GARDEN.—Rock plants must now be examined frequently for dead foliage. Fallen leaves, too, must be removed, as they may do much damage to the choice plants. If the bulbs have not already been planted, no time should be lost. Anemone apennina is a splendid plant for naturalising among rocks, and there are many other bulbs equally suitable. When planting bulbs, take the opportunity to cover the roots of other plants which are exposed. Slugs and snails must also be sought after and destroyed.

THE KITCHEN GARDEN.

By JOHN DUNN, Foreman, Royal Gardens, Windsor.

TOMATOS.—Seedlings raised in September should now be ready for potting into small 60-size pots, using for this operation a soil consisting of two-thirds loam and one-third leaf-soil, with a small quantity of rough sand added. Old lime rubble may be used as drainage material in preference to the ordinary crocks. Keep the pit closed, and water very sparingly until fresh roots are made, after which ventilation of the pots will be very necessary. Plants now yielding supplies should receive frequent waterings with weak liquid manure, so that the latest bunches of fruits may swell to their full size. Stop the side shoots, but leave a fair quantity of foliage on the plants to keep the roots in a healthy condition. Let those plants intended for fruition in January and February be kept in a well-ventilated house, fully exposed to the light, and give them a top-dressing of fine loam in which a good sprinkling of artificial manure has been mixed. The temperature of the house need not exeed 55° at night.

ASPARAGUS FORCING.—Asparagus is one of the easiest vegetables to force, and none other can be said to give the same satisfaction as a dish of well-grown Asparagus in winter. If strong, matured crowns are available, a start may be made at once in a brick pit where a little fire heat can be applied in frosty weather. The old bed should be removed to the depth of 4 feet and replaced by a quantity of new leaves, which should be collected and placed together for fermentation previous to use. When the leaves are being placed in the pit they should be trodden tightly until the surface of the bed is within 18 inches of the roof glass. A covering of thoroughly decayed manure should then be placed over the surface of the bed, and this lightly covered with fine sifted leaf-soil, so that the Asparagus roots may not come into direct contact with the manure until growth commences. Great care should be exercised in lifting the roots, and they should not be exposed to the air long before placing them in the pit. They may be placed as closely together as possible and covered lightly with fine sifted soil, which may be watered in amongst the roots with water at a temperature of 80°. After a few days the young shoots will begin to appear, and at this stage a covering of fine sifted leaf-soil should be placed over the surface to the depth of 4 inches, after which the shoots will grow much quicker. The temperature of the bed must not exceed 80°, or the roots may become scalded. The quantity of roots to be placed in heat at one time will depend on the demand and the number of crowns available for forcing. One well-prepared bed of leaves will retain sufficient heat to force three batches of roots, providing the leaves are shaken up before the second and third batches are placed in position. If the heat does not appear sufficient, it may easily be increased by mixing a quantity of horse-droppings amongst the leaves each time fresh roots are introduced to the pit. The leaf-soil used for blanching the shoots will answer the same purpose the season through.

GREEN HERBS.—If a supply of green herbs is desired in winter, a mild hotbed should be made up in some pit where a little fire heat can be applied in very cold weather. Tarragon is easily forced in this way; the roots should be lifted with a good quantity of soil and placed closely together on the bed, filling in the space amongst them with fine sifted rich soil: no further covering will be necessary. When lifting Mint for forcing, the soil should be removed from the roots, which should be placed on the bed after a few inches of fine sifted leaf-soil have been spread over it. When the roots are in position, a covering of the same soil may be placed over them to the depth of an inch and watered in. The temperature of the bed must not rise above 80°. When growth commences, which will be within a week, the atmosphere should be kept moist by frequent light waterings.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Forcing Plants. — Plants of Azalea mollis, Lilac, Deutzia gracilis, Rhododendrons, Wistaria, and Laburnum should be potted immediately they are received from the nurseryman and afterwards plunged in ashes. Ordinary plants should not be placed in heat until the New Year, for the retarded plants and bulbs are best forced now. Crowns of Astilbe (Spiræa) japonica var. Queen Alexandra and var. Peach Blossom must be potted on delivery and plunged in ashes out-of-doors. The same treatment applies to Berlin crowns of Lily-of-the-Valley, but they must first be exposed to the weather for a few days and nights. Exposure to a few degrees of frost greatly improves their forcing qualities.

Helleborus niger.—Clumps of Christmas Roses may be taken from the open ground, the roots being disturbed as little as possible, and placed in boxes, the roots covered with soil. Place a few of the boxes in an intermediate house for early flowering.

Violets.—Violets require a good deal of attention at this stage. During mild, sunny days remove the lights altogether, and afford plenty of ventilation at night. Examine the plants frequently, and remove every decayed leaf. Water the plants only on bright days, and, if possible, first thing in the morning, so that the foliage may be dry by the evening.

Carnations.— The earliest batch of Tree Carnations which have been rooted in sand will be ready for removal into thumb pots. The temperature should be moist and warm — 55° to 60° at night. Plants in bloom should also be in the temperature just given, or a little lower— 55° is a suitable night temperature for flowering Tree Carnations. On all bright days admit plenty of ventilation.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Gooseberries.— While the weather remains open it is well to push forward the work of pruning and planting of bush fruits. The shoots of Gooseberry bushes which have been raised from cuttings inserted last year should be thinned to four leads. The shoots that remain should then be shortened back to 5 or 6 inches, at the same time retaining a main stem of 6 to 8 inches. The older bushes will need pruning and cleaning. The crop is usually furnished by young growths that have been spurred in, but it is advisable to encourage the growth of young wood, and a few well-placed shoots may be allowed to remain their full length. If they spring from the centre of the bush, or from the base of existing branches, they will serve in time to replace the old, worn-out branches. They will also encourage root action, and thus indirectly help the tree to become more healthy and vigorous. It is a mistake to leave the bush or spurs too thick. The summer pruning should have left the young shoots thinly along the whole branch, in which case the shortening back which will be done now will produce a fine crop. If Gooseberries are required for dessert purposes the cordon system of training is the best. The cordon can be single, double, or what is known as "gridiron" shape—that is, with three uprights on one base. Planting against a wall is generally inadvisable, on account of the encouragement it gives to red spider. A wire trellis, however, does not present the same disadvantage; it should run north and south, the bushes being planted to allow a distance of 6 inches between each upright. Air and sun thus freely enters every part of the bushes, which are more easily protected against bullfinches and other bud-destroying birds, and the fruit also from birds and rains, than when planted in bush form. If they were pruned and the weaker shoots pinched out in the summer, only the shortening of the spurs will now be necessary. As the tree becomes older, however, a young shoot from the base will have to be encouraged. The best method of propagation is by cuttings, which may be inserted at any time from now until the buds begin to grow in the spring, but they succeed best when planted at the time of pruning. Strong shoots, about 1 foot long, should be taken with a heel of old wood. The eyes for about 6 inches up the cutting should be picked out, and the latter planted firmly in the open ground, where it will root and make top growth in the spring.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Vines.—Pot vines which are intended to provide ripe Grapes at end of April or the beginning of May should be prepared for forcing. Select the strongest and best-ripened plants for this purpose. The best varieties for early forcing are Black Hamburgh, Foster's Seedling, and Madresfield Court. Remove a little of the surface soil from the pots and top-dress with a layer of turfy loam with a little Vine Manure added. Each pot should be placed on a few bricks, a good-sized sod being inserted between the bricks and the pot. Then pack fresh leaves and horse litter firmly between and around the pots, reaching up to the rim, so as to make a solid bed. Slight artificial heat will also be required until the buds burst; 55° at night will be the best temperature, rising in the day with sun-heat. After the bursting of the buds the temperature may be 5° higher. If the pots are fairly damp when placed in the bed the plants need not be watered until they begin to grow. A moist atmosphere should be maintained, and after growth commences the plants may be syringed twice on every bright day with tepid water. Vines growing over trellises should be unfastened, as lowering the rods will result in the buds breaking more evenly. Prepare vines which were planted out earliest for starting this month. The house may be closed some time between the middle and the end of the present month. For the first fortnight no fire-heat will be required, unless the weather be very severe, a night temperature of 50° being sufficient. Vines which were forced early last year will, if properly matured, respond to the same treatment now, but do not force with too much fire-heat. The best method of inducing quicker root action and keeping the temperature of the house sufficiently high without much artificial warmth is to make a hot-bed along the centre of the house of fresh leaves mixed with stable litter. The outside borders of vineries and Peach houses in which early forcing is to be carried on will benefit by a covering of two feet of leaves and warding off rains by a thatch or shutters.

Cucumbers.—Now that the nights are long and the days dull and often sunless, careful attention should be given to the temperature of the Cucumber house. A high temperature produced by artificial heating makes the foliage thin and flimsy, and encourages attacks of red spider. The temperature at night should range from 60° to 65°, according to the weather. In the day 70° will not be too high, and at times of sunshine a few more degrees will do no harm. The house should be ventilated in the mornings when the weather is favourable. The foliage will benefit by an occasional syringing with a weak mixture of soft soap and sulphur. Growth just now is very slow, and only a few fruits must be left on the plants; even these must be cut before they grow large. When the roots appear on the surface of the soil a slight top-dressing of loam should be given, with a sprinkling of concentrated manure. Less moisture than hitherto must be allowed now, both at the roots and in the atmosphere.

THE APIARY.

By Chloris.

Work for the Month.—The state of the weather during the past few weeks has very much favoured the beekeeper, and the warmth has encouraged the growth of Sainfoin and White Clover, on which the apiarist has to depend for next year's honey. The bees have been very busy gathering pollen, etc., from the late-flowering plants, especially Ivy. The tendency to rob should be checked by narrowing the hive entrances to quarter of an inch. This will assist in keeping out the late wasps, which are surviving unusually late owing to the congenial weather. To keep down the plague of wasps a sharp look-out should be kept for queens.

Sections.—The unsold sections should be examined, as earwigs often prove very troublesome at this season of the year, when they are compelled to seek shelter indoors owing to the heavy rainfalls. If possible the sections unsold should be marketed as soon as possible, as they will not sell so easily if the honey has candied. If a number of sections are stored that were taken off early in the season they should be disposed of without delay, as they will granulate sooner than the later-gathered honey. As a guide for prices, unglazed sections should fetch 7s. to 8s., and glazed 9s. 6d. to 10s. 6d. per dozen when sold in bulk.

General.—The ground around the hives should be cleared of all weeds and rubbish, and it is a good plan to burn it all, so that any diseased bees may be destroyed. Those who do not desire the trouble of digging up weeds, etc., may use heavy dressings of weed killer, as it will not injure the bees, and if several dressings are used no weeds will grow next year. All lifts and extended alighting boards should be treated with a washing of carbolic acid, and then stored in a dry place until next season, when they will be quite ready for use, especially if they be painted before storing. Some beekeepers are very careless in removing the extended alighting boards. They form an excellent hiding place for toads, which consume a large number of bees. To prevent the hives being blown over by the autumn and winter gales they should be roped down to the stand if it is a fixture, but if not, then a stake should be driven into the ground and to this a rope securely fastened. Pass it over the roof of the hive, and fasten one or two bricks on the other end, and all will be quite safe. Under no conditions should the hives be opened, for it is essential that the bees be absolutely undisturbed during the next few months.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Alterations.—Between now and the New Year is the time to make alterations to the ground and to improve the drainage (fixing water-pipes, digging manure-shoot, making rubbish heap, etc.), because actual gardening operations are not so urgently in need of attention at this period as at others. The collection of manure for the making of hot-beds next spring must also be well in hand; at least half the required quantity should already have been procured. About six tons will be wanted for each bed of 15 lights or 125 cloches. The collection of manure is done in various ways, but perhaps the best plan is to have a regular weekly supply all the year round. It then becomes part of the routine, and sometimes extra handling can be avoided by carrying one week's supply straight to the place where it is wanted.

Root Secretion.—It has long been a matter of dispute whether roots secrete substances inimical to their own growth. Recent experiments appear to show that roots do excrete such toxic substances, but the objection has been urged against these experiments that they did not take into account the action of such micro-organisms as might have been present. Mons. Molliard has directed his attention to this problem, and his recent experiments, described in the *Bulletin* of the Botanical Society of France (vol. 60, 5, 1913), which were carried out with seeds germinated under aseptic conditions, indicate that toxic secretion by roots does occur. The experiments were made with Peas grown in water cultures, and showed that when the solution which had been used for one set of Peas was employed for another, the latter made extremely poor growth; the main roots remained short, and the growth of lateral roots was arrested.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* EDITORS, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, NOVEMBER 11—
Birmingham Chrys. Sh. (3 days). Belfast Chrys. Sh. (2 days). Manchester Chrys. Sh. (2 days). Brighton and Sussex Chrys. Sh. (2 days).

WEDNESDAY, NOVEMBER 12—
Dulwich Chrys. Sh. (2 days). York Florists' Chrys. Sh. (2 days). Liverpool Hort. Sh. (2 days).

THURSDAY, NOVEMBER 13—
Scottish Hort. Assoc. Chrys. Sh. (3 days) Newport (Mon.) Chrys. Sh. Nottingham Chrys. Sh. (3 days). Sheffield Chrys. Sh (3 days). British Gardeners' Assoc. (London Branch). (Lecture by Mr. C. P. Clayton on "Soils and Soil Sterilisation," at Carr's Restaurant, Strand.)

FRIDAY, NOVEMBER 14—
Bradford Chrys. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 43.9°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, November* 5 (6 p.m.); Max. 56°; Min., 50°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, November* 6 (10 a.m.): Bar., 29.1°; Temp., 50° *Weather.*—Overcast.
PROVINCES.—*Wednesday, November* 5: Max., 51°, Lancaster; Min., 40°, Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY NEXT—
Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, WEDNESDAY, AND THURSDAY NEXT—
Rose Trees, Shrubs, Bulbs, Lilies, etc., at Stevens' Auction Rooms, 38, King Street, Covent Garden, W.C., at 12.30.

TUESDAY NEXT—
Sale of Nursery Stock, at Arthur's Bridge Nursery, Woking, by Protheroe and Morris, at 12.

WEDNESDAY NEXT—
Palms, Azaleas, Bays, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 5.

Valuable Orchids, at the Coal Exchange, Manchester, by order of W. R. Lee, Esq., by Protheroe and Morris, at 1.

THURSDAY NEXT—
Special Sale of Roses at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

Clearance Sale of Rhododendrons, Azaleas, and other stock at Portland Grange Nurseries, Matlock, by Protheroe and Morris, at 11.30.

FRIDAY NEXT—
Imported and Established Orchids at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 12.45.

A New Vegetable and its Origin

Experimental plantings of Allium triquetrum, L., a plant common on the coast of Algeria, give evidence that this species is of considerable value as a vegetable. The experiments, which were carried out by Dr. Trabut, President of the Horticultural Society of Algiers, are reported in the *Revue Horticole* (p. 311, 1913). The Kabyles of North Africa consume large quantities of this Allium during the winter months. The first trials conducted by Dr. Trabut were of plants grown from seed, but it was found subsequently that excellent plants, quite as presentable as Leeks, may be obtained from the bulbs which form in large numbers on the wild plants. By planting its bulbs deeply in good soil Allium triquetrum produces during the winter large plants, the underground parts of which are white, tender, and succulent. If the green leaves are removed, the rest of the stem-parts forms a delicate vegetable with no odour of garlic.

Though the sudden production of a succulent vegetable from a weedy plant may seem somewhat surprising, and may be held by some to be a wonderful example of a sudden change of habit, a little consideration will suggest a simple explanation. That explanation would appear to be that the plant has not changed its nature at all. Whilst growing on the sandy coasts of Algeria it did the best it could, and that best consisted in a somewhat dwarfed growth, a dry texture, and a powerful smell of Onions. Transported into good garden soil the Onion is able to get more water, and the succulence and loss of pungency follow as a matter of course. We strongly suspect that, notwithstanding the accounts given in the books, the transformation of wild plants such as Radish into succulent vegetables occurs just as speedily and has nothing to do with the acquirement of new characters in response to new conditions of life. Just as a sunny holiday improves for a time the tempers of tired men not naturally morose, and just as their tempers lapse when the holiday effects wear off, so it may be that the sudden development of Allium triquetrum into an appetising vegetable means that given good conditions it is an appetising vegetable, and given bad conditions it is a somewhat ill-tasting plant which can appeal only to a hungry native of Algiers. It would be well worth while for someone to repeat the old and off-quoted experiments concerning the origin by stages of plants such as the Radish. For our part, we are inclined to think that such experiments would prove that the succulence exists potentially in the wild plant, that it is not succulent in the wild state only because the conditions for the development of this quality and qualities dependent thereon are not forthcoming, that it might exhibit this quality as soon as it found itself in suitable soil, and that it would lose it with equal rapidity if caused to return to the place whence it came. Apart, however, from speculations and opinions as to the significance of this change of habit, the subject is interesting from the practical point of view, and those in search of novel vegetables might well try Allium triquetrum, though, of course, it is to be expected that it would not stand in our climate in the open.

Investigations on Potato Diseases.

The fourth report by Mr. G. H. Pethybridge* contains the results of a series of interesting observations on the late blight of Potatos, due to Phytophthora infestans. The observations carried out by Mr. Pethybridge enable him to state confidently that the practice which has at times been advocated of steeping seed Potatos in copper sulphate is without effect in enabling them to resist the blight. Other experiments lead to the more important conclusion that the fungus causing the disease does not pass from a diseased tuber into the growing plant. Tubers known to be infected by Phytophthora infestans gave rise to plants which remained perfectly healthy until attacked by spores liberated from diseased plants in a neighbouring plot. Mr. Pethybridge concludes that "the produce of blighted tubers, if any, is, as a rule, healthy, and that the source of recurrent infection of the Potato crop with blight cannot be due directly to mycelium present in any diseased tubers which were planted. Of resistant varieties, Shamrock, Clifden Seedling, and Champion II. again proved resistant in 1912, Shamrock being almost completely proof against the blight." Northern Invincible, though less resistant than any of the varieties just mentioned, proved itself to possess a considerable measure of immunity. Experiments designed to ascertain the cause of immunity point, as is to be expected, to the conclusion that resistance is due to constitution rather than to the possession by the immune varieties of a surface impenetrable by the fungus.

As mentioned recently in these pages, Mr. Pethybridge has succeeded in confirming the discovery made by Dr. Clinton that resting spores are produced by Phytophthora infestans, and hence a dispute round which controversy has ranged for years is finally decided. The report also describes valuable investigations in another disease of the Potato—the stalk or Sclerotium disease—due to the fungus Sclerotium sclerotiorum. This fungus, which causes the stems of the Potato to break and fall, produces small blackish sclerotia composed of resting mycelium. The sclerotia hibernate in the soil and produce their characteristic stalked, cup-shaped fruiting body in the spring. The fruiting body bears spores (ascospores), which are discharged into the air, and Mr. Pethybridge has been able to prove that infection of the Potato with this disease is effected not by the sclerotia directly, but by the airborne spores liberated from the fruiting body to which a Sclerotium gives rise. Late planting is recommended in districts where the disease is prevalent, since the risks of infection are far greater in the earlier part of the growing season. Other maladies of the Potato, including the pink rot, due to a new species of Phytophthora (P. erythroseptica Pethybridge), are described in this report, on the excellence of which the author is to be most warmly congratulated. We shall look forward with interest to the next instalment of these investigations, and hope that in it we may find the solution to the mystery of the source whence comes the yearly reinfection of the Potato by the worst of its many enemies, the late blight fungus.

* *Journal of Department of Agriculture*, Ireland, Vol. 13, No. 3.

PACHIRA MACROCARPA (see fig. 120).—For many years there has been a fine example of this handsome tropical tree in the Palm House at Kew, and periodically it has produced a crop of flowers, as it did quite recently, when our photo-

Fig. 120.—pachira macrocarpa : petals white, stamens crimson and yellow. [*Photograph by E. J. Wallis.*

(See page 324.)

graph was obtained. The flowers in their size and colour are both exceptional and attractive, as they measure about a foot in diameter; the strap-shaped petals are white, and the large brush-like cluster of stamens crimson and yellow. The foliage is not unlike that of the Horse Chestnut, but it is more leathery in texture. The habit and characters of the tree indicate a close relationship with the African Baobab, Adamsonia digitata. Pachira is a genus of about 15 species, restricted to Tropical America, and is a member of the same order as Adamsonia, Eriodendron and Bombax. These all have digitate leaves, and are popularly known as Silk Cotton trees, their seeds being surrounded by a quantity of cotton-like fibre, which is of considerable commercial value. The bark of some of them is fibrous, and is used for paper-making and other purposes. Pachira was formerly known as Carolinea, and such names as C. princeps, C. alba, and C. aquatica are to be met with in gardens. In the *Botanical Magazine*, t. 45, 49 (1850), there is a good figure of P. macrocarpa, there, however, called P. longiflora, although it had originally been obtained from the famous nursery of M. MAKOY, Liége, as Carolinea macrocarpa. This tree is said to be a native of Mexico, and we know that under cultivation it requires tropical conditions. A nearly allied species, P. aquatica, is represented by a figure in the *Gardeners' Chronicle*, November, 1906, p. 308, prepared from a plant which flowered in the Glasnevin Botanic Gardens that year. These handsome tropical trees, from their habit of not flowering until they are fairly large, are suitable only for spacious plant houses, such as the Palm houses at Kew, Edinburgh and Glasnevin, or the big conservatory at Chatsworth.

Coloured Supplement.—The subject of the Coloured Plate to be published in the next issue is Berberis Wilsonæ.

HORTICULTURAL CLUB.— A house dinner of the Horticultural Club will take place on Tuesday, November 18, at 6.30 p.m., at the Hotel Windsor, Westminster, when Mr. REGINALD FARRER will give a lecture entitled "Not About Switzerland." Those intending to be present should write to the hon. secretary, Mr. R. HOOPER PEARSON.

MR. ALFRED DAWKINS.— We understand that Mr. ALFRED DAWKINS, who has managed the seed department of Messrs. JAS. VEITCH AND SONS, Chelsea, for the past seventeen years, has commenced a similar business for himself at an address in the King's Road. Mr. DAWKINS will have many good wishes in taking up this new enterprise

THE "CLAY" CHALLENGE CUP.—Messrs. CLAY have presented to the Council a Silver-gilt Cup of the value of £75 for annual competition (open to all) at the Holland House Show, its object being to endeavour to obtain a new race of Roses of both good form and colour, but above all else possessing the true genuine Rose scent, such as may be found in the old Cabbage or Provence Rose, in General Jacqueminot, Marie Baumann, Duke of Wellington and General McArthur. The distinctive scent known as "Tea Rose" is not, for the purpose of this competition, to be accounted as the true Rose scent. Not more than three different varieties may be shown by any one competitor, but at least three and not more than six cut blossoms of each variety. For five consecutive years Messrs. CLAY will also present a smaller commemorative cup, which the Council will give to the winner of the Challenge Cup when at the end of the twelve months it shall have been returned safely and in good condition. The winner of one year may not win again the next year, but only in alternate years. In any year the awarding of the cup may be withheld if the Council are of opinion that there is no exhibit worthy of it. The decision of the Council is final. The Council will not award this distinction unless satisfied and assured that the exhibit is, in the main, due to the work and capability of the exhibitor or his employees; on this point the Council may consult any expert not eligible to win the cup. The Council may reserve decision till the third day of the show. The attention of intending exhibitors is particularly directed to the Society's 1911 code of "Rules for Judging."

PRUNUS PISSARDII SPÄTHIANA.—Under this name we have received specimens of a form of Prunus Pissardii from Messrs. W. WOOD AND SON, Maresfield. It is superior to the type owing to its shiny and deeply coloured foliage, which colour is retained through the summer and autumn. Our readers may remember that Messrs. WOOD introduced this variety three years ago, under the name of "Woods Variety." Mr. SPÄTH introduced the original Prunus Pissardii in 1882 under the botanical name of Prunus cerasifera purpurea.

DAIRY EDUCATION ASSOCIATION.— During the holding of the Dairy Show at Islington the annual general meeting of the Dairy Students' Union was held under the chairmanship of Mr. J. C. NEWSHAM. A favourable report was presented for the year, there being now over 500 members. The most important business was the unanimous decision to change the name of the Dairy Students' Union to that of the Dairy Education Association. Mr. J. BENSON and Mr. PRIMROSE MCCONNELL, B.Sc., were elected to the Committee. It was also decided to arrange for London offices and that all communications should go to the hon. secretary.

FLOWERS IN SEASON.—Messrs. R. VEITCH AND SON send us from their nurseries at Exeter excellent sprays of Choisya ternata in full flower, just as they appear in spring. Also flowers of several choice Rhododendrons that have opened in advance of their proper season of flowering.

AUTUMN RASPBERRIES.—We have received fruit-bearing sprays of the Alexandra Raspberry from Mr. W. ALLAN, Gunton Park Gardens, Norwich, which remind us of July. The fruits are abundant and have developed a good colour.

SOCIÉTÉ FRANCAISE D'HORTICULTURE DE LONDRES.— We have just received the *Annual Bulletin* of this excellent Society, conducted by Mr. GEORGE SCHNEIDER, for the well-being of the young French gardeners who come to England for the purpose of learning our gardening methods and our language. The past year's work shows no falling off in its excellent results. Numerically and financially the Society is doing well. As a frontispiece there is a good portrait of Mr. P. RUDOLPH BARR, accompanied by a short biographical sketch. It will be remembered that Mr. BARR occupied the chair at the annual banquet of the Society in April. The contents include, as usual, much information of a purely formal character, such as the rules, list of members, balance-sheet, library catalogue, and other matter. There are also the reports of the banquet, and of the monthly meetings, at which papers are read by the members resident in England. The titles of a few will give an idea of their scope, for example, "Rhubarb Culture in England," "Saxifrages," "The Camellia," "Kew Gardens," "Forcing of Flowering Shrubs," "The Royal International Exhibition, London, 1912," and "Visit to Carter's of Raynes Park."

BLAKENEY POINT.*—The valuable account of the topography and vegetation of this Nature Reserve (see *Gardeners' Chronicle*, February 15, 1913, p. 97), which was contributed by Professor OLIVER and Mr. SALISBURY to the *Transactions of the Norfolk and Norwich Naturalists' Society*, has now been published in book form. The student of ecology will find keen enjoyment in the perusal of Prof. OLIVER'S account of the topographic peculiarities of this "shingle spit," which consists of an aggregate of shingle beaches, sand dunes and salt marshes. The most striking floristic features of this area are the occurrence of Mertensia maritima and the presence of a number of Mediterranean species which reach here their northern limit. Among these species are Suæda fruticosa, the Hair grass Corynephorus canescens, and the two Sea-Lavenders, Statice binervosa and S. reticulata.

THE AGRICULTURAL ORGANISATION SOCIETY.—The report of the A.O.S. for 1913 contains the announcement that the Society has created a Central Intelligence Department in connection with the disposal of fruit and market garden produce. The department is to be at the service of all growers who are prepared to work on co-operative lines. The offices of the Society are in Queen Anne's Chambers, Tothill Street, Westminster, London, S.W.

DAHLIAS.—The trial of Dahlias, from a garden decorative point of view, carried out this year in the gardens of REGINALD CORY, Esq., at Duffryn, has proved a genuine success, and in consideration of this, and desiring to still further encourage raisers to devote particular attention to producing varieties best adapted to garden decoration, Mr. CORY felt the desirability of holding a further trial next year. After putting his views before the Council of the Society and the National Dahlia Society, and being assured of their willingness to co-operate with him as they did this year, he has decided to hold a trial in 1914 of seedlings not in commerce, and any varieties offered for the first time in 1914. These will be grown and judged and reported on in exactly the same way, and, as far as possible, by the same individuals as in 1913. Three plants of each variety should be sent, carriage paid, to REGINALD CORY, Esq., Duffryn, near Cardiff, if sent by post; or labelled per G.W.R. to Ely Station, near Cardiff, if sent by rail. For various considerations it has been decided that only rooted cuttings must be sent; and those who intend participating in the trials are particularly requested to send them *as early as possible in the year* in order that they may be grown on to the best advantage before planting out. Mr. CORY kindly offers the Council a £5 5s. cup to be awarded for the most meritorious plant in the trials, and the Council will give any other award they think fit. *W. Wilks, Secretary.*

STERILISATION OF SOIL FOR TOMATOS.—As indicative of the wide interest which recent work on soil sterilisation has aroused, mention may be made of an article by Dr. G. BORGHESANI in the current number of the *Bulletin* of the Association of Professional Italian Horticulturists. Dr. BORGHESANI'S experiments confirm those of RUSSELL and show that the yield of fruit is greater in sterilised than in unsterilised soils; that sterilisation by heat gives better results than are given by the use of antiseptics such as formaline or carbon bisulphide, that steam is better than dry heat Dr. BORGHESANI finds also that the results are almost as good when the soil is heated to 54° C. (130° F.) as when it is raised to 99° C. (210° F.).

TRINIDAD AND TOBAGO AGRICULTURAL SOCIETY.—Experiments carried out by Mr. A. E. COLLENS and reported in the *Proceedings of the Agricultural Society of Trinidad and Tobago* (June, 1913) indicate that the yield of rubber is not materially reduced when tapping is practised every sixth day instead of every second or fourth day. Similar results have been obtained in Ceylon and their economic importance is considerable. Thus, if tapping is practised every second day it takes a man 32 tapping days to obtain 1lb. of rubber per tree. If the trees are tapped every fourth day 21 days suffice; and if

* *Topography and Vegetation of Blakeney Point, Norfolk.* By F. W. Oliver and E. J. Salisbury. Copies (1s. 6d.) may be had of F. T. Smith, Botany Department, University College, London. Pp. 58, Illustrations 17.

they are tapped every sixth day 15½ days suffice to enable the tapper to obtain 1lb. per tree; and moreover the tapper working on the six-day system can tap three times as many trees as could be worked over if they were tapped every second day.

A New Convolvulus.—M. R. M. Mairb gives an account in the *Bulletin de la Société Botanique de France* (Vol. 13, 1913) of a new Convolvulus, C. Dryadum, which he found on Mount Babor, Algeria, in 1912. He describes the new species as a "magnificent Convolvulus, with large pale-rose flowers from an inch to nearly an inch and a half in diameter." C. Dryadum is a perennial, and grows to a height of nearly 2 feet. The rounded, swollen stems are at first erect, but later on develop a twining habit at their extremities. The oval, subcordate leaves have a silvery appearance when young, but become of a bright green with age. The new species grows abundantly in a restricted area of calcareous rocks at an altitude of about 1,800 metres.

Ant Repellents.—Readers who inhabit ant-infested countries may be glad to know that, according to the investigations of Messrs. W. Newell and T. C. Barber on the Argentine ant (U.S. Department of Agriculture, Bulletin No. 122), dry corrosive sublimate may be used to prevent ants from making their way on to the tables, chairs, shelves, and other furniture of dwelling-houses. The method of use is to soak cotton tape an inch wide in a saturated solution of corrosive sublimate, allow it to dry, and then fasten it around a table-leg or on the edge of a bookshelf, etc. If the tape remains dry it serves for months as a repellent to ant invasions.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Preservation of Colour in Plant Preservation.—Seeing a short note in *Gard. Chron.* (October 25, p. 291) on "The Preservation of Colour in Plant Preparation," I send you the plan adopted by my aunt, Miss C. Henslow (1850). She was my father's youngest sister and a great lover of flowers:—"The materials required are common cartridge paper, thick white blotting paper, cotton wadding and millboard, all cut to the same size. The plants should be gathered in dry weather and soon after the flowers open, when their colours are brightest. Succulent plants (such as Daffodil, Orchis or Stonecrop) should be put into scalding water, with the exception of the flowers, for a minute or two, then laid on a cloth to dry. Arrange the specimens and papers in the following order:—Millboard, cartridge paper, wadding (split open and the glazed side placed next to the cartridge paper), blotting paper; the specimens, having small pieces of wadding placed within and around the flowers to draw off all the moisture as quickly as possible, blotting paper, wadding as before, cartridge paper, millboard. When the specimens, etc., are thus arranged heavy weights should be put on them—about 30lbs. the first day, 60lbs. afterwards. Remove them from under pressure in a day or two; carefully take away all the papers, etc., except the blotting papers between which the specimens are placed; put these in a warm air to dry, whilst the removed papers, etc., are dried in the sun or by the fire. When dry (but not warm) place them in the same order as before; put all under the heavier pressure for a few days, when (if not succulent) they will be dry. Flowers of different colours require different treatment to preserve their colours. Blue flowers must be dried with heat, either under a case of hot sand before a fire, with a hot iron, or in a cool oven. Red flowers are injured by heat; they require to be washed with muriatic acid, diluted in spirits of wine, to fix their colour. One part of acid to three parts of spirit is about the proportion. The best brush with which to apply this mixture is the head of a thistle when in seed, as the acid destroys a hair-pencil and injures whatever it touches (except glass or china); therefore it should be used with great care. Many yellow flowers turn green even after they have remained yellow some weeks; they must therefore be dried repeatedly before the fire, and again after they are mounted on paper, and kept in a dry place. Purple flowers require as much care, or they soon turn a light brown. White flowers will turn brown if handled or bruised before they are dried. Daisies, Pansies and some other flowers must not be removed from under pressure for two or three days, or the petals will curl up. As all dried plants (ferns excepted) are liable to be infested by minute insects, a small quantity of the poison, corrosive sublimate, dissolved in spirits of wine, should be added to the paste, which it will also preserve from mould. The best cement for fixing the specimens on to the paper or cardboard is gum-paste. It is composed of thick gum-water and flour mixed in warm water, by adding the two together, warm, and of a consistency that will run off the hair-pencil." *Geo. Henslow, Danehurst, Branksome Wood Road, Bournemouth.*

The Lily Season.—I have read with great interest the contribution of Mr. Grove, entitled "The Last of the Lilies," on p. 285. I am glad he has been so successful with the open-air culture of that exquisitely beautiful Lily, Lilium sulphureum, originally named Wallichianum superbum, the former title, indicative of its distinctive colour, being the more expressive. I have tried it in various situations in my garden—sunny and half-shady—and in what I deemed congenial soil, but without success. Probably the best of all methods is to start it, like nepalense, in a conservatory; and then, if the season should prove as benignant as that which we have experienced this year, plant it out. I have seen Lilium nepalense succeeding, in Logan Gardens, in this parish, in conditions such as I have described. I am sorry that, unlike Mr. Grove, I did not give L. sulphureum a trial this season, for the two months of brilliant sunlight that came so unexpectedly were wonderfully helpful to exacting plants of this and other descriptions. I have never seen the great Californian and Himalayan Poppies (Romneya Coulteri and Meconopsis Wallichii) growing more grandly at Logan or flowering more magnificently there than they did this year. They are among the latest of my own acquisitions, and are growing admirably in sheltered situations. I may add that the Oriental and American Lilies that succeeded best with me during the season now drawing so rapidly with the latest and loveliest of the L. speciosums to a close, were Szovitzianum (8 feet high); L. candidum, whose artistic effect and splendid fragrance are by Lily cultivators too greatly ignored; chalcedonicum, which has flowered here in the same position for 15 years without any apparent deterioration; Henryi, a vigorous growing Lily that endures; the richly odorous Washingtonianum; Longiflorums Wilsoni and giganteum, of which the latter is the more reliable for garden cultivation; Auratums platyphyllum and virginale, and Speciosum magnificum, which is a glorious derivative from Melpomene and well worthy of its name. *David R. Williamson.*

Association of Cemetery Superintendents.—Permit me to thank you for your reference to the formation of this Association, of which I have the honour to be the first president. Many cemeteries in this country are maintained at a high standard of efficiency from a horticulturist's point of view, yet I have never to my recollection read or heard of any article or reference to such matters in the gardening Press. Of late years great strides have been made in the reverent care of "God's Acre," but sometimes the efforts in this direction have met with opposition. We are still much behind Americans in this respect, for in that country many societies exist dealing solely with cemetery management. More than one paper is wholly or partly devoted to the interests of cemeteries and cemetery superintendents. My experience of cemeteries, both in Scotland and England, justifies me in saying that we may look forward to much improvement in their condition and appearance as years go by through the influence of our Association. The secretary, Mr. C. F. Tate, Kensington, will furnish information dealing with the objects of the society to those interested. *J. D. Robertson.*

Stephanotis floribunda Fruiting (see fig. in *Gardeners' Chronicle,* December 26, 1885, p. 817).—We have a plant of Stephanotis floribunda planted out in a cool, span-roofed greenhouse, 18 by 24 feet. The specimen has been planted some 3½ years, and has flowered freely every season, but this year it has been extra floriferous. It covers in all about 6 square yards of the west side of the roof, and on the other side is growing a plant of Schubertia grandiflora, which has white, fragrant flowers, and at the top of the roof the two plants are growing into each other. The Stephanotis has set 25 fine seed pods, and they are each of the size of a duck's egg. I have removed 13 of the fruits to give those that remain a better chance of maturing. Mr. Taylor, of Byram, informs me that he has seen 2 or 3 pods on one plant, but never so many as our specimen now bears. *J. P. Bower, Kippax Park Gardens, Castleford.*

Effect of Summer Drought on Trees (see p. 300).—Some twenty years ago it was my duty to clear away a number of windfalls in the grounds then under my charge. The majority of them were Austrian Pines, about 35 years planted. After cross-cutting the stems as near to their base as possible, we pushed back the upturned roots into their previous positions. My attention was drawn to the varying sizes of the annual rings, which from the quick growth of the belt as a whole were very distinct, and gave a further proof of the age of the trees. I drew the attention of the estate agent thereto, and also two or three of the workmen, who were fairly intelligent country men. Having notes of the weather for more than twenty years, it was not difficult to trace their effect on the annual rings, which were considerably wider when measured carefully in the wetter seasons than in the drier ones. A similar effect could be traced in some few Scotch Firs and Elms, though their annual rings were not large and clear, as in the case of the Austrian Pines. The soil is a stiff loam on magnesian limestone, on an estate in Mid-Yorkshire at an altitude of about 100 feet. *Yorkshire Gardener.*

Michaelmas Daisies. — The Michaelmas Daisies have been late and fine, and in a season like the present the value of the many varieties can be determined with a precision not always possible. The long-stemmed, graceful-habited varieties, with small flowers so valuable for room decoration, are not so estimable for garden embellishment. Equally suitable for the former purpose are many of the varieties of Novi Belgii, and a few of Novæ-Angliæ, and these have the advantage of being the more excellent for the garden. The best of all is Climax, of which we have large quantities grown in reserve, and transferred to borders shortly before coming into flower. I very much like the old Amethystinus, too, and am very dubious if the newer Beauty of Colwall is superior, if equal, to it. Jessie Croomb, with rather small flowers, is also extremely effective, and of the Novæ-Angliæ by far the best here is W. Bowman. In some parts I believe these fail to flower in some years. I have found that started under glass the flowering period is much forwarded, but, of course, it is only a few varieties that can be given this special treatment. May I just note that it pays to give these and other strong-growing varieties the extra attention of annual division, and planting in the best possible soil. Climax, for instance, from single growths, makes handsome plants the same season, and all that one has to do to secure a mass of bloom is to plant sufficiently close together the number of single growths required to form the desired group. Those who may be too timid to trust to single growths should not use pieces with more than three to five growths, and it is a good rule with almost all Asters to break them up annually, and replant small pieces. It is true that they succeed in the poorest soil, but it is equally true that in soil of the best quality and highly cultivated they give an increased bloom and an enhanced beauty far beyond the extra labour and care bestowed in the preparation of the plants and the soil. *R. P. B.*

SOCIETIES.

ROYAL HORTICULTURAL.

NOVEMBER 4.—The usual fortnightly meeting was held on Tuesday last in the Vincent Square Hall, Westminster. There was a good exhibition and the attendance was larger than at recent meetings.

The Floral Committee recommended seven Awards of Merit to novelties and awarded fourteen Medals to groups, including a Gold Medal to an exhibit of Chrysanthemums.

The Orchid Committee granted six Awards of Merit to novelties entered for certificate.

The outstanding exhibit in the Fruit and Vegetable section was a collection of Potatos for which a Gold Medal was awarded. This Committee made no award to a novelty.

At the three o'clock meeting in the Lecture Room, Mr. EDWARD WHITE gave an address on "The Principles of Garden Design."

Floral Committee.

Present: H. B. May, Esq. (in the chair), Messrs. G. Reuthe, Chas. T. Druery, Chas. E. Shea, W. J. James, Chas. E. Pearson, Chas. Dixon, J. T. Bennett-Poë, R. Hooper Pearson, H. J. Jones, J. Dickson, J. F. McLeod, W. Cuthbertson, Jas. Hudson, E. A. Bowles, W. J. Bean, R. C. Notcutt, E. H. Jenkins, and C. Blick.

Messrs. H. J. JONES, LTD., Ryecroft, Hither Green, were awarded a Gold Medal for Chrysanthemums. The flowers were arranged on opposite tables, which were covered with a white ground. The big Japanese blooms were arranged in a row at the back, with long shoots of coloured tree foliage—Oak, Beech, etc.—interspersed, whilst in the front were the smaller decorative and single Chrysanthemums in metal baskets. The arrangement was telling, yet simple, and there was no crowding. Of the larger flowers there were splendid blooms of Bob Pulling, yellow; Mrs. R. C. Pulling, incurved Japanese variety with yellow florets; Mrs. J. Howard Kinsley, reflexed Japanese, white; Mary Hollert, primrose; Wiseman, a fine cream-coloured incurved; His Majesty, crimson; and Mrs. H. J. Jones, chartreuse-green. Of the singles, Jessica, bronzy-red; Mable Cooper, deep rose; Miss Dorothy Weeden, rosy-salmon; and Hector Menzies, a fine shade of yellow, are choice varieties.

The Misses PRICE AND FYFE, Grove Park Nursery, Lee, showed Chrysanthemums interspersed with autumn foliage. The blooms were very bright, those of Romance, yellow; H. W. Thorp, white (incurved sorts); Crimson King (Japanese) and David Ingamells, yellow, being amongst the best. (Silver Flora Medal.)

Messrs. GODFREY AND SON, Exmouth, showed Chrysanthemums, including many novelties. The best were single varieties, of which Devonshire Lass, pink; Miss Lily Mann, bright yellow; Miss Margaret Gidley, apricot-fawn; Mollie Godfrey, deep rose; Bessie Gard, white with "anemone" centre; and Excelsior, terra-cotta shading to apricot, are a selection.

Messrs. JAMES VEITCH AND SONS, LTD., King's Road, Chelsea, staged a large floor group of Chrysanthemums. This imposing exhibit contained some 400 dwarf, well-flowered plants in 5-inch and 5½-inch pots. The majority were of the Caprice du Printemps type, and, according to colour, they are named White Cap, Purple Cap, Red Cap, Yellow Cap, etc. Of this type also are Greening's Caprice, pink, and Kathleen Thompson, reddish-brown. Danaë, white with a green eye, is a medium-sized bloom of more globular form than the foregoing, and another excellent white variety is Felton's Favourite. Of the single varieties, Primrose Girl, yellow; Countess of Egmont, bronzy terra-cotta; Daintiness, pink; and Miss Irene Craig, white, are a selection. On a table Messrs. VEITCH exhibited finely-flowered plants of their varieties of winter-blooming Begonias. They were arranged in batches, the following varieties being prominent: Optima, a shade of salmon; Fascinator, bright salmon; Emita, scarlet (see *Gardeners' Chronicle* coloured plate, November 1. 1913); and Elatior, one of the freest-coloured of all, with flowers a beautiful shade of rose. (Silver-gilt Flora Medal.)

Chrysanthemums were also exhibited by Messrs. WHITELEGG AND PAGE, Chislehurst (Bronze Flora Medal), and Messrs. W. WELLS AND Co., LTD., Merstham, Surrey.

Mr. L. R. RUSSELL, Richmond, Surrey, showed stove and greenhouse foliage plants in variety, and his fine strain of Celosia pyramidalis. (Silver Flora Medal.)

Messrs. H. B. MAY AND SONS, LTD., Upper Edmonton, filled a table with miscellaneous flowering plants suitable for indoor decoration, and a variety of greenhouse Ferns. (Silver Banksian Medal.)

Mr. GEO. PRINCE, Oxford, was awarded a Bronze Banksian Medal for a collection of Roses.

Messrs. ALLWOOD BROS., Haywards Heath, showed a pretty exhibit of perpetual-flowering Carnations of such varieties as Cinderella, heliotrope flaked with cerise; Exquisite, pink; Majestic, old-rose; Enchantress Supreme, a little deeper pink than Enchantress; and Mary Allwood, cardinal-pink. (Bronze Banksian Medal.)

Messrs. STUART LOW AND Co., Enfield, staged perpetual-flowering Carnations, giving much prominence to the new variety Gorgeous, with cerise-coloured petals flushed with scarlet. Satin Robe, rose-pink; Salmon King, Snowstorm, Fairmount, the best of the heliotrope-coloured varieties, and Cinnabar, a sweetly-scented flower of old rose colour were also noticed. (Bronze Banksian Medal.)

Messrs. W. CUTBUSH AND SON, Highgate, filled a long table with Begonias of the Gloire de Lorraine type. There were batches of well-flowered plants of the varieties Rochfordii, pink; Turnford Hall, white; Glory of Cincinnati, pink; and the new Lady Waterlow, white. In another part of the Hall this firm exhibited perpetual-flowering Carnations. They had the new Gorgeous, which received an Award of Merit; Mrs. L. D. Fullerton, a combination of cerise and mauve; Mrs. Lucy MacKinnon; and a new lemon-yellow variety named Marchioness of Londonderry. (Silver Flora Medal.)

Messrs. WILLS AND SEGAR, Florists, Kensington, showed excellent plants of Begonia of the Gloire de Lorraine type and bowls of bulbs growing in moss fibre.

Messrs. J. CHEAL AND SONS, Crawley, showed Dahlias and ornamental trees and shrubs. Prominent amongst the Dahlias was their new Cosmea-flowered variety named Crawley Star. The pretty blooms are a pale rose-pink colour relieved by a prominent orange-coloured disc. Single Dahlias were remarkably good, and there were numerous varieties of the miniature Cactus-flowered sections. Amongst the hard-wooded plants were Crinodendron dependens, in bloom; Corniola mantica, the autumn-flowering Broom; Baccharis halimifolia, in fruit; several hybrid Veronicas; and a collection of the choicer sorts of Ceanothus. (Silver Banksian Medal.)

Messrs. J. PIPER AND SON, Bayswater, again exhibited an imposing group of Pæony-flowered Dahlias, for which a Bronze Banksian Medal was awarded.

Mr. G. REUTHE, Keston, Kent, showed hardy plants and bulbs. There were many fine hybrid Nerines, a group of white-flowered varieties making a prominent centre-piece to the group. (Bronze Banksian Medal.)

The WARGRAVE HARDY PLANT NURSERY, Twyford, arranged a rockery with weathered Yorkshire limestone and planted with Polygonum vaccinifolium, a prostrate-growing species; Mazus rugosus, Artemisias and other low-growing species. (Bronze Banksian Medal.)

Mr. CLARENCE ELLIOTT, Stevenage, showed Alpines in pans and dwarf Conifers suitable for planting on rockeries. Plants of the beautiful Gentiana acaulis and Nierembergia rivularis, white, were shown in flower.

Messrs. THOMPSON AND CHARD, Bushey, Hertfordshire, showed hardy plants and Berberis Wilsonæ, the latter with its coral-red fruits.

Messrs. T. S. WARE, LTD., Feltham, showed Dahlias and hardy plants, for which a Silver Flora Medal was awarded.

Messrs. BARRIE AND BROWN, King William Street, London, showed a few shrubs in pots.

Mr. S. MORTIMER, Rowledge, Farnham, Surrey, staged perpetual-flowering Carnations and his new perpetual-flowering Stock, All-the Year-Round. This is distinct from all other Stocks, being nearest to the East Lothian type. We were informed that plants raised in March bloom from June until the end of autumn and pot plants will flower throughout the winter.

Messrs. R. WALLACE AND Co., Colchester, exhibited fruiting branches of Decaisnea Fargesii; the pods are coloured blue and not unlike swollen Pea pods.

AWARDS OF MERIT.

Awards of Merit were recommended to the following subjects:—

Chrysanthemum Pink Pearl.—This is a decorative, Japanese variety of a delightful shade of silvery pink, with smooth, flat, downward-curving florets, which give the flower considerable depth for the market type of bloom. The best blooms were 6 inches across, but they would be more attractive if a little smaller. (Messrs. JONES.)

C. Daily Mail.—This is an immense exhibition, incurved-Japanese bloom; one of the largest we have seen. The colour is pale-yellow, showing silvery yellow on the reverse of floret. When developed the flower forms a tight globe of rather narrow, interlacing and incurved florets. The flowers exhibited were produced by natural, first-crown buds.

C. Golden Mensa.—Being a sport from the well-known single, white-flowered Mensa, the habit and form of this variety are similar. It has the same substance derived from four or more rows of florets and the same beautiful form and texture as the type. The colour is lemon-yellow rather than golden, but it is bright and deeper than that of the otherwise similar pale yellow sport shown last year under the name of Mrs. Loo Thomson. In the natural spray the flowers attain a diameter of 3 inches; disbudded they reach 5 inches.

C. Mme. Theresa Morel.—This variety belongs to the large-flowered, Japanese section. The flowers are soft yellow, shaded in the centre with palest buff. The florets reflex and intercross, and the flower has that depth and substance necessary for the formation of the popular exhibition bloom. The first crown bud should be selected for flowering.

Carnation Champion.—It is claimed for this seedling perpetual-flowering variety of American origin, that it will supersede the other scarlets on the market. The flowers are rich scarlet, large and full, with slightly fringed margin. No fragrance was detected, but wiry stem and stout calyx are desirable qualities, and the variety is said to be an unusually free-flowerer for this colour.

These four were shown by Messrs. WELLS.

C. Gorgeous.—This is another American-raised, perpetual-flowering Carnation. The colour is a very deep, glowing cerise, almost scarlet-shaded until it is fully developed. Habit, calyx, size of flower, and form are all good, but like the last, this variety also lacks fragrance. It may be compared with Aristocrat for colour, and promises to be a much better doer. (Messrs. STUART LOW AND Co.)

Iris Vartanii White Pearl.—I. Vartanii is the earliest to flower of the reticulata group of bulbous Irises, giving flowers out-of-doors in November and December. White Pearl is the albino form, which breeds true from seed. It is a very dainty little flower, well worth cold frame or alpine-house cultivation, so that the flowers can be brought under the eye and nose (it is delicately almond-scented) and sheltered from the uncertainty of the weather at this season. The pan of seedlings exhibited showed considerable variation, some of the blooms having the size and substance of Histrio. The variety has, indeed, been distributed as Histrio alba, but the season of flowering easily distinguishes it from that species. (Messrs. R. WALLACE AND Co.)

OTHER UNCOMMON PLANTS.

Mr. F. DU CANE GODMAN sent spikes and foliage of the rare Kniphofia multiflora. The flowers are borne in dense terminal spikes attaining 18 inches in length and a height of about 5 feet. The flowers are small and creamy-white in colour, to which the much exserted stamens give a touch of yellow. The leaves are 5 to 6 feet long.

Messrs. WARE included in their exhibit specimens of Kniphofia modesta, another white

species. The flowers of this are larger, more conical, and more scattered, and the whole plant is much smaller. K. multiflora is said to be hardy, but K. modesta is distinctly tender.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. sec.), W. Bolton, Gurney Wilson, S. W. Flory, W. H. White, A. Dye, H. G. Alexander, J. E. Shill, G. Hunter, W. H. Hatcher, J. Cypher, J. Charlesworth, C. H. Curtis, A. McBean, T. Armstrong, F. J. Hanbury, R. G. Thwaites, R. A. Rolfe, De B. Crawshay, Sir Harry J. Veitch and Sir Jeremiah Colman, Bart.

Lieut.-Col. Sir Geo. L. Holford, Westonbirt, Tetbury (gr. Mr. H. G. Alexander), sent a selection of excellently well-grown new seedling Orchids, which included the pretty Cattleya Esther (Gaskelliana × Cleopatra), a compact, light-rose coloured flower, with dark-rose front to the lip; Odontioda Latona Westonbirt variety, closely resembling the form which received a First-class Certificate in December, 1912, and two others (see Awards)

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. Collier), showed a group of twenty plants of the charming, pale-blue tinted Cattleya Portia cœrulea (labiata cœrulea × Bowringiana violacea), together with a specimen of each of the parents in flower. The blue-tinted Cattleyas are great favourites at Gatton, where the best-known collection of them has been got together. The large-flowered C. Portia Lady Colman was also shown.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), showed fine specimens of Cattleya Fabia of the best type, one bearing eight flowers; Cypripedium Vogelzang var. maculatum, a fine flower with large, dark, chocolate-purple blotches on the dorsal sepal; the rare, pure white Vanda Kimballiana alba and other good specimens. (See Awards.)

His Grace the Duke of Marlborough, Blenheim (gr. Mr. Hunter), sent Cypripedium Lord Ossulston Blenheim variety, with a good white dorsal sepal, and the richly-coloured Lælio-Cattleya Olenus Blenheim variety. (See Awards.)

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver-gilt Flora Medal for a very fine group of well-flowered hybrids and species. Cattleya Fabia in fine dark varieties and one of the white-petalled form; C. Tityus, C. Enid, C. John Baguley, darker in colour than C. Mantinii; forms of C. labiata, C. Dowiana aurea, C. Hardyana and others made a good display, at the back being some finely-flowered Odontoglossums, with Oncidium Forbesii, O. varicosum, and others.

Messrs. Armstrong and Brown, Tunbridge Wells, were awarded a Silver Flora Medal for a fine group, principally hybrid Cattleyas and Lælio-Cattleyas, some of which were new crosses. Hybrids of Cattleya Bowringiana and C. labiata were well represented, the forms C. Mantinii and C. Fabia being specially good; also the pretty C. Armstrongæ, several of which were shown, and which seems to flower at all seasons. Seedling C. Hardyana, with white sepals and petals, the white C. Dusseldorfei Undine and a larger form of it with rose-coloured lip; Lælio-Cattleya Berthe Fournier and some hybrid Lælio-Cattleyas with yellow ground colour to the flowers, and other good novelties.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, from their new place entirely devoted to Orchids, brought an admirable selection, which secured a Silver Flora Medal. At the back were good, dark forms of Cattleya labiata with Dendrobium Phalænopsis, including a fine plant of the white form, D. superbiens, Vanda cœrulea, etc. The white-petalled forms of C. labiata were alba, Cooksonii, Reedleyensis and others. Brasso-Cattleya Mrs. J. Leemann, Phalænopsis Rimestadiana and some good Lælio-Cattleyas were also noted.

Messrs. Sander and Sons, St. Albans, were awarded a Silver Banksian Medal for a varied group of good Orchids, the best novelty being Cypripedium Estella (see Awards). Other Cypripediums were C. Harold (hirsutissimum × Leeman Clinkaberryanum), a fine, bold flower; C. Priam var. Superb, C. insigne Sanderæ, etc. Lælio-Cattleya Sapphirata (C. maxima × L.-C. Canhamiana), a pretty, blush-white flower with rose-veined lip having a broad, white margin, was very distinct; seedling forms of C. Hardyana included some good white-petalled varieties; and C. Cooksoniæ, C. Dusseldorfei Undine, good C. Fabia and some crosses with it, C. Mantinii Sander's variety (very dark), C. Peetersii and others were also well shown; and among species Cirrhopetalum Rothschildianum, C. Roxburghii, C. mundulum and a fine Stelis.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Banksian Medal for a very effective group of Cattleyas, Cypripediums, Dendrobium, Phalænopsis and other showy Orchids, all finely grown and well flowered.

Messrs. Flory and Black, Orchid Nursery, Slough, showed the pretty new white Brasso-Lælio-Cattleya Puritan (L.-C. Ascania × B. Digbyana), a pretty flower with a well-formed, fringed lip, the whole bloom being clear white, except the disc of the lip, which is pale yellow, and the top of the column, which is tinged with rose.

Messrs. Flory and Black also showed a fine Cattleya Fabia with white sepals and petals; a grand white Odontoglossum crispum of the fine old type, with flowers 4½ inches across; and Cypripedium Mary Lee.

W. R. Lee, Esq., Plumpton Hall, Heywood, Lancashire, sent Odontoglossum crispum xanthotes Golden Star, a very handsome white form with chrome-yellow spots on the sepals and petals. Also the massive Cypripedium King George V.

Pantia Ralli, Esq., Ashtead Park, Surrey, sent Odontoglossum Ashteadense, a dark claret-coloured flower with a few light markings and white front to the lip.

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins) showed Cypripedium Little Gem Westfield variety (Baron Schröder × Harrisianam superbum), a model flower in form and well-coloured.

Messrs. Hassall and Co., Southgate, showed an effective group of Cattleya labiata, C. aurea, C. Hasselii, C. Mantinii nobilior and other showy Cattleyas, C. Sylvia (Fabia alba × aurea) being specially attractive, the sepals and petals being white, the fine lip dark crimson with gold lines. Cypripedium Thalia Mrs. Francis Wellesley and other Cypripediums were also shown.

W. Waters Butler, Esq., Southfield, Edgbaston (gr. Mr. Jones), sent three very fine and distinct forms of Cattleya labiata.

Messrs. J. and A. McBean, Cooksbridge, staged a group in the centre of which was a good example of their showy Cymbidium Doris, with well-flowered Odontoglossums, Cattleya labiata, C. Fabia, Odontiodas, Brasso-Cattleyas, etc. The gem of the group was C. Andreana McBean's variety (see Awards).

E. H. Davidson, Esq., Orchid Dene, Twyford, sent the pretty Odontioda Gladys (Rossii rubescens × Bradshawiæ). The spike bore several pretty flowers, showing much of Odontoglossum Rossii in the markings, the spotting on the segments being of a clear Indian red; lip light rose-pink, with yellow crest.

Mr. Harry Dixon, Spencer Road Nursery, Wandsworth Common, sent the bright-red Odontioda Cupid (O. ramosissimum × C. Noezliana).

C. J. Phillips, Esq., Sevenoaks (gr. Mr. Bucknell), sent a seedling Cattleya Hardyana with white sepals and petals and the deep red Oncidioda Cooksoniæ.

F. Du Cane Godman, Esq., South Lodge, Horsham, sent a small plant of a form of Cattleya Mantinii with lavender-tinted flower.

AWARDS.

Award of Merit.

Odontoglossum crispum xanthotes Westonbirt var., from Lieut.-Col. Sir Geo. L. Holford. Flower of fine shape, pure white, with many Buttercup-yellow spots on the segments. The best form yet shown.

Cypripedium Olympus (*Alcibiades* × *Leeanum Clinkaberryanum*, from Lieut.-Col. Sir Geo. L. Holford. A very large flower of broad proportions, the flat white dorsal, 3½ inches across, having a small green base from which ascend purple lines in the centre. Sepals and petals dark yellow tinged with mahogany-red.

Laelio-Cattleya Olenus Blenheim variety (*L.-C. Bletchleyensis* × *C. aurea*), from his Grace the Duke of Marlborough (gr. Mr. Hunter). One of the best dark Lælio-Cattleyas. The large, broad-petalled flowers were of a bright purplish-crimson, the lip dark ruby-red, with fine gold lines from the base.

Cattleya Andreana McBean's variety (*C. Dowiana aurea* × *C. Mrs. Pitt*), from Messrs. J. and A. McBean, Cooksbridge. A very bright and attractive flower, with yellow ground colour suffused with a glowing rose-purple tint, the yellow ground being obscured. Lip finely formed, golden yellow with rose-purple front.

Sophro-Laelio-Cattleya Niobe (*L.-C. Gottoiana* × *S.-L. heatonensis*), from Messrs. Charlesworth and Co. A pretty flower of a bright reddish-rose colour, with reddish-crimson lip.

Cypripedium Estella (*Godefroyae* × *Fairrieanum*), from Messrs. Sander and Sons. A distinct flower with the characteristic petals peculiar to Fairrieanum crosses. Flowers cream-white with dotted, purple lines on the petals, dorsal-sepal and front of the lip.

Cultural Commendation.

Mr. J. E. Shill (gr. to Baron Bruno Schröder), for a magnificent plant of Odontoglossum crispo-Harryanum The Dell variety with a spike of fourteen very large, finely-blotched flowers.

Mr. W. H. White (Orchid-grower to Sir Trevor Lawrence, Bart., K.C.V.O.), for large and profusely-flowered specimens of Sigmatostalix radicans and Cœlogyne fimbriata.

Fruit and Vegetable Committee.

Present: Jos Cheal, Esq., in the chair, Messrs. John Harrison, J. Willard, A. W. Metcalfe, A. R. Allan, H. Markham, J. Jaques, A. Bullock, Geo. Wythes, H. Somers Rivers, C. G. A. Nix, Wm. Poupart, A. Grubb and J. Davis.

Messrs. Dobbie and Co., Edinburgh, staged nearly 50 distinct varieties of Potatos, attractively arranged in shallow, wicker baskets and garnished with Parsley. Such sterling varieties as The Provost, Midlothian Earl, Windsor Castle, British Queen, The Factor, Dobbie's Prolific and Dobbie's Favourite bore traces of the influence of Dunbar soil, which soil grows tubers of splendid culinary quality. Of these, Burnhouse Beauty and Dobbie's Favourite are varieties which were found by the Board of Agriculture to resist the wart disease. Such red-skinned sorts as Mr. Breese, Dobbie's Exhibition Red Kidney and Selected Russet, as well as Royal Purple, also found a place in this imposing exhibit. (Gold Medal.)

E. J. Johnstone, Esq., Burs Wood, Groombridge, Kent (gr. Mr. A. T. Paskett), showed a splendid collection of Apples. The fruits of Gascoyne's Scarlet, Duchess's Favourite, American Wonder, Baumann's Reinette, Wealth and Emperor Alexander were very highly coloured and all the fruits were of especially good quality. (Silver Knightian Medal.)

The Duke of Rutland, Belvoir Castle, Grantham (gr. Mr. W. Divers), contributed three dozen dishes of splendid Pears. The ripe fruits were of Directeur Hardy, Durondeau, Beurré Superfin and Marie Louise, and the principal later varieties were Maréchal de Cour, Winter Nelis, Beurré Rance, Alexander Lucas, Beurré Esperen and Olivier de Serres. (Silver Knightian Medal.)

Messrs. Seabrook and Sons, Chelmsford, displayed such valuable apples as King of the Pippins, Golden Noble, Blenheim Pippin, Cox's Pomona and Worcester Pearmain in excellent condition and of very attractive appearance. (Silver Banksian Medal.)

Various jams and jellies were exhibited by Mrs. Miller, of Marlow, and Miss Sewell, 67, Harcourt Terrace, London, both of whom were awarded Silver Banksian Medals.

SOUTHAMPTON HORTICULTURAL.

October 28 and 29.—The annual autumn show of this society was held in the Coliseum. The entries were fewer than usual, but the quality of the exhibits was equal to the average.

For specimen plants suitable for Conservatory Decoration, each carrying not fewer than five blooms, Mr. F. G. Bealing, Bassett Nurseries, Southampton, was easily 1st. Each plant had no fewer than eight fine blooms, and the

varieties included F. S. Vallis, Mrs. H. Luxford, Frances Jolliffe, and Mrs. A. T. Millar: 2nd, J. C. E. D'ESTERRE, Esq. (gr. Mr. C. Hosey), Elmfield Hill, Southampton.

Single-flowered Chrysanthemums in fine varieties were best shown by Mr. A. COOPER, Southampton; 2nd, Mr. BEALING.

In the class for bush-grown plants J. C. E. D'ESTERRE, Esq., was easily first with freely-flowered plants of Yellow, White and Pink Cap (Caprice du Printemps), fully 4 feet in diameter.

CUT BLOOMS.

In the open class for 24 blooms in eight varieties, three of each sort displayed in vases, Captain DALGETY, Lockerley Hall, Romsey (gr. Mr. W. Baxter), excelled easily with fully-developed blooms of Lady Talbot, Master James, Mr. T. Stevenson, F. S. Vallis, W. Turner, Frances Joliffe, Eclipse and D. B. Crane; 2nd, Mr. F. G. BEALING.

For 3 blooms of any two white-flowered varieties, Mr. J. C. E. D'ESTERRE won the 1st prize with W. Turner and Mrs. Marsham; 2nd, Mr. BEALING. In a similar class for any other than white, Captain DALGETY, with F. S. Wallis and Mrs. Luxford, won the premier award easily; 2nd, Mr. BEALING.

For 6 blooms of any two incurved Chrysanthemums, and two of any other decorative variety, except singles, Mr. BEALING was awarded the 1st prize, for H. W. Thorp and Clara Wells (incurved). Mrs. Luxford and Mrs. A. T. Millar; 2nd, ELLEN LADY SWAYTHLING, South Stoneham House, Southampton (gr. Mr. T. Hall), who showed Fred Green and the incurved Mrs. Percy Wiseman excellently well.

For four vases of decorative varieties (singles excluded), distinct, not fewer than 3 blooms to a spray, W. H. MYERS, Esq., Swanmore House, Bishop's Waltham (gr. Mr. G. Ellwood), won the 1st prize with huge sheaves of Kathleen Thompson, Yellow Source d'Or, Caprice du Printemps, and Mrs. Marsham; 2nd, Mr. BEALING, who staged Lizzie Adcock and Source d'Or in good condition.

Single-flowered varieties that had been disbudded were shown finely by Mr. BEALING, who won the premier place for six sorts distinct, showing J. B. Lowe, G. Trowers, Mensa, Yellow Pagram and Merstham Gem; 2nd, J. T. RAYNER, Esq., The Hermitage, Boscombe (gr. Mr. C. Hooney). Single-flowered varieties, not disbudded, were very fine. Lady SWAYTHLING was placed 1st for vases of such sorts as Ceddie Mason, Mary Richardson, and Mensa; 2nd, Mr. BEALING.

Several classes were provided for large blooms staged on boards. For two dozen Japanese Chrysanthemums Captain DALGETY was an easy 1st prize winner, with full, good examples of popular sorts; 2nd, Mr. BEALING, with smaller blooms of similar varieties. Mr. J. C. E. D'ESTERRE was placed 1st in the class for 12 Japanese blooms, while Mr. BEALING won for 12 incurved sorts; but much better were the blooms in a similar class for amateurs, staged by Mr. A. H. HILL, who arranged grand blooms of Romance, C. H. Curtis, J. W. Higgs, Clara Wells, and C. E. Harrison.

The premier Japanese bloom was a specimen of F. S. Vallis, in Captain DALGETY's exhibit of 24 blooms. The selected incurved for a similar honour was one of Miss Clara Stoop in Mr. A. H. HILL's stand.

Fruit was shown plentifully and well. Mr. W. H. MYERS won for two bunches of Black Grapes with the variety Mrs. Pince in good condition; also for two bunches of Black Alicante, and one of any black sort with Gros Maroc. Captain DALGETY showed the best white bunches in Muscat of Alexandria. THE LOCKSHEATH NURSERY Co., Southampton, had the best four dishes of dessert Apples, and Lady SWAYTHLING was successful in the similar class for kitchen sorts. In the vegetable classes, Mr. W. H. MYERS was invincible; he won the premier award in Messrs. Toogood's, Sutton and Sons, and J. Carter and Co.'s classes.

TRADE EXHIBITS.

Messrs. SUTTON AND SONS, Reading, exhibited 80 dishes of choice vegetables, for which a Gold Medal was awarded. Messrs. TOOGOOD AND SONS, Southampton, gained a similar award for vegetables. Messrs. W. WELLS AND Co., Merstham, Surrey, exhibited Chrysanthemums. (Gold Medal.) Messrs. ROGERS AND SONS, Red Lodge Nurseries, Southampton, showed Roses and Apples. (Gold Medal.) Mr. E. WILLS, Winchester Road, Southampton exhibited floral designs. (Gold Medal).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

OCTOBER 16.—*Committee Present*: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Bamber, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, D. McLeod, C. Parker, W. Shackleton, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (secretary).

A Silver-Gilt Medal was awarded to R. ASHWORTH, Esq., Newchurch (gr. Mr. Gilden), who staged a miscellaneous group; a large Silver Medal to A. WARBURTON, Esq., Haslingden (gr. Mr. Dalgleish), and Z. A. WARD, Esq., Northenden (gr. Mr. Weatherby), for miscellaneous groups.

Silver Medals to WM. THOMPSON, Esq., Walton Grange (gr. Mr. Howes), for Cypripediums; Messrs. CYPHER AND SONS, Cheltenham; Messrs. SANDER AND SONS, St. Albans; and Messrs. A. J. KEELING AND SONS, Bradford, for groups.

Other exhibits were staged by O. O. WRIGLEY, Esq., Bury (gr. Mr. Regers), Rev. J. CROMBLEHOLME, Clayton-le-Moors (gr. Mr. Marshall), Mr. W. SHACKLETON, Great Horton, Bradford, and Messrs. CHARLESWORTH AND Co., Haywards Heath.

AWARDS.

FIRST-CLASS CERTIFICATES.

Laelio-Cattleya Excelsis (L.-C. Haroldiana × C Hardyana), good form and even colour, deep maroon lip; *Cattleya Purity* (C.-Lab. Harefield Hall × C. Warneri alba), large flower, white segments; both from R. ASHWORTH, Esq.

Cypripedium Trolius var. Impregnable (Harefield Hall × Nitens var.), a large well-formed flower, from WM. THOMPSON, Esq.

AWARDS OF MERIT.

Laelio-Cattleya Colmanae (L.-C. Calistoglossa × C. Hardyana), *Odontoglossum grande superbum*, both the property of R. ASHWORTH, Esq.

Cypripedium Arthurianum "*Walton Grange*" *var.*, shown by WM. THOMPSON, Esq.

TORQUAY DISTRICT GARDENERS'.

OCTOBER 30.—This society held its annual show on the foregoing date in the large hall of the Bath Saloons, but, unfortunately, the weather was wet and the attendance small. The entries, between 150 and 160, were almost a record, and the quality of the exhibits was rather over the average. The fruit was exceptionally good in what is considered to have been a bad season, and there was satisfactory competition in almost every class. The cut blooms were of a very high order of merit, and were larger and more perfect than those shown of recent years. The 1st prize for 24 Japanese Chrysanthemums was won by Mr. W. J. GODFREY, Exmouth, whose bloom of the variety Lady Talbot was awarded the National Chrysanthemum Society's Silver Medal offered for the best bloom in the show. Other good flowers in this stand were F. S. Vallis, Eclipse, G. Drabble, F. Rowe, and J. Lock. For 12 Japanese blooms—distinct exhibited in vases the 1st prize was won by Mr. R. S. DUGDALL; blooms of Lady Talbot, W. Turner, F. Joliffe, F. S. Vallis, E. Molyneux, Mrs. H. Stevens, and W. Jinks, were all very good. For 18 Japanese blooms, the 1st prize was won by Col. CARY; the blooms of D. B. Crane, Mrs. A. T. Miller, Thorp's Beauty, Mrs. R. Luxford, and F. Chandler were all excellent. The 1st prize for 12 Japanese blooms staged in vases, was won by Col. CARY. Mrs. COGAN excelled in the class for 6 Japanese blooms, the varieties including Lady Talbot, Hon. Mrs. Lopes, and Mrs. Peed. This lady was also 1st in the class for 6 white Japanese blooms. Col. CARY showed best in the class for 6 Japanese (yellow), with excellent examples of F. S. Vallis; and this exhibitor also carried off the 1st prize for 6 blooms of any Japanese variety. Other 1st prize winners were: for 6 vases of single Chrysanthemums, Mr. W. F. BAYNES; for a vase of double Chrysanthemums, Mr. F. PERRET; for a vase of single Chrysanthemums, Mr. W. F. BAYNES; for a basket of wild flowers, foliage and berries, Mr. F. PERRET; for a large group of single Chrysanthemums, Col. CARY (this exhibit was also awarded the National Chrysanthemum Society's Certificate). The first prize for a collection of 12 vegetables was won by Mr. P. P. ALEXANDER, who also won the 1st prize for 12 dishes of Apples. The majority of 1st prizes for vegetables were won by Col. CARY.

NON-COMPETITIVE EXHIBITS.

The nurserymen's exhibits added considerably to the success of the show. THE DEVON NURSERY, Torquay, staged a fine collection of flowering plants, including Allamanda Hendersonii, Rose Jessie, Rose Orleans, Ceanothus Gloire de Versailles, and several Ericas; also a collection of Apples. Messrs. R. VEITCH AND SON, Exeter, staged plants, amongst which were Schizostylis coccinea, Odontoglossum crispum, Cypripediums in variety, Nerine Bowdenii, N. Exonia, Pancratium macrostephana, Salvia uliginosa, the white-berried Pernettya speciosa, Veronica Sergeant, V. gloriosa, V. F. W. Meyer, Rhododendron ferrugineum, R. f. album, Erica tetralix, Clematis Nellie Moser, Gloriosa superba, Berberis nepalensis, Acacia platyptera, Cyrtanthus hybrida, and a collection of winter-flowering Carnations. Mr. W. B. SMALE, Torquay, showed Cyclamen, Rhodochiton volubile, Acalypha Sanderi, Datura suaveolens, Erica hyemalis, Salvia fulgens, and a selection of Cactus Dahlias.

CROYDON AND DISTRICT HORTICULTURAL.

OCTOBER 7.—On Tuesday, the 7th ult., at the Sunflower Temperance Hotel, George Street, the members attended to hear a lecture delivered by Mr. E. SCAPLEHORN, from Mr. Jas. Box's nurseries, Lindfield. With the aid of the society's electric lantern Mr. SCAPLEHORN portrayed views on the screen illustrating well-made borders; also individual species in groups and alone of some of the most useful kinds. As each plant was shown the lecturer advised the best methods of propagation and the most suitable soils to contain them. The lecturer mentioned a list of plants suitable for the border, giving their various heights and naming the best of the varieties known at the present time.

DUNDEE HORTICULTURAL.

OCTOBER 9.—At the annual general meeting, held on the 9th ult., the treasurer's report showed the income for the year to be £849 10s., and the expenditure £917 3s. 11d., leaving a debit balance of £68 3s. 11d. In moving the adoption of the report, the president, W. S. MELVILLE, Esq., attributed the adverse balance to the rain on the last day of the show.

The retiring office-bearers were re-elected, and the prize-money fixed at £250, while the proposal to have a four-day show instead of three days was defeated.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

OCTOBER 13.—The monthly meeting of the above society was held in the R.H.S. Hall on Monday, October 13, Mr. E. Burge in the chair. Three new members were elected. The sick pay for the month on the ordinary side amounted to £57 13s. 10d., and on the State section £33 12s. 10d.; and Maternity benefits £13 10s. Mr. A. Bedford, of Gunnersbury House, was co-opted vice-chairman, and Mr. F. Oxtoby, of Croydon, co-opted a committeeman in the place of Mr. J. Harrison Dick.

National Chrysanthemum Society.

November 5, 6, 7.

CHRYSANTHEMUMS have not been altogether suited by the weather conditions of 1913. In their early stages they grew stunted, and then, in September, when growth should have been maturing, they continued to grow freely, so that the shoots were soft. But the skilful cultivator is able to surmount difficulties such as these, and the show, which opened on Wednesday last at the Crystal Palace, Sydenham, was equal to the average. The weather was beautifully fine, and there were more visitors than usual.

The Japanese blooms were not so excellent as we have seen them, but incurved varieties were better than usual, and there was a satisfactory display of single and decorative sorts. The finest features of the show were the large exhibits of Chrysanthemums staged by nurserymen, and these were supplemented by exhibits of other flowers.

The most noticeable quality of the Chrysanthemums was the rich colouring, the darker sorts, such as the reds and crimsons, being splendid in this respect. The great advance in colour was referred to by the President, Sir Albert Rollit, at the luncheon offered the judges.

The arrangements, under the management of the Secretary, Mr. R. A. Witty, were all that could be desired, and valuable help was rendered by Mr. G. L. Caselton, who contributed to the spectacular effect by many fine groups of flowering and foliage plants from the Crystal Palace Gardens.

OPEN CLASSES.

Groups of Chrysanthemums.

There were two exhibits in the class for a display of Chrysanthemums, arranged with foliage plants in pots and decorated with foliage. Both were circular groups, arranged in a pyramidal shape, and each was crowned by a tall Kentia Palm. The 1st prize was awarded to J. C. Eno, Esq., Dulwich (gr. Mr. R. B. Leech), who employed a great number of large exhibition varieties grouped about a triangular stand furnished with cut blooms in epergnes, and masses of Asparagus Sprengeri. None of the varieties was labelled, but there were blooms of most types of Chrysanthemums of good average quality. 2nd, Lady Tate, Park Hill, Streatham Common (gr. Mr. Wm. Howe). This exhibit contained many single-flowered Chrysanthemums, and fine stove foliage plants were used as foils.

Blooms Shown on Boards.

Japanese Varieties.—The class for 48 blooms, distinct, was the most important in the show, and there were three exhibitors. The 1st prize, including the Holmes Memorial Challenge Cup, was awarded to Arthur James, Esq., Coton House, Rugby (gr. Mr. A. Chandler), whose blooms were good, but not so fine as we have seen in some previous seasons. He showed Thos. Lunt, Mrs. F. C. Stoop, Hon. Mrs. Lopes, Eclipse, Marie Loomes, Mrs. R. B. H. Marsham, Rose Queen, Mrs. G. C. Kelly, F. S. Vallis, Master James, Mrs. H. Thornton, Bob Pulling (a fine, clear yellow bloom), Mrs. David Syme (a good white variety), Reginald Vallis, Frances Jolliffe, Lady Talbot, Mrs. Drabble (a splendid, incurved white variety), Bessie Godfrey, F. Mew, Marquise Venosta, Mary Farnworth, December Gold, Master David, O. H. Broomhead, Will Dennis, Jean Stratton (white tinged with rose), Geo. Hemming (a finely-coloured bloom of this claret-red variety), Evangeline, Kara Dow (a splendid flower of bronzy-red and gold), Queenie Chandler, Mrs. A. Finch, Francis Rowe, W. Turner (a large, white bloom), Miss O. Surrey, Rose Pockett (golden), Pres. Viger, Mrs. R. A. Witty, H. Stowe, Queen Mary, Fred Green, Amber Queen, W. Gee (pink), Mrs. R. Luxford, Purity, John Peed, H. E. Converse, Alice Lemon and His Majesty (of magnificent crimson colour). 2nd, E. G. Mocatta, Esq., Woburn Place, Addlestone, Surrey (gr. Mr. T. Stevenson). The specimens of Lady Talbot, Mrs. W. Tricker, William Turner, F. S. Vallis, Mrs. W. Iggulden, Miss A. Finch, J. Surry, Joan Stratton, Mrs. R. C. Pulling, Master James and Col. E. Converse were all magnificent. 3rd, Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. Hunt), who was a worthy competitor, showing many first-rate flowers.

President's Class.—The President, Sir Albert Rollit, offered a silver cup, valued at 10 guineas, in the class for 24 blooms of Japanese varieties, distinct. This was a splendid competition, there being ten good exhibits, making a fine array of choice blooms. The 1st prize was won by Lord Foley (gr. Mr. H. C. Gardener), who staged F. S. Vallis, Thos. Lunt, Master James, Bob Pulling, December Gold, F. Mew, Mary Poulton, Kara Dow, Fred Green, Frances Jolliffe, and others; 2nd, Mrs. Newton Mappin, Headley Park, Epsom (gr. Mr. Thos. Beeson). A bloom of the yellow Bob Pulling was of gargantuan proportions, and very fine also were Pockett's Crimson, Francis Rowe, Master James, His Majesty, J. Surry and George Hemming. 3rd, W. W. Mann, Esq., Bexley, Kent (gr. Mr. J. Simon), who showed superior flowers of Alice Lemon, Lady Crisp and His Majesty.

Incurved Varieties.—There were 4 exhibits in the class for 36 blooms, distinct, and all the exhibits were as fine as we have seen them at these shows. The 1st prize, including the Holmes Memorial Challenge Cup, was won by Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. G. Hunt), who showed Mrs. P. N. Wiseman, a splendid cream-coloured variety; Mrs. F. Judson, Clara Wells, yellow with a slight tinge of rose; Miss Thelma Hartman, Seedling, Mrs. J. P. Bryce, W. Biddle, golden; Miss N. Threlfall, H. Hearn, Margaret Brown, Pantia Ralli, Duchess of Fife, Godfrey's Eclipse, a large yellow variety; Mrs. G. Denyer, a pretty blush-rose; Souvenir de Wm. Clibran, Le Peyron, Marjorie Shield, Frank Trestian, W. J. Higgs (the darkest coloured of all), White Empress, Daisy Southam, the deepest gold-coloured flower; Ethel Thorp, pink; Miss M. Lyne, Ialene, Romance, Lady Isabel, Edwin Thorp, Melba, a fine rose-pink bloom; Emblème Poitevine, Mrs. H. J. Jones, Miss N. Southam, a fine rosy-pink shade; Triomphe de Monthrun, Ada Owen, C. Curtis, Fred Palmer and Calypso; 2nd, the Marquis of Bute (gr. Mr. H. R. Farmer), who showed blooms but little inferior to those in the premier collection. Especially good were Lady Isobel, Mme. Dupree, Mme. Vrembley, W. Pascoe, Frank Trestian, Godfrey's Eclipse, G. W. Matthews, Master C. Hall and Mrs. F. Judson; 3rd, Miss Langworthy, Gay's House, Holyport (gr. Mr. F. J. Brown).

The Marquis of Bute excelled in the class for 12 incurved blooms, distinct varieties, with high quality flowers of May Phillips, Lady Isobel, G. F. Evans, Mr. J. Highgate, Frank Trestian, Clara Wells, Mrs. F. Judson, Pantia Ralli, G. W. Matthews, Mme. Vrembley, Emblème Poitevine and Romance. 2nd, Pantia Ralli, Esq. 3rd, Miss Langworthy.

For 6 blooms of one variety 6 competed, and the 1st prize was awarded to Mr. F. G. Bealing, Bassett, Southampton, for large blooms of the yellow Clara Wells. 2nd, A. T. Miller, Esq. (gr. Mr. G. Mileham), for the deep-yellow Buttercup. 3rd, Miss Langworthy, with Clara Wells.

Blooms Shown in Vases.

Japanese Varieties.—There were 5 competitors in the class for 12 vases of Japanese blooms, distinct, 3 blooms in each vase. This splendid class was much admired, and especially the exhibit of Arthur James, Esq. (gr. Mr. A. Chandler), which won the 1st prize. He showed Thos. Lunt, Alice Lemon, His Majesty (grand blooms of this rich crimson variety), Mrs. Gilbert Drabble, white; Eclipse, Lady Talbot, Reginald Vallis, W. Turner, three grand blooms of this fine white sort; Marie Loomes, Frances Jolliffe, blush on yellow and white ground, a very fine flower; W. Gee, pink; and F. S. Vallis. 2nd, the Marquis of Bute, for fresh, well-coloured blooms of such varieties as Miss Amie Nicholl, Fred. Chandler, William Turner, A. Robertson, F. S. Vallis, W. Mease and Lady Talbot; 3rd, Phillip Ladds, Esq., Swanley Junction, Kent.

The class for 12 vases of incurved blooms was better than usual, and resulted in a good win for the Marquis of Bute, whose blooms were massive, but not coarse. They were displayed, three of each sort, with Chrysanthemum foliage. The flowers of the white Mrs. J. Highgate were as large as Exhibition Japanese blooms. Mrs. Geo. Denyers was also exceptionally large. G. W. Matthews (yellow with faint rose tinting), Romance, May Phillips, Le Peyron, Mrs. Percy W. Wiseman, Emblème Poitevine (yellow), Clara Wells, Pantia Ralli, Frank Trestian, and G. F. Evans were the other varieties. 2nd, Pantia Ralli, Esq. (gr. Mr. G. J. Hunt), for a sterling exhibit, in which Miss P. Wiseman, Miss Thelma Hartmann, Romance, H. Hearn, Duchess of Fife, and Pantia Ralli showed to special advantage. 3rd, Miss Langworthy.

The best vase of three white Japanese blooms was shown by the Marquis of Bute, who had William Turner in grand condition; a most superb exhibit. 2nd, Lord Foley, with the same variety; and 3rd, Mr. Phillip Ladds, Swanley, with Mrs. Gilbert Drabble. There were six entries in this class, the others staging the same varieties as those named.

In the similar class for yellow varieties the 1st prize was awarded for the variety Miss A. E. Roope, deep, clear yellow, incurved variety, shown by Mr. H. Woolman, Sandy Hill Nursery, Shirley, near Birmingham; 2nd, Lady Talbot, shown by the Marquis of Bute; 3rd, F. S. Vallis, shown by Lord Foley. There were four vases, the other being F. S. Vallis.

For three blooms of any other colours the 1st prize was won by Lord Foley with superbly coloured flowers of His Majesty, the finest crimson Chrysanthemum. 2nd, Mrs. A. E. Tickle, pink, shown by the Marquis of Bute. 3rd, His Majesty, shown by Mr. Woolman.

Messrs. Cragg, Harrison and Cragg offered a prize for the best exhibit of single Chrysanthemums in not fewer than three distinct varieties, to be arranged in eight vases, 12 blooms to a vase. The exhibit staged by Frank Lloyd, Esq., Croydon (gr. Mr. E. Mills), was far ahead of all others, although the seven staged were of very good quality, those shown by E. G. Mocatta, Esq. (gr. Mr. Thos. Stevenson), being recommended by the judges as worthy of an extra prize.

Some of Mr. Lloyd's blooms were 7 inches across; they were White Pagram, Caledonia, Sandown Radiance, Mensa, Yellow Pagram, and Bronze Pagram.

Messrs. W. Wells and Co., Ltd., offered prizes for a single bloom of one of the following white varieties: Queen Mary, William Turner, or Mrs. Gilbert Drabble. The 1st prize was won by G. L. Wigg, Esq., Merstham (gr. Mr. Sargent), for Queen Mary; 2nd, Lord Foley, Claygate (gr. Mr. H. C. Gardner), for the same variety.

Pompons and Anemones.

The best six vases of Pompon varieties were shown by C. Urban, Esq., Bushey Lodge, Teddington (gr. Mr. F. Fitzwater), the varieties being Mme. Elise Dordan, Prince of Orange, Mlle. Marthe, Mr. Sabey, William Westlake, and Osiris. 2nd, J. W. Hussey, Esq., Exeter.

Miss Langworthy excelled in the class for six vases of Anemone varieties, and Dr. Codd, Bromley, Kent (gr. Mr. E. Libbeter), followed. Both exhibitors staged well-known sorts.

There were two exhibits in the class for Anemone and Pompons, in which C. Urban, Esq., Teddington, excelled. The yellow Antonius was shown well in both exhibits.

There were only two exhibits in the pretty class for 12 Japanese blooms, distinct, arranged with foliage or other plants on a table-space measuring 5 feet by 3 feet. The first and second prizes, offered by Mr. Norman Davis, were won by A. T. MILLER, Esq., Leatherhead (gr. Mr. G. Mileham), and E. MANWARING, Esq., Elm Lodge, Dulwich (gr. Mr. A. Winter), respectively. The 1st prize exhibit was the more compact, and the blooms were of excellent quality, set in a ground of Adiantum Ferns, with Crotons, Dracænas and Eulalia japonica as foils.

Messrs. CRAGG, HARRISON and CRAGG were the only exhibitors in the class for 12 bunches of Chrysanthemums, disbudded, as grown for market, and were awarded the 1st prize—a Silver-gilt Medal.

AFFILIATED SOCIETIES.

There was a special competition for societies affiliated with the N.C.S. for 12 vases, including three each of Japanese, incurved, single and Anemone or Pompon varieties. The Finchley Chrysanthemum Society had the field all to itself, and was awarded the 1st prize for an excellent exhibit, but it is to be regretted that the varieties were not named. However, the flowers in all the sections were remarkably good, and the 1st prize was well deserved.

AMATEURS' CLASSES.

The principal class in Section A of the Amateurs' Classes was for 12 Japanese blooms, distinct, and although W. H. STONE, Esq., Donnington, Sydenham (gr. Mr. F. W. Stevens), was the only exhibitor, he staged an exceedingly good collection, which deserved the 1st prize awarded. The blooms of Rose Pockett, Mrs. G. Mileham, Lady Talbot and Bessie Godfrey were superb.

E. WOOD, Esq., The Tyrol, Upper Norwood (gr. Mr. A. Dyer), was the only exhibitor of 12 Incurved Blooms in not fewer than six varieties, and was awarded the 3rd prize for a moderate collection. The 1st prize collection of six vases of Single Chrysanthemums, shown by L. W. THOMSON, Esq., Ailsa Craig, Formby, Liverpool, were very bright and attractive, and instanced good cultivation; 2nd, A. T. TOFIELD, Esq., Holmesdale, Chandlersford, Hants.

The 12 blooms of Japanese varieties in Section B were, on the whole, of equal merit to those in Section B, albeit there were two weak blooms. But the examples of F. S. Vallis, Mrs G. C. Kelly, and Bob Pulling were worthy of high praise; 2nd, A. T. TOFIELD, Esq., who had a fine bloom of Hon. Mrs. Lopes.

In the class for a vase of five blooms of any Japanese variety the exhibits were of fair quality; the 1st prize was won by C. D. CLARK, Esq., for the variety Reg. Vallis; 2nd, W. H. STONE, Esq.

There were three exhibits of one vase of Single Chrysanthemums, and the 1st prize was won by E. WOOD, Esq., whose blooms were much the best, but the arrangement was rather stiff; 2nd, P. DAWSON, Esq., Maybourne, Sydenham (gr. Mr. G. Bowyer).

E. WOOD, Esq., won the 1st prize offered for a large vase of decorative varieties, with a splendid display; 2nd, G. GOODING, Esq., Four Elms, Edenbridge.

In the class for 6 Japanese blooms of any one variety, C. D. CLARK, Esq., Achray, Shortlands, Kent (gr. Mr. W. Passey), was awarded the 1st prize for a good stand of Mrs. G. Mileham; and G. RICHARDSON, Esq., Holleymead, Tulse Hill (gr. Mr. J. Vanstone), won the 1st prize for 6 Japanese blooms distinct; he had good blooms of Bob Pulling, M. A. Nicholls, and Rose Pockett. The only exhibit of 6 incurved blooms distinct was from E. WOOD, Esq., and this received the 2nd prize; but in the class for any one variety the same exhibitor showed much better examples of Clara Wells, which were awarded the 1st prize. The incurved blooms in this section was decidedly better, and Mr. A. F. TOFIELD deserved the 1st prize, which was awarded to his collection. The outstanding blooms were of Fanny Lemon (2), Romance and Duchess of Fife.

The 1st prize for 3 vases of Pompons, not necessarily distinct varieties, was won by E. WOOD, Esq., who showed Prince of Orange, Goder, Madame Martha, and Mlle. Elsie Dordan; 2nd, J. W. HUSSEY, Esq., Bouverie House, Exeter.

W. GOODING, Esq., Four Elms, Edenbridge, was the most successful exhibitor, with 6 Japanese blooms distinct, in section B; and H. E. CAMPKIN, Esq., Bournemouth Park Road, Southend-on-Sea, showed the finest 6 blooms in three varieties.

The incurved blooms in this section were the best in the amateurs' classes, and E. A. FOSTER, Esq., Acton Villa, Woolwich, won the 1st prize with very praiseworthy blooms of such varieties as Edwin Thorpe and Mrs. Percy Wiseman. The best of the many exhibits of 3 vases of Singles was that of LOO THOMSON, Esq., and W. C. ROELINCK, Markhouse Avenue, Walthamstow, showed the best Pompons.

FRUIT.

The class for three bunches of white Grapes attracted four exhibitors, who all showed Muscat of Alexandria. The 1st prize was won by J. BALFOUR, Esq., Moss Hall, Harlow, Essex (gr. Mr. A. Jeffries), for large bunches of very good quality; 2nd, W. W. MANN, Esq., Ravenwood, Bexley, Kent (gr. Mr. J. Simon), with smaller bunches of characteristic shape and equally good appearance; 3rd, CHAS. BAYER, Esq., Tewkesbury Lodge, Forest Hill (gr. Mr. E. C. Wickers).

Four of the five exhibitors of three bunches of black Grapes (not Gros Colmar), showed Black Alicante, but the fifth, J. BALFOUR, Esq., won the 1st prize with very fine bunches of Appley Towers; 2nd, Lady TATE, who showed beautifully coloured Grapes; 3rd, CHAS. BAYER, Esq.

The Gros Colmar Grapes were large in berry, but poorly coloured. The best three bunches were shown by CHAS. BAYER, Esq.; 2nd, Dr. M. LACROZE, Brydir, Roehampton Lane (gr. Mr. F. Cresswell).

The six dishes of dessert Apples which won the 1st prize for Lieut.-Colonel BORTON, Cheveney, Hurton, Maidstone (gr. Mr. James Whittle), were almost perfect examples of dessert fruit, and each dish (Allington Pippin, Cox's Orange Pippin, American Mother, Wealthy, The Rival, and King of Pippins) are worthy of mention. The Rev. T. McMURDIE, Woburn Park, Weybridge (gr. Mr. A. Basile), was an exceedingly good 2nd; 3rd, Sir WALPOLE GREENWELL, Bart., Marden Park, Woldingham (gr. Mr. W. Lintott).

Lieut.-Colonel BORTON also won the 1st prize for six dishes of culinary Apples with wonderfully fine fruits. In this class he showed Lady Henniker, Bramley's Seedling, Peasgood's Nonesuch, Lord Derby, Newton Wonder, and Annie Elizabeth. Here the Rev. F. McMURDIE was again a very good 2nd; 3rd, THOS. JACKSON, Esq., Bristock Road, Thornton Heath.

The Rev. F. McMURDIE won the 1st prize for six dishes of dessert Pears with a splendid collection, which included Durondeau, Roosevelt, Beurré Diel and Beurré Bachelier of great excellence; 2nd, Sir W. GREENWELL, Bart., who had a good dish of Beurré Superfin; 3rd, Lieut.-Colonel BORTON.

AWARDS.

FIRST-CLASS CERTIFICATES.

Isobel Felton (*Single*).—A pale-yellow variety measuring 6 to 8 inches in diameter. Shown by Mr. NORMAN DAVIS.

Pink Pearl (*Decorative*).—See R.H.S. awards, p. 328.

Mrs. R. C. Pulling (*Japanese*).—An incurved Japanese variety of large exhibition type; colour, lemon-yellow.

Mrs. H. J. Jones (*Japanese*).—A large bloom of lemon-yellow colour, showing a shade of green in the younger florets. These three shown by Mr. H. J. JONES.

Mrs. J. Gibson (*Japanese*).—The colour of this pretty variety is mauve-pink on a white ground.

Golden Mensa (*Single*).—A yellow sport of the well-known Mensa. These two shown by Messrs. W. WELLS AND CO., LTD.

Rosalind (*Japanese*).—A market variety of bronzy shade. Shown by Messrs. CRAGG, HARRISON AND CRAGG.

Buttercup (*Single*).—A rich golden variety. Shown by Mr. G. MILEHAM, Leatherhead.

NON-COMPETITIVE EXHIBITS.

Mr. NORMAN DAVIS, Framfield, Sussex, exhibited the most imposing exhibit of Chrysanthemums, the group extending across the side transept opposite the organ. The blooms showed to advantage against a drapery of crimson with tall Palms for greenery. The large exhibition blooms were arranged in bamboo epergnes, and included the varieties H. E. Converse (rosy-red with golden reverse), Mrs. G. Drabble (white), Rosamund (vinous-red, a novelty), Col. Geo. Dixon (scarlet red, with golden reverse), His Majesty (the finest of its colour), Dandy (rose and buff), Mrs. H. J. Jones (a good yellow with a suffusion of green in the lower florets), and Romance (a splendid yellow incurved bloom). Of the singles the most conspicuous were Mensa, Primrose Mensa and Glorious, another sport of Mensa of deep golden colour. Half-circular groups of singles at either end completed this very fine exhibit, which was awarded the "Clay" Gold Medal, offered for the best miscellaneous exhibit in the show, the Society's large Gold Medal and the President's Cup, offered for a decorative display of Chrysanthemums.

Messrs. W. WELLS AND CO., LTD., Merstham, Surrey, contributed a very large exhibit of Chrysanthemums of all types, the varieties being exceedingly well blended for colour effect. A bold group of the fine white Japanese variety Queen Mary made a good centre piece, and on either side of these were imposing stands of Francis Rowe and William Vert. Other big Japanese varieties were W. Turner (white), Kara Dow (bronze and gold), Mrs. W. E. Tricker (blush), Daily Mail (yellow), Thos. Lunt (crimson) and H. E. Converse (golden). Numerous fine single and decorative sorts formed the groundwork, the flowers being relieved by Ferns and other foliage plants. (Large Gold Medal).

Messrs. H. J. JONES, LTD., Ryecroft Nurseries, Hither Green, made a most attractive display of a representative collection of cut blooms. All along the back of this splendid exhibit were arranged large stands containing immense blooms of such varieties as Bob Pulling, Mrs. H. J. Jones, Mrs. R. C. Pulling (yellow), J. Surry (crimson with gold reverse), Mrs. E. A. Tickle (soft mauve-pink), and Mrs. G. C. Kelly (deep old rose with silver reverse.) (Gold Medal.)

Messrs. CRAGG, HARRISON AND CRAGG showed Chrysanthemums of the type grown for market. A platform in the centre was furnished with excellent blooms of Jessica (single, bronze-red), Batchelor's White (decorative), Bronze McNeill, Sandown Radiance (one of the best crimson single varieties), Yellow Moneymaker, Snow Queen (a beautiful white "Anemone" centred single), Portia (rosy-red with bright yellow centre), Max (golden bronze, single), and J. W. Streater (primrose-yellow, incurved). (Gold Medal.)

Messrs. JOHN PEED AND SON, West Norwood, arranged a circular group of Chrysanthemums in the central transept containing large-flowered Japanese varieties, and singles, relieved at intervals with epergnes filled with incurved Japanese and large-flowered singles. (Small Gold Medal.)

Messrs. H. CANNELL AND SONS, Eynsford, showed bunches of Zonal Pelargoniums and hardy fruits. Apples were remarkably good, and these fruits comprised the bulk of the fruits, there being nearly 200 dishes. (Small Gold Medal and large Silver Medal).

Messrs. BUTLER BROS., Bexley Heath, Kent, showed small pot plants of Chrysanthemums, tiny specimens having in some cases as many as thirteen good flowers. (Silver-gilt Medal.)

Messrs. H. B. MAY AND SONS, Upper Edmonton, exhibited small Chrysanthemums in pots, Ferns, Begonias, Ericas, Primula obconica, and the fine red Vallota purpurea. (Small Silver-gilt Medal.)

Messrs. HOBBIES, LTD., Dereham, Norfolk, staged a pretty group of Chrysanthemums and Dahlias. (Small Silver-gilt Medal.)

Mr. S. MORTIMER, Rowledge, Surrey, showed numerous vases and epergnes of Carnations and his new white Stock. (Large Silver Medal.)

Messrs. STUART LOW AND CO., Enfield, staged varieties of perpetual-flowering Carnations. (Silver-Gilt Medal.)

Messrs. WHITELEGG AND PAGE, Chislehurst, showed vases of single Chrysanthemums.

Messrs. J. CHEAL AND SONS, Crawley, exhibited Dahlias and ornamental-leaved trees and shrubs. (Silver-gilt Medal.)

Messrs. GODFREY AND SONS, Exmouth, were awarded a Silver-gilt Medal for Chrysanthemums.

Messrs. H. MARSH AND SON, Brixton, exhibited numerous baskets of Apples.

MARKETS.

COVENT GARDEN, November 5.

Plants In Pots, &c : Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldii, dozen	6 0-	7 0
Araucaria excelsa, per dozen	18 0-	21 0
Asparagus plumosus nanus, per dozen	10 0-	12 0
— Sprengeri	6 0-	8 0
Aspidistra, per doz., green	18 0-	30 0
— variegated	30 0-	60 0
Begonia Gloire de Lorraine, 48's, per dozen	9 0-	12 0
Cacti, various, per tray of 15's	4 0	—
— various, per tray of 12's	5 0	—
Cocos Weddeliana, per dozen, 60's	6 0-	12 0
— larger, each	2 6-	10 6
Croton, per dozen	18 0-	30 0
Cyclamen, 48's, per dozen	10 0-	12 0
Cyperus alternifolins, per doz.	5 0-	6 0
— laxus, per doz.	4 0-	5 0
Chrysanthemums:— 48's, per doz.	6 0-	10 0
Dracæna, green per dozen	10 0-	12 0
Erica gracilis, per dozen	9 0-	12 0
— hymalis	10 0-	15 0
— nivalis, per doz.	12 0-	18 0
— small, in thumbs, per dozen	4 0-	6 0
Ferns, in thumbs, per 100	8 0-	12 0
Ferns, in small and large 60's	12 0-	20 0
— in 48's, per dozen	5 0-	6 0
— choicer sorts, per dozen	8 0-	12 0
— in 32's, per doz.	10 0-	18 0
Geonoma gracilis 60's per dozen	6 0-	8 0
— larger, each	2 6-	7 6
Kentia Belmoreana, per dozen	5 0-	8 0
— Fosteriana, 60's, per dozen	4 0-	8 0
— — larger, per dozen	18 0-	36 0
Latania borbonica, per dozen	12 0-	30 0
Lilium lancifolium rubrum, per dz.	12 0-	18 0
— lancifolium album	15 0-	18 0
— longiflorum, per dozen	12 0-	18 0
Lily-of-the-Valley — 48's, per dozen	18 0-	21 0
Marguerites, in 48's, per doz., white	5 0-	6 0
Pandanus Veitchii, per dozen	36 0-	48 0
Phœnix rupicola, each	2 6-	21 0
Solanums, 48's per dozen	6 0-	10 0
Spiræa japonica, per dozen pots	6 0-	8 0
— pink	10 0-	12 0

REMARKS.—In addition to plants given on list, Erica Hymalis is now procurable. Trade in pots is very quiet.

Cut Flowers, &c.: Average Wholesale Prices.

	s. d.	s. d.
Acacia (Mimosa) per bunch	0 9-	1 0
Arums, per doz.	2 0-	3 0
Azalea, White, per doz. bunches	4 0-	5 0
Camellias, per doz.	1 6-	2 0
Carnations, per dozen blooms, best American varieties	1 3-	2 0
— smaller, per doz. bunches	9 0-	12 0
— Carola (crimson), extra large	2 6-	3 0
— Malmaison, per doz. blooms:		
— — pink	6 0-	9 0
Chrysanthemum: — per doz. blooms	1 0-	3 0
— Large Specimen Blooms, white	4 0-	6 0
Eucharis, per doz.	2 6-	3 0
Gardenias, per box of 15 and 18 blooms	2 0-	2 6
Lapageria alba, per doz. blooms	2 0-	2 6
Lilium auratum, per bunch	2 0-	2 6
— longiflorum, per doz., long	1 6-	1 9
— — short	1 6-	1 9
— lancifolium album, long	1 0-	1 6
— — short	1 3-	1 6
— rubrum, per doz., long	1 3-	1 6
— — short	0 9-	1 0
Lily-of-the-Valley, per dozen bunches: — extra special	15 0-	18 0
— special	12 0-	14 0
— ordinary	9 0-	10 0
Marguerite, yellow, per doz. bun.	1 3-	1 6
Orchids, Cattleya, per doz.	12 0-	15 0
— Cypripedium	2 0-	3 0
— Dendrobium Phalænopsis per doz.	1 6-	2 0
— Odontoglossum crispum	3 0-	4 0
Pancratiums, per doz.	2 6-	3 0
Pelargoniums, per doz. bunches, white	3 0-	4 0
double scarlet	4 0-	6 0
Physalis, per doz. bunches	5 0-	8 0
Roman Hyacinth, per doz. spikes	1 3-	2 0
Roses: per dozen blooms	1 0-	2 6
Spiræa, per doz. bunches	6 0-	8 0
Stephanotis, per spray of 72	2 6-	3 0
Tuberoses, per gross	4 0-	5 0
Violets, English, per dozen bunches	1 0-	1 6
— Parmas, large bunches, each	2 0-	2 6
— Princess of Wales per doz. bunches	2 6-	3 0

Cut Foliage, &c.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum Fern (Maidenhair), best, per doz. bunches	4 0-	5 0
Agrostis (Fairy Grass, per doz. bunches	2 0-	4 0
Asparagus plumosus, long trails, per half-dozen	1 6-	2 0
— medium, doz. bunches	12 0-	18 0
— Sprengeri	6 0-	12 0
Carnation foliage, doz. bunches	—	
Croton foliage, vrs., doz. bunc.	12 0-	15 0
Cycas leaves, artificial, per doz.	3 0-	12 0
Eulalia japonica, per bunch	1 0-	1 6
Honesty, per doz. bunches	10 0-	12 0
Moss, gross bunches	6 0	—
Myrtle, doz. bnchs. (English), small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0-	1 3

REMARKS.—There appears to be an improvement in the trade generally this week, and in some cases the prices have risen. Chrysanthemums still arrive in large quantities, and some are left on hand at the close of the market. It is impossible to clear, even at low prices. Many good varieties may be seen of both large and medium blooms, such as Valet, Roots, Thorpe, Hortus, Freda Bedford, Romance, Klondyke and Market Red. Camellias, Tuberoses, Violets, Gardenias, Arums, Lilium Harrisii, L. rubrum and L. album. There is a plentiful supply of these sorts, and the quality is good. Lily-of-the-Valley, Stephanotis, Roman Hyacinth, and Lapagerias hold firm. Roses are gradually shortening, and prices have advanced considerably; more so, for the better varieties, such as Mme. A. Chatenay, Liberty, Richmond, Melody, Kaiserin Augusta Victoria, Sunburst, and Bulgaria. The trade for Carnations has improved, and prices are much higher for better varieties, such as White Perfection, Scarlet Glow, Britannia, Winsor, Mikado, Carola, Triumph, E. Ward, and Northcliffe. The French flower market opened for the season last Monday, but only small consignments are received of Narcissus, Violets, Ranunculus, Mimosa, and a few Anemones; but they do not arrive in the best condition. The weather is much too mild for flowers coming from such distances; they scarcely realise the price of carriage. The large bunches of Parma Violets are coming better, but prices for these are higher.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English Dessert, ½ bushel	3 0-	7 0
— cooking, per bushel	3 0-	6 0
— American, brls.	18 0-	26 0
— Cox's Orange Pippin, per doz.	1 0-	3 0
— — ½ bushel	6 0-	7 0
— Nova Scotian, barrel	17 6-	22 0
— Oregon, Newtowns, case	15 0	—
— Wenatchee, case	10 0-	12 0
Grapes, Almeria, barrel	10 6-	12 6
— English Black Hamburgh, per lb.	0 4-	0 8
— Black Alicante	0 6-	1 6
— second quality, black	0 4-	0 6
— Canon Hall Muscat	1 6-	5 0
— Muscat Alexandria, per lb.	0 10-	5 0
— Belgian, Black Alicante	0 4-	0 10
— Belgian Gros Colmar	0 10-	1 3
— Dutch, Alicante, per lb.	0 4-	0 6
— Dutch, Gros Colmar	0 10-	1 0
Grapes *continued*:— — Gros Colmar	0 8-	1 6
— Guernsey, Colmar	0 4-	0 6
— Guernsey, Alicante	0 4-	0 6
Lemons, Messina, per case	20 0-	22 0
— Malagas	21 0	—
— Murcia, p. case	16 0-	22 0
— Naples, per case	26 0-	30 0
Limes, per case	4 6-	5 6
Lychees, box	1 6	—
Medlars, ½ bushel	4 6-	5 0
Melons, Spanish, case	13 0-	14 0
Oranges, Jamaica	13 0-	14 0
— Denia, per case	22 0	—
— Mercia, p. case	11 0	—
— Naartjes, p. box	3 6-	5 0
Peaches, Californian, case	3 0-	3 6
Pears, Californian, box	8 6-	16 6
— Stewing, ½ bus.	3 0-	4 0
— American, barrel	12 6	—
Persimmons, p. box	1 6	—
Pineapples, St. Michael	2 6-	3 6
Plums, Californian, per case	10 6-	12 0
Pomegranates, per case	3 0-	10 6

REMARKS.—The market is well supplied with English Apples of the following varieties: Newton Wonder, Bramley's Seedling, Cox's Orange Pippin, Allington Pippin, Wellingtoo, Blenheim Pippin, etc. Overseas shipments this week amounted to about 100,000 packages of Apples and Pears. Three ships are leaving New York weekly with heavy supplies. Nova Scotia is also contributing large supplies of barreled fruit, the bulk consisting of Blenheim Pippin, of which they have a heavy crop. There continues to be a heavy supply of Grapes from all sources. Nuts of all varieties are plentiful, with the exception of Cobs and English Walnuts. Some very good samples of English Tomatos are now reaching the market in limited quantities. Teneriffe Tomatos are arriving in fair condition. Consignments of indoor Mushrooms are limited and there is a falling off in the supply of the outdoor Tomatos. Dwarf Beans from Guernsey, Madeira, and France are very plentiful. Seakale is now available; all seasonable kinds of vegetables are plentiful.—*Edgar H. Rides, Covent Garden, November 6, 1913.*

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Artichokes (Globe), per dozen	2 0-	2 6
Asparagus, Paris green	5 0	—
— Sprue	0 8-	0 10
Aubergines, dozen	2 0-	2 6
Beans, Guernsey, lb.	0 2-	0 2½
— Scarlet Runners, per bushel	3 0-	3 6
— Jersey, lb.	0 6-	0 8
— French canes	4 6-	5 0
Beetroot, per bushel	2 6	—
— Batavia, doz.	1 6	—
Cabbages, per tally	4 0-	6 0
Carrots, (English), bags	3 0-	4 0
Cauliflowers, per dozen	2 6-	3 0
Celeriac, French, per dozen	2 0-	2 6
Celery, per dnz.	6 0-	8 0
Corn (Maize) per dozen	0 9-	1 6
Cucumbers, per flat	4 0-	5 6
Endive, English, per dozen	0 8-	0 9
— French, per dozen	1 6	—
Garlic, per strike	3 0-	4 0
Horseradish, 12 bundles	10 0-	12 0
Leeks, per dozen	1 6-	2 0
Lettuce, English, Cos, per score	0 6-	1 0
Lettuce, English, round, per score	0 4-	0 9
— crate	1 6-	2 0
Marrows, per tally	6 0-	8 0
Mint, per dozen bunches	2 6-	3 0
Mushrooms, cultivated, per lb.	1 0-	1 3
— Broilers	0 8-	0 10
— field, peck	1 9-	2 0
— ½ bushel	2 6-	3 0
Mustard and Cress, per dozen punnets	1 0-	1 3
Onions, picklers, per ½ bushel	2 0-	2 6
— Dutch, bags	5 0-	5 6
— Spanish, cases	6 0-	6 6
Parsley, per dozen bunches	2 6-	3 0
Sage, per dozen	2 0	—
Sprouts, ½ bushel	3 0-	3 6
Tomatos, English, per dozen lbs.	4 0-	5 0
— seconds, per dozen lbs.	1 6-	2 6
— Guernsey, per dozen lbs.	3 6-	4 0
— Dutch, doz. lbs.	3 6-	4 0
— Canary, bundle	13 0-	15 0
Thyme, per dozen bunches	2 0-	6 0
Turnips (English), per bag	2 6-	3 6
Watercress, per doz.	0 4-	0 6

Potatos.

	s. d.	s. d.
Bedford, per cwt.	3 6-	3 9
Blacklands	3 0-	3 3
British Queen	3 6-	4 0
Evergood	3 0-	3 3
Kent, per cwt.	3 0-	3 6
King Edward	3 3-	3 9
Up-to-date	3 6-	4 0

REMARKS.—Trade shows no improvement, and prices have not altered.—*Edward J. Newborn, Covent Garden and St. Pancras, November 6, 1913.*

Obituary.

SEPTIMUS LYON.—We regret to record the death of Mr. Septimus Lyon, gardener at Cricket St. Thomas, Chard, Somerset, for 30 years. Mr. Lyon resigned his position as gardener 5 months ago. Mr. Lyon was formerly gardener to the late Sir Samuel Scott, at Sundridge Park, Kent, and to Lady Lothian, Norfolk. His wife died in June last at Chard, and there is no family.

DR. FRANK SMART.—By the death of Dr. Frank Smart, biological science loses a munificent and discerning patron. During his lifetime Dr. Smart established and endowed studentships in botany both in the University of Cambridge and in his old college (Gonville and Caius). These studentships have been the means of enabling students of botany to enter on careers of research, and in more than one instance the holders of the Frank Smart Studentships have made valuable contributions to botanical science. By the bequest of £10,000 to Caius College, the number of studentships in natural history and botany will be increased, and these important subjects will profit accordingly.

JOHN SARGENT.—We regret to record the death of Mr. John Sargent, at the age of seventy-three, which took place at Warwicks Wold, Merstham, Surrey, on the 25th ult. Mr. Sargent lived at Summerton, Co. Dublin, at Linden Hall, Morpeth, for twenty-seven years at Millfield House, Cobham, Surrey, and also for several years at Heatherwood, Ascot. Mr. Sargent was at one time a successful exhibitor of Auriculas, and a well-known judge of these flowers.

ADAM BRYDON.—We regret to record the death, which occurred on the evening of the 3rd inst., of Mr. Adam Brydon, Tweedbank, Innerleithen, at the age of sixty-two. Mr. Brydon was one of the best-known of Scottish amateur gardeners, and was a successful exhibitor at the leading Scottish flower shows. He excelled in the cultivation of hardy border plants and florists' flowers.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending November 5.

The Seventh Unseasonably Warm Week in Succession.—All the last ten days have been warm for the time of year, and also, with one exception, when the exposed thermometer registered 6° of frost, the nights—many of the latter being exceptionally warm. The result of this warm weather is shown by the temperature of the ground, which is now 3° warmer at 2 feet deep, and 4° warmer at 1 foot deep, than is seasonable. Rain fell on five days, and to the total depth of ⅔ inch. At last the effects of the long period of dry weather during the past summer and early autumn have passed away, at all events so far as the moisture in the ground is concerned, for during the week 2¾ gallons of rainwater have passed through the bare soil gauge, and 1½ gallon through that on which short grass is growing. The sun shone on an average for five hours a day, which is rather more than double the average duration at the same period of the year. On two days the sun was shining brightly for as many as seven hours a day. The winds were rather high on the first two days of the week, but since then light airs and calms have alone prevailed. The mean amount of moisture in the air at three p.m. fell short of a seasonable quantity for that hour by 5 per cent.

OCTOBER.

Remarkably Warm and Calm, and Rather Wet and Sunny.—This was a remarkably warm October, both during the daytime and at night. On the warmest day the temperature in the thermometer screen rose to 68°, and on the two coldest nights the exposed thermometer registered 5° of frost. Both of these extreme readings are high for the month. Rain fell on fifteen days, and to the total depth of 3½ inches, which is ½ inch in excess of the average for October—usually the wettest month in the whole year. This was the first unseasonably wet month since April, or for six months. The sun shone on an average for 3¼ hours a day, which is a quarter of an hour a day longer than the mean duration for the month. Taken as a whole, this was the calmest October that I have recorded here during the past twenty-eight years. So that we have had now this year the calmest July, the calmest August, the calmest September, and the calmest October of which I have here any record. In no hour did the mean velocity exceed fourteen miles—direction, S.S.E. In only five of the past twenty-eight years has as low an extreme velocity been experienced here in October. For more than half the month the direction of the wind was some point between south and west. The mean amount of moisture in the air at three o'clock in the afternoon exceeded a seasonable quantity for that hour by 4 per cent. *E. M., Berkhamsted, November 5, 1913.*

Answers to Correspondents

AERIAL ROOTS ON VINES : *E. B., Coulsdon.* The presence of these roots on the canes is not due to a disease, but is caused by the conditions obtaining in the atmosphere of the house or the border. The atmosphere may be kept too hot, too moist, and insufficiently ventilated, or the roots may be growing in a cold, badly-drained border. These roots are the result of growing vines in forcing houses, but if they are produced in large quantities it is an indication that the roots below the ground level are in a less active condition than the top growth, and this state calls for remedy. An examination of the border will soon inform you whether the Ivy and Apple tree are causing any injury.

BOOKS : *J. H.* We do not think the book mentioned has any particular value, but you might test the matter by offering it at one of the auction sales of some firm of book dealers, such as Messrs. Sotheby, Wilkinson and Hodge, Wellington Street, Strand.

BRACKEN FERN : *Leek.* Manure made from Bracken litter may be used without fear of it producing ill effects. Ferns generally rot down rapidly in the soil, and their leaves contain a considerable amount of plant food. Since you apparently have no choice, we recommend you to use the Bracken-litter manure, although we think that load for load it is of less value than straw-manure.

CYPRIPEDIUMS WITH BASAL DECAY : *Minos, Herts.* In hybrid Cypripediums, especially crosses with C. villosum, C. Boxallii, and other rather fleshy, green-leaved species, failure of the growths by rot at the base is a common trouble. Apart from chance causes under cultivation, it is very probable that the conflicting nature of the species used, their different structure, the character of the cellular tissues, and other specific peculiarities may bring about failure by malnutrition, or by want of balance between the vegetative and the root structures. So far as we have seen, this basal rot seldom attacks the plants in the early stage, but generally appears in the older specimens with many growths. These plants are all outgrowths of the original seedlings, generally a closely-crowded tuft. Nothing tends to maintain the vitality of Orchids more than judicious division of the plants, and Cypripediums require such treatment more than any other genus. If it is not desired to increase the number of plants the divided portions may be potted together to form specimens ; in this way each portion has its own centre, and is freed from the effects of the failure of the original seedling centre. Excess in watering, the use of "hard" water or of manures, may also bring about failure as shown in the growths sent. In many crosses between species from widely-separated habitats the tendency to grow at the different seasons natural to the parents frequently sets up a critical period in the life of the hybrid each year. The best palliative is to divide the plant as often as convenient, performing the operation soon after the flowering season has passed unless there is any reason to defer it.

GRAPES SPOTTED : *L. S., Kingsland.* There is no fungus disease present. The fruits have been punctured by aphides.

HOLLYHOCKS : *E. W.* The best preventive of Hollyhock disease (Puccinia malvacearum) is spraying the plants with Bordeaux mixture. Some cultivators have found that good results are obtained from spraying with Condy's Fluid. A way out of the difficulty, however, is by sowing the seeds early February, in heat, and flowering the plants in the same year, treating them as annuals.

HORTICULTURAL COLLEGES FOR WOMEN : *Journeyman.* The following is a list of the principal horticultural colleges for women. You should write for the prospectuses :—The Horticultural College, Swanley, Kent ; University College, Reading ; Edinburgh School of Gardening for Women, Corstorphine ; Royal Botanic Gardens, Glasnevin, Dublin ; Studley Agricultural and Horticultural College for Women, Studley Castle, Warwickshire ; School for Lady Gardeners, Glynde, near Lewes ; Women's International Agricultural Club, Manor House, Bredons Norton, near Tewkesbury, Worcester ; Country and Colonial Training School for Ladies, Arlesey House, near Hitchin ; Home and Colonial School for Ladies, Lane House, Brandesburton, Hull ; and School of Gardening, Parsonage Place, Udimore, Rye.

INSECTS DESTROYING HERBACEOUS PLANTS : *N. M., Hampstead.* The caterpillar which has destroyed the herbaceous Calceolarias and other plants is that of the common cabbage moth Mamestra brassicæ. Though this pest usually confines its attacks to the plants of the Brassicæ tribe, it often causes injury to various hardy herbaceous plants, more especially Gladioli and Montbretia. The only possible means of dealing with this pest is to collect the larvæ after dark, as it is then that they expose themselves, and may be easily captured.

INSECTS ON ABIES : *Willy Müller.* An answer to your query was given on p. 164 in the issue for August 30, 1913.

MICHAELMAS DAISIES : *E. W.* Spray the plants next season several times before the flowering stage with flowers-of-sulphur.

NAMES OF FRUITS : *J. H. R.* 1, Trumpington ; 2, Herefordshire Pearmain ; 3, Gravenstein ; 4, Adams's Pearmain. Pear : 1, Marie Louise ; 2, Not recognised.—*C. W. C.* 1 and 10, Dumelow's Seedling (Wellington) ; 2, Stirling Castle ; 3, Potts's Seedling ; 4, Minchull Crab ; 5, Warner's King ; 6, Old Nonesuch ; 7, Cellini ; 8 and 11, Bramley's Seedling ; 9, Cockpit ; 12, Small's Admirable.—*H. S.* 1, Royal Snow ; 2, Annie Elizabeth ; 3 and 5, Scarlet Nonpareil ; 4, Wyken Pippin.—*Curry.* 1, Beurré d'Amanlis ; 2, Marie Louise ; 3, Not recognised.—*Towndrow.* Beauty of Kent.—*T. G. C.* Dean Codlin.—*J. D. C.* 1, Annie Elizabeth ; 2, Nanny.—*A. R.* Harvey's Reinette.—*W. J. W.* 1, Cheshunt Pippin ; 2, Radford Beauty ; 3, Gooseberry Apple.—*W. R.* 1, Sam Young ; 2, Lady Derby ; 3, Not recognised ; 4, Cockle Pippin ; 5, Hormead's Pearmain ; 6, Northern Greening ; 7, Dumelow's Seedling (Wellington) ; 8, Winter Hawthornden ; 9, Norfolk Beefin ; 10, Byford Wonder ; 11, Baxter's Pearmain ; 12, Smart's Prince Arthur ; 13, Hanwell Souring ; 14, Wyedale.—*R. A.* 1, Annie Elizabeth ; 2, Stirling Castle ; 3, Hawthornden ; 4, Minchull Crab ; 5, Lemon Pippin ; 6, Beauty of Kent.—*Lucan.* 1, Gansel's Bergamot ; 2, Beurré Diel ; 3, Broom Park ; 4, Bergamotte Bufo ; 5 and 6, Specimens too poor to identify.—*G. M.* Cannot name such miserable specimens.

NAMES OF PLANTS : *F. Mitcham.* Datura Stramonium (the Thorn Apple).—*S. H.* 1, Pleione lagenaria, 2, Pleione maculata ; 3, Cirrhopetalum Roxburghii ; 4, Cochlioda vulcanica.—*R. H. T.* 1, Pteris longifolia ; 2, Lomaria nuda ; 3, Blechnum polypodioides.—*P. N.* 1, Jasminum nudiflorum ; 2, Cupressus pisifera var. nana ; 3, Thuya orientalis var. ericoides ; 4, Salvia coccinea ; 5, Dabœcia polifolia var. alba ; 6, Send in flower ; 7, Kalmia angustifolia var. rubra ; 8, Juniperus virginiana var. glauca.

PEACH SHOOTS : *J. M.* There is no disease present. The wood is not well ripened.

PEACH TREE : *A. E. T. R.* The soil which has been around the roots of the Peach tree affected with silver-leaf disease should not be used again in the border. Silver-leaf disease is caused by a fungus, and there is reason for believing that infection may take place from the soil. Therefore, if you use the old compost it should be only after sterilisation. The infected soil may be spread in the vegetable quarters or on an herbaceous border, for the disease, although it attacks various fruit trees as well as other trees and shrubs, does not harm, so far as we know at present, the other garden subjects.

PEARS FOR LATE DISTRICT : *B. G.* The following twelve varieties of Pears are suitable for gardens in late, damp districts, and will succeed either as bushes in the open or as cordons. The trees must be worked on the Quince stock, the ground well drained, and the roots planted near to the surface. A wall with a western aspect is the best situation for the Pear. The varieties are :—Williams' Bon Chrêtien, Beurré d'Amanlis, Conference, Maréchal de Cour, Louise Bonne of Jersey, Charles Ernest, Doyenné du Comice, Glou Morçeau, Thompson's Easter Beurré, Knight's Monarch and Beurré Rance.

PELARGONIUMS DYING : *L. L.* There is no disease present on the leaves, but the stem is diseased with the fungus Botrytis.

PRIMULA MALACOIDES : *W. Y.* The roots are badly infested with eelworm. The plants should be burned, as they will not bloom, and the infection may spread.

ROSES : *E. P., Alderley Edge.* One of the best books published on Roses which gives the information you require is *Roses*, by H. R. Darlington (Present Day Gardening Series), obtainable from this office, price 3s. 10d. post free. The Secretary of the National Rose Society is Mr. Edward Mawley, Rosebank, Berkhamsted, and an annual subscription of one guinea entitles the member to receive six 5s. tickets to the Society's Rose Show in the Royal Botanic Gardens, and those subscribing half-a-guinea to three 5s. tickets.

VINERIES : *A. W., Blackburn.* As two sets of young vines have failed to grow in the border, whilst the older rods in the same house are doing well, there must be something harmful in the newer portion. Clear out that part entirely and make a fresh start with fresh soil and young vines. Obtain good loam of medium texture, add some mortar rubble from an old building, about a barrow-load to the cubic yard, and some bone meal—preferably steamed bone flour—at the rate of one peck to the cubic yard. If there is a fair amount of fibre in the loam no stable or other nitrogenous manure will be needed for the first two years, otherwise you may add a little partly-decayed farmyard manure to the upper foot of the border. Some charred vegetable refuse or wood ashes would also be beneficial, more or less, according to the texture of the soil, but the latter must not be made too light. Thrips are easily eradicated by vapourising on two or three occasions at intervals of three or four days with a nicotine compound. Red spider will soon be hibernating, at which stage the pest will be difficult to destroy, but you can prevent the insects going to rest by applying warmth. Even the warmth of one's hand will revivify them in the depth of winter. Therefore, if you make the house quite hot for ten or twelve hours now, before the insects are actually dormant, and use Campbell's Sulphur Vapouriser at night, they will be killed. After pruning you may, as an extra precaution, dress the rods all over, including the buds, with soft soap, half-a-pound to one gallon of water, and as much sulphur as will make a thick paint, using a soft brush for the purpose. Both the nicotine and the sulphur vapourisers may be used with safety when the vines are growing, up to the time when they are coming into flower, and also as soon as the Grapes commence stoning, say four weeks after the first flower opens, but neither should be used while the fruit is quite young, or the berries may become rusty.

YEW HEDGES : *J. B.* The information upon designs for Yew hedges that you require will be found in *The Book of Topiary*, by Charles H. Curtis and W. Gibson, which gives numerous illustrations of designs, and can be obtained from our publishing office at this address for 2s. 9d. post free.

Communications Received.—Y. B. de C.—Rosarian—W. H. S.—W. H. D.—E. M.—M. V. W. and Sons, Holland—H. C., Liége—T. T.—G. G., Italy—G. J. N.—W. B., Malta—J. M. D.—A. H. B.—J. S. W.—G. K. S.—H. C.—E. R.—G. B. B., Cheshunt—G. M. W.—S. M.—Llandaff—Amoore—R. A. H.—R. and C.—Orchard—W. K. H. W.—Chunent—Clivedon—N. E. F.—Enquirer, Devon—W. B.—F. G. B. and Son—A. Y.—G. H. H.—G. U.

THE
Gardeners' Chronicle

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CONTENTS.

ILLUSTRATIONS.

NEW CHINESE BARBERRIES.

(See Supplementary Illustration.)

WITH the exception possibly of Cotoneaster, no genus of shrubs has been enriched, from the point of view of the garden, by recent botanical exploration in China so much as Berberis. Not only has the number of species available for cultivation been increased greatly, but the genus has been revealed in several new aspects. Moreover, so far as the winters of the last eight or ten years have enabled us to judge, the forms recently introduced are all very hardy. For most of these new species we are indebted to the labours of Mr. E. H. Wilson and to the enterprise of Messrs. Veitch and the Harvard University, but some also reached cultivation by way of the French missionaries in China and M. Maurice de Vilmorin.

No species among them has more rapidly attained a widespread cultivation than B. Wilsonæ, which is well illustrated in the Coloured Supplement. It is now about ten years since Wilson sent home seeds to Coombe Wood, and about six since the species was placed on the market by Messrs. Veitch. It brought a new type of Barberry into our gardens. Of low spreading habit, B. Wilsonæ does not seem likely to become much more than 3 or 4 feet high. Its leaves, oblanceolate and ½ to 1 inch long, are on the upper surface of a shade of grey-green unusual among the older species of the genus, and somewhat glaucous beneath. The flowers are pale yellow and not particularly effective as Barberries go, but in the beauty of its masses of coral-red to salmon-red berries it is, as may be judged from our picture, unsurpassed. These and its neat yet elegant growth fully entitle it to the first-class certificate given to it by the Royal Horticultural Society.

Allied to B. Wilsonæ is B. Stapfiana, described last year by Dr. C. Schneider. This is a considerably taller and more vigorous shrub, being already 4 feet high at Kew, and making long arching shoots annually, not branched so densely as in B. Wilsonæ, and differing from the pubescent young shoots of that species in being perfectly glabrous. The leaves are of the same grey-green and the flowers of the same rather indeterminate yellow, whilst the oval fruits are ¼ inch long of a carmine red covered with a slight purplish bloom. The species was first sent to Kew by M. de Vilmorin from Les Barres, and since then has been raised from seeds collected by Wilson in China.

Very similar in general aspect to B. Stapfiana is B. subcaulialata, another species of Dr. C. Schneider. It was shown in fruit in the fine group exhibited by Mr. Vicary Gibbs at the Horticultural Hall on October 7 last. It is distinguished by its translucent, yellowish green fruits, suffused with red, by its larger leaves and very distinctly angled branchlets.

One of the most distinct of Wilson's new introductions is B. verruculosa. It is a dwarf, close-growing, sturdy, but not inelegant evergreen, which gets its specific name from numerous dark brown, small, wart-like excrescences on the branchlets. Its leaves are of a polished dark green, glaucous beneath, ½ to 1¼ inches long, the margins recurved and set with spiny teeth. The flowers, often solitary, are of a golden yellow, ¾ inch across, and the fruit is black covered with blue bloom, as in B. Darwinii. For a narrow border of choice low shrubs, or even for the rock garden, B. verruculosa may be strongly recommended.

Another new species of the same type, but of even closer, neater habit, is B. candidula. It was first put in cultivation by M. Maurice de Vilmorin, of Les Barres, as B. Wallichiana pallida, also from French nurseries as B. W. hypoleuca, but is certainly very distinct from Wallich's Barberry. Its foliage, like that of B. ver-

Fig. 121.—BERBERIS GAGNEPAINII: FLOWERS YELLOW.

ruculosa, is brilliant dark green above and vividly blue-white beneath, but the leaves are longer and narrower, and the young shoots are smooth. The flowers are solitary, rich yellow and about $\frac{5}{8}$ inch across, followed by oval, purple fruits.

FIG. 122.—BERBERIS WALLICHIANA.

Forming a dense hemispherical bush, perhaps not more than 2 feet high, this Barberry also is useful as an evergreen for furnishing the rock garden.

Berberis Gagnepainii (see fig. 121), B. sanguinea, B. Sargentiana, and B. levis are all evergreen Barberries of the Wallichiana or Hookeri type, but of considerably more vigorous habit than the two preceding species. They all appear to be quite hardy, but B. Sargentiana is of especial interest and value, as it is the only evergreen Barberry which has proved perfectly hardy in the Arnold Arboretum, where the winters are much more severe than ours. In the winter of 1908-9, the most trying in the South of England since 1895, the Himalayan B. Hookeri and Knightii suffered badly. Though the latter was cut to the ground, Sargent's Barberry was quite unaffected. It is evidently an evergreen which is worth a trial in the most inclement parts of our islands. This and its three allies just mentioned are all of Wilson's introduction.

B. dictyophylla has been cultivated in this country since 1897, and is now much prized in gardens for its elegant and distinct habit. It usually sends up each year from the base a crop of slender, arching stems covered with blue-white bloom, and these stems afterwards branch and arch outwards. The small spiny leaves are glaucous beneath; the flowers are solitary or in pairs, $\frac{1}{2}$ to $\frac{3}{4}$ inch across, and of a soft pale yellow. The fruit is ovoid, bright red, and the foliage usually turns a beautiful warm red before falling in autumn. There is a form of B. dictyophylla without the striking bloom on the young stems. The species was one of M. de Vilmorin's introduction.

B. polyantha and B. brevipaniculata are both chiefly notable for their abundant masses of beautifully coloured fruits; in the former they are red, in the latter of a more terra-cotta shade. Allied to them is B. aggregata, shown finely furnished with its red fruits by Mr. Vicary Gibbs on October 7 last. These three species are of a more robust type of growth.

B. pruinosa, introduced to France from Yunnan by the Abbé Delavay in 1894, is a robust evergreen shrub, probably 10 feet or more in height. Its leaves are of leathery texture, up to $2\frac{1}{2}$ inches long, lustrous green above, often greyish beneath, not unlike in general appearance the Himalayan B. aristata. It gets its name from the rich pruinose (or plum-coloured) bloom that covers the fruits.

Two species much confused in gardens are B. diaphana and B. yunnanensis. They both form dense rounded bushes 4 or 5 feet high, and are very handsome when well furnished with their oval, bright red fruits, and especially beautiful in their autumn livery of crimson. B. diaphana differs from B. yunnanensis in its fewer flowered inflorescences, its less membranous leaves, more distinctly net-veined and glaucous underneath. According to Dr. Schneider, the true B. diaphana is figured in the *Botanical Magazine*, t. 8224, as B. yunnanensis. On the whole the new Chinese species are not to be valued so much for their flowers (for in that respect they are surpassed by older species) as for their neat habit, their great beauty in fruit, and for the charming autumnal tints of the deciduous forms. *B.*

NEW OR NOTEWORTHY PLANTS.

THE WAHLENBERGIAS OF AUSTRALIA AND NEW ZEALAND.

(*Continued from p.* 317.)

II.—PERENNIAL SPECIES.

WAHLENBERGIA ALBOMARGINATA, Hook. fil., *Icones Plantarum*, vol. 9, t. 818 (1852).—Leaves 10-12, all radical, laxly rosulate, $\frac{3}{4}$-1 inch long, $\frac{1}{4}$-$\frac{1}{3}$ inch broad, spathulate, with the blade lanceolate to elliptic, obtuse or subacute, green, with reddish-brown margins and often tinged with reddish-brown beneath, ciliate with reflexed hairs on the petioles, otherwise glabrous. Peduncles 1-5 to a rosette, 2-8 inches high, 1-flowered, glabrous. Calyx 5-lobed, glabrous; lobes ascending-spreading, $1\frac{3}{4}$-$2\frac{1}{2}$ lines long, $\frac{1}{3}$-$\frac{2}{3}$ line broad, sublinear, subobtuse, brownish or green with brownish margins; tube (ovary) obconic, green, with 10 darker longitudinal stripes. Corolla $\frac{3}{4}$-$1\frac{1}{4}$ inch in diameter, glabrous, white or blue; tube $2\frac{1}{2}$-4 lines long and about as much in diameter, campanulate; lobes spreading, 4-7 lines long, 2-$4\frac{1}{2}$ lines broad, elliptic or lanceolate, acute; capsule obconic.—W. saxicola, Hook. f. *Fl. Nov.-Zel.* vol. 1, p. 160 (1853), and *Handb. New Zeal. Fl.* p. 170 (1864); *Bot Mag.* t. 6613 (1882); Cheeseman, *New Zeal. Fl.* p. 402 (1906), not of A. De Candolle. W. albomarginata, Irving, in *Gardeners' Chronicle*, 1912, vol. 52, p. 216.

A native of New Zealand.

Var. PYGMÆA. N. E. Brown. A dwarf alpine form, about 1 inch high with drooping flowers. —Wahlenbergia pygmæa, Colenso in *Trans. New Zeal. Inst.*, vol. 31, p. 273 (1889).

A native of New Zealand.

W. CONGESTA, N. E. Brown. Densely tufted. Leaves $\frac{1}{2}$-1 inch long, with the blade orbicular or

oblong. Peduncles ¾-2 inches long. Corolla ⅓-½ inch in diameter, pale blue. Capsule globose ¼-⅓ inch in diameter.—W. saxicola var. congesta, Cheeseman, *New Zeal. Fl.*, p. 403.

A native of New Zealand.

I have not seen this plant, but on account of its globose capsule it must certainly be distinct from W. albomarginata.

W. multicaulis, Benth. in Huegel, *Enum. Plant. Nov. Holl.* 75 (1837).—Perennial, stems numerous, erect, slender ½-2½ feet high, sometimes bearing only 1 flower, but usually branching in a racemose or subpaniculate manner at the upper part, with the branches erect and mostly subparallel, glabrous. Leaves alternate or some of the lower opposite, laxly scattered along the lower half of the stems, apparently not forming a distinct rosette, sessile, ¼-2¼ inches long, ½-1 line broad, linear, acute or obtuse, entire or slightly toothed, with slightly thickened margins, glabrous on both sides. Calyx 5-lobed, glabrous; tube (ovary) narrowly obconic, lobes ⅔-2 lines long, linear-subulate, acute. Corolla 5-lobed, glabrous, apparently 5-9 lines in diameter; tube shorter than or not exceeding the calyx lobes, ¾-1½ line long, slightly funnel-shaped; lobes 2-4 lines long, 1½-2 lines broad, lanceolate or elliptic, acute. Style exserted from the tube; stigmas three.—Campanula capillaris, *Lodd. Bot. Cab.* t. 1406 (1828). Wahlenbergia multicaulis, A. DC., *Prodr.*, vol. 7, p. 433 (1839).

A native of Australia.

Var. dispar, N. E. Brown.—Stem often more or less hairy at the base. Leaves ½-3 lines broad, often more or less hairy (at least along the midrib) beneath. Corolla-tube 1½-3 lines long, longer than and sometimes twice as long as the calyx-lobes; otherwise as in the type.

A native of Australia.

Loddige's figure of Campanula capillaris apparently represents a seedling plant flowering for the first time, since he states that "it grows about 6 inches high with very many slender stems, each of which produces numerous flowers in a kind of panicle, coming out in succession nearly throughout the summer." *N. E. Brown.*

(*To be continued.*)

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA CENTAUR

A flower of this new hybrid (L.-C. Bletchleyensis × C. Lord Rothschild) from a young plant is sent by Mr. F. Jones, Orchid grower to Mrs. Bischoffsheim, Warren House, Stanmore, and when fully developed it should be even much handsomer than it now appears, Lælia tenebrosa, Cattleya Warscewiczii, C. Gaskelliana and C. aurea having taken part in its production. The flower sent is nearly 8 inches across, the petals 2 inches wide, and both sepals and petals silver-white flushed with light rose-pink. The lip, which is formed more nearly like that of Cattleya than Lælia, has a white base with a patch of palest yellow on each side, the side lobes and front of the lip being deep violet colour. It is interesting to trace evidence of its ancestry, each of the species concerned being discernible in some feature. A curious point is that the base and tube of the lip are pure white, notwithstanding the fact that there is pronounced colour in all its parent species.

BRASSO-CATTLEYA MRS. PITT

A flower of this brightly-coloured Brasso-Cattleya (B.-C. Digbyano-Warneri × C. labiata) is sent by the raiser, Mr. Thurgood, gr. to H. T. Pitt, Esq., Rosslyn, Stamford Hill. In point of colour and shape it closely approaches the best forms of C. labiata, but the labellum is broader and slightly fringed. It is 7 inches across, the petals 3 inches wide, bright rose, the front of the lip crimson with a yellow tinge on the disc.

LÆLIO-CATTLEYA DURANTA

L.-C. Dallemagnei syn. Wm. Pitt (L.-C. Martinetii × L.-C. Dallemagnei) results from crossing Cattleya Aclandiæ and Lælia pumila, and in the new hybrid the influence of C. Aclandiæ has given substance to the sepals and petals, but reduced their size. They are bronzy rose. Lip distinctly three-lobed, both side and front lobes carmine-crimson with a narrow irregular lilac margin. *From H. T. Pitt, Esq.*

CATTLEYA THOMASII

This pretty late-flowering Cattleya (Bowringiana × C. Peetersii) has been raised and flowered in the collection of F. J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews). C. Peetersii (labiata × Hardyana) crossed with C. Bowringiana, has not made much change from C. Portia (labiata × Bowringiana), some of the best varieties of which closely approach this new hybrid. The flower is well formed, 4 inches across, and of a bright purplish-rose with ruby red front to the lip.

Brasso-Cattleya Matthewsii (C. Hardyana × B.-C. Digbyano-Warneri) is also flowering at Brockhurst. The flower is of the size of C. Gaskelliana and resembles a light form of this variety, but the lip shows a slight fringe. The flower is light pink in colour with a purplish base and tip to the lip, which has a pale yellow disc.

THE MARKET FRUIT GARDEN.

My district appears to have been one of the most rainy in the United Kingdom during the month of October; at least, my measurement of rain is greater than that of any of the large divisions of the country for which the Meteorological Office records the rainfall in its weekly reports. Rain fell here on nineteen days, and very heavily on some of them. The greatest daily measurements were 1.22 inch, 1.08 inch, 0.95 inch, 0.51 inch, and 0.49 inch, the total for the month up to midnight on the 31st being 6.05. The usual method of reckoning a month's rainfall is to include it up to 8 a.m. on the first day of the following month, and if that plan were followed in my case the total would be 6.17 inches.

Disadvantages of a Wet October.

It is unfortunate for agriculture and horticulture in this country that October is, on the average, the wettest month in the year. On farms October is the principal month for sowing winter corn crops and raising the main crop of Potatos, while the latter part of it is the best time for carting Mangolds off the land. Wet weather for all these operations is obviously highly disadvantageous, even when it does not stop them altogether. For orchards the disadvantage is less serious, but is quite bad enough. In my own case I was anxious to hoe for the third time part of an orchard in which that pestilent weed, Creeping bentgrass (Agrostis alba var. stolonifera), otherwise known as Fiorin, is rampant. It is an inferior pasture grass in its proper place, but one of the most troublesome of weeds on arable land, as it spreads not only under the surface in root growth, but also by stooling all over the surface. Of course, October is late for hoeing, but there was such a mass of the grass that there appeared to me to be a better chance of burying it thoroughly in the digging by hoeing it first. If dry and sunny weather had prevailed most of it would have perished. As matters are, the best course would be to rake the weed into heaps and carry it off the land; but the expense would be tremendous, and digging the stuff in will be tried. Another disadvantage of the rainy month was that the soil was kept too wet for digging (forking) to the best advantage, and it is always desirable to get forward with that tedious operation.

Should Plum Orchards be Dug?

In pursuance of the subject of digging fruit plantations, referred to last month, the question arises whether Plum orchards should not be excepted. In one of my Plum orchards suckers come up all over the ground in spring and summer. These are hoed off while they are tender, and this is advantageous. But when the field has been dug with forks large pieces of the roots of the trees have been broken off and brought to the surface. To what extent the nourishment of the trees is checked by this loss of roots can only be imagined. In many cases, no doubt, roots extending far beyond the points of breakage are killed. My conclusion is that it is not desirable to dig Plum orchards where roots are close to the surface.

Big Bud.

For some unknown reason the past season has been the worst I have ever known for the spreading of the Black Currant mite. In a plantation of eight acres, from which only about a gallon of big buds was picked last winter and spring in two pickings, there will be, I think, fully two bushels to take off the bushes shortly, and a good many badly infested bushes will need to be grubbed up. The ages of the bushes are partly eight and partly seven years from the planting. They have borne good crops for several years, including last season, but are now past their prime, partly because of the extraordinary increase of the mite, and partly because they are much overshadowed by the Apple trees among which they are growing. The bushes are of great size, and although they are 6 feet apart they interlace so that it is difficult to walk across the orchard. Probably the trees will benefit when the competition of the bushes for soil nourishment is removed. In younger plantations of Black Currants, also, the increase of big bud is much greater than it has ever been before. There was very little of the infestation of mites last year among the young bushes, and all my Black Currants had the big buds picked off, so far as they were found, with the whole of badly infested shoots, in some cases twice during the season.

The most discouraging circumstance in relation to efforts to keep big bud in control is that the mite attack is worst on young shoots, so that pruning seems to me to do more harm than good so far as this attack is concerned, of course, excepting the cutting off of badly infested branches. If it were not for this circumstance there would be hope in the plan of planting Black Currants thickly and cutting back nearly to the ground level every alternate bush when interlacing takes place, dealing likewise with the bushes left when the cut ones have become furnished with new branches. The plan is worth trying, but I am not sanguine as to the results, because the young shoots arising from the cut-back bushes would probably be infected from the bushes left, though very careful picking off of big buds from the latter would be a partial preventive. Another plan which, apart from its great expense, would be more hopeful where plenty of land is available is that of giving Black Currants a piece of land to themselves, planting thickly, grubbing-up at the end of the fourth fruiting season and planting afresh on other land, or giving the old piece of land a rest from Black Currants for a year or two, practising other cropping (such as that of Potatos) and then planting it again. This would prevent the mite from having a chance of making much headway during the short life of a plantation. But it would be a very expensive method of producing the fruit—even more expensive than the plan of frequent spraying during the migration season which Mr. A. H. Pearson has found effectual.

Polishing Apples for Exhibition.

At the Kent Fruit Show it was noticed that many of the lots of Apples, including some which were awarded prizes, were polished. They reminded me unpleasantly of having frequently

seen during my boyhood old women with baskets or stalls at street corners polishing Apples with their pocket-handkerchiefs. To my eyes Apples in their natural condition look much better than when polished, and this is notably the case with Blenheim Pippin. No doubt retail fruiterers often polish their Apples for display in shop windows, but the operation strikes me as objectionable in a show of fruit for the wholesale market by commercial growers. The polishing was too elaborate, I think, to have been done by one of the new fruit-cleaning machines. Every Apple, judging from appearance, was highly polished by hand. It is suggested that the Committee of the Kent Fruit Show should include in their future regulations a prohibition of polishing, which seems to me as objectionable as the colouring of sheep's fleeces at agricultural shows.

A GREEN AUTUMN.

Never were Apple trees fuller of green foliage at the beginning of November than they are this season. In my district no frost to kill the leaves has occurred, while the wet and mild conditions have kept the foliage green and sappy to an extraordinary extent. This must cause delay in planting, for which November is the best of all months so far as fruit trees and bushes are concerned. Black Currants are almost as remarkable for this retention of foliage, but not Plums in my orchards, as they were not healthy enough in the past season for such a result. *A Southern Grower.*

AUSTRALASIA.

EXHIBITION AT VICTORIA.

THE annual Daffodil show of the R.H.S. of Victoria was held in the Melbourne Town Hall on September 2 and 3. The weather was fine and a good attendance resulted. Through the season being later than was anticipated the later Daffodils, such as Barrii, Poeticus and Engleheartii sections, were scarcely represented, thus robbing the exhibition of many fine varieties. The seedlings raised by Messrs. Buckland, West and Clark attracted much attention, the premier blooms of white and bicolor Trumpets being selected from seedlings of these raisers. Other premier blooms were Yellow Trumpet King Alfred; Incomparabilis, with white perianth Lucifer; another with yellow perianth, Gloria Mundi; Leedsii Lord Kitchener; Poeticus Ibis (this and Homer were the only two Poeticus shown). The premier White Trumpet was named Icicle, and was a rather small but perfectly shaped bloom 3⅝ inches across; the trumpet was 1⅝ inches long and the same width at mouth, and for whiteness and substance compared favourably with the best on view from Europe. Messrs. W. Higgins Prop., Ltd., of Geelong, staged a comprehensive exhibit of commercial varieties, such as Royal Sovereign, Chinese Gordon, Buttercup, Cleopatra, Great Warley, and Homespun, these being much admired. The largest Daffodil shown was Glory of Leiden, a splendid bloom of this popular sort measuring 5 inches across. Besides Daffodils there were magnificent exhibits of Cyclamens, Cinerarias, Primulas, Ranunculus, Pansies, Acacias, and a few fine Carnations, as well as the usual assortment of made-up flowers, decorated tables, etc. From the Melbourne Botanic Gardens came the usual fine exhibit, the more noteworthy items being Bauera rubioides, Sophora tetraptera, Protea neriifolia and P. cynaroides, Clianthus puniceus, Aloë ferox, Calothamnus quadrifidus, Erica formosa, Grevilleas Baueri, asplenifolia and oleoides, Hardenbergia monophylla, Ericstemon myoporoides, Podalyria calyptrata, Pieris japonica, Vitex littoralis, Thryptomene Mitchelliana, Chorizema ilicifolium, Indigofera australis, Forsythia viridissima, Dipidax triquetra, Polygala dalmasiana, Kniphofia aloides, Acacias in many species, Brachysema lanceolatum, Correa speciosa, and Viburnum macrocephalum. In this exhibit, also, were many sorts of Daffodils and other popular garden flowers. *Gilbert Errey.*

MICHAELMAS DAISIES UPON SINGLE STEMS.

IN the Hardy Plant *Year Book* for 1913 Mr. Ernest Ballard, writing on the subject of Michaelmas Daisies, says:—"The fact that they will grow and increase in almost any position and soil has led to their being neglected, and year after year they send up a multitude of thin, weakly growths bearing small, starved, washy flowers. What a difference if a few really good varieties are selected and annually lifted between January and March, clumps consisting of not more than two or three of the strongest offshoots being replanted, then with plenty of room, and in good rich (but not necessarily deep) soil, strong, vigorous plants, furnished with a wealth of truly magnificent blossoms will result!" Now I would go further than this, and say that a single shoot is better than a clump of even two or three. In clump form the plants are more or less difficult to manage, however skilfully they are tied up, and the growths have no opportunity of developing their natural habit. If left untied, the first heavy rain spread-eagles the plant over the border, when it is gathered up and tied after the manner of a sheaf of corn. The use of pea sticks has been recommended, but this method is far from satisfactory, being most untidy in the early stages, and making the flowers difficult to gather. With the single shoot method one good stake only is needed to which the main growth is securely tied, and as the laterals develop, a loose tie of soft creosoted twine round the plant will prevent damage from autumn winds and rain. If a natural stake is used the plant will seem to be growing without support. As will be seen from the pictures (figs. 123-125), the lateral from the single shoot carries as much bloom as the main growth of a clump shoot, and a well-grown single will make a better plant than a clump of a dozen. The photographs are of average results. Climax is at its best, Miss Southall is just coming into bloom; both were photographed after very heavy rain and before they had time to recover from the beating down, but it will be noticed that the loose tie round the plants has saved breakage from the weight of water. Lil Fardel was one of a group of six planted about 18 inches apart, and the massing of the heads was a really gorgeous sight. In a large border just imagine the effect of a dozen singles of Climax planted about 30 inches apart! In the early stages the plants take up very little room, and can be distributed over the border amongst summer flowering plants to fill the gaps

FIG. 123.—ASTER LIL FARDEL, TRAINED TO A SINGLE STEM.

when they are over. Climax is occupying the site vacated by a clump of Delphinium. In fact, it is possible for the owner of a small garden to have his usual summer show, and by careful placing of the Daisies the border will be quite full again during September and October. Owing to its habit the Novæ-Angliæ section can be flowered over a bed of annuals or Violas, or many other dwarf plants.

To obtain the results shown in the pictures a few cultural precautions are necessary. I will take the largest section first—Novi Belgii. Select only the strongest shoots on the outsides of the clumps. Put the rest of the plant on the bonfire: the ash is more valuable to the garden than the old plant. With most of the varieties in this section the offshoots push out well away from the old plant, and are easily detached with plenty of roots. Others are rather closer growing, and it is best either to shake or wash the soil off the plant, when it will be easy to detach the shoot with a bit of the old rootstock, this latter carrying the roots. Having got your shoots, the best way to arrange them can only be decided by the individual taste of the grower, coupled by the natural habit of the plant. It is impossible to give definite directions for each of the scores of varieties catalogued, but I can give them for a few. Sorts like Climax, Miss Southall and Feltham Blue have the pyramidal habit, and branch right down to the ground. Beauty of Colwall is of stiffer growth with somewhat short laterals, and four or more pieces planted about 9 inches apart will form a solid mass of blue. Of the dwarfer sorts St. Egwin makes a perfect, pear-shaped plant, branching to the ground, and becoming smothered with pink blossom. Peggy Ballard has a similar habit. Wm. Marshall has a flattish head of bloom, which on a well-grown plant will often be 3 feet across. Of the older sorts Robert Parker is worth growing for its handsome foliage and dark stems alone; it is a tall grower, with masses of pale lavender-coloured flowers.

The Novæ-Angliæ section is perhaps the easiest of all to propagate. Just detach a shoot; it does not matter whether you cut or break it off, or whether it has roots on it or not. If your soil is light just stick it in the border and it will grow, but I believe the shoots will root in any soil that is not virgin clay. Anyway, they will root on a heap of gravel or in a pan of coal ashes.

Ericoides, diffusus, and cordifolius vary somewhat in root growth; some varieties grow very close and want the knife for division, but none is really difficult. Bianca has the habit of a Cedar tree, the lower branches, some 2 feet long, almost sweeping the ground and smothered with pure-white blossoms. Perfection is a gem, so also is Aldeboran, and all are worth growing for their foliage alone.

Having planted your shoots, the method of cultivation is the same for all sections. The plants must be encouraged to grow as fast as the weather will allow, the object being to get the main stem as strong and sturdy as possible. The soil must be well hoed, and never allowed to get caked. When water is necessary it should be given by the pailful. (Remember that ½ inch of rain is nearly 2½ gallons to the square yard.) Stimulants are unnecessary; at least, in my case, if they would give me larger plants than I grow without them, my small garden would not be large enough for all the sorts I want to grow, which will next year number 63. In fact, perfect root-action is what is wanted, and I would recommend a perusal of the article on "How to Fight Drought," on page 6 of the issue of *Gardeners' Chronicle* for July 5 last. A look-out must be kept for pests during May and June. There is a little greyish grub that may destroy the tip of the shoot, and if this happens the plant at once branches out and its proper habit is lost. Then cuckoo-spit, if the attack is severe, will cripple the plants. I find a large quill tooth-pick an excellent tool for the removal of both these pests. The sharp end will spear out the grub, and the cuckoo-spit insect can be scooped out of his froth with the blunt end. The principal thing to aim for is to keep the plants growing hard till about the third week in July. After then nothing seems to matter. The plant has a fine stout stem,* and the lateral growth follows in due course. Hoeing cannot be done, as my borders are so full of plant growth that it is impossible to get at the soil. If August is hot and dry the plants bloom somewhat prematurely.

I have made no mention of the Amellus section because the varieties of this type are not easy of division, and owing to their habit I think they look better in moderate-sized clumps. These notes are written for the benefit of the owner of the small garden who takes an interest in his plants and does some of the work himself, but I am afraid will not be of much use to those who have to depend on that curious race of men—the jobbing gardener, who more often than not prove the worst of all the pests that visit our herbaceous borders. When Beauty of Colwall was 2s. 6d. for a cutting in a pot, I drew my man's attention to it as I planted it, and hoped he would not have an accident with it as it had cost 2s. 6d. I shall never forget his pitying look at me as he remarked, "Why, you could have bought a dozen good Geraniums for that."

It may be of interest if I state that our soil in this part of Sutton consists of a rather light and poor loam on a subsoil of chalk. *W. H. Phelp, Sutton, Surrey.*

* The base of the stem of Climax, three inches from the ground, measured just two inches in circumference at flowering time.

THE ROSARY.

CULTURAL HINTS FOR NOVEMBER.

There is no better month than November for planting Roses, and the ground is in a splendid condition, being moist and favourable to successful root-action. Good drainage and deep cultivation are great factors in Rose-growing. Land that was trenched in September is working excellently, although in trenching we had to employ a pickaxe to break up the subsoil, which is heavy clay. I strongly advocate a free use of basic slag and animal dung to the lower stratum of soil, but the two fertilisers should be kept apart.

There is now such a wondrous variety of colours in Roses that it is a difficult matter to blend the various tints, and Roses badly blended lose much of their charm. We also need to know the habit of the individual varieties, and especially of the newer ones: the nurserymen are not sufficiently explicit. For instance, in some catalogues Madame Abel Chatenay, Mrs. Cornwallis-West, Avoca, and J. B. Clark are all termed vigorous, but the three last are impossible Roses for bedding, and more fitted for pillars or for growing as isolated bushes. Some Roses, such as Juliet and Beauté de Lyon, should be treated as shrubs, planting them in the shrubbery, or better still, as isolated bushes.

Old Rose trees may be transplanted now with safety. I have moved big bushes with every success; indeed, their transplanting has given them a new lease of life. If it be possible, it is an advantage to lift them with earth about the roots. Where it is thought to be inadvisable to move them, a trench may be dug around the tree or bush and filled in with rich compost mixed with a liberal amount of bone-flour.

Some gardeners make a mistake in covering the beds of newly planted Roses with manure; I strongly deprecate this practice. Let the soil be left rough, but levelled; if in small lumps, the size of ordinary Potatos, so much the better. Newly-planted Roses need watching, as often a pool of water collects around their base, which is harmful to the plants. The long growths of bush Roses may be reduced to prevent the plants swaying, and thus become loosened in the soil.

Where climbers and ramblers are to be planted against arches, pergolas, or walls, make proper provision for their future needs. Some time ago I had to give advice on pillar Roses, and I suggested making large holes and placing therein good soil, as the staple was not specially good. I afterwards learned that each Rose had been afforded a cart-load of fresh, turfy loam. Stout larch poles some 12 feet high were placed for support, and when I visited the gardens a year afterwards the Roses were at the top of the poles.

I am not in favour of the usual style of pergola for Roses: that is, the heavily-built structure. I remember seeing such a pergola at Warley Place, and it was made with such massive, extra tall pillars, that one must needs be in an elevated spot to catch the beauty of the blooms. Light but strong arches, with chain or rope connections, are far more suitable. I saw some excellent supports for pillar Roses recently at a Dulwich garden. The main support was made of 2 inch gas-piping of a desired height. To keep the plants from the iron, three circular boards were placed at both ends and in the middle. The gas-pipe passed through the centre of the board, and there were holes made for three or four thin bamboo canes. The end of the piping was placed in a 4 inch drain pipe and set in cement. The drain pipe was sunk in the ground, and the result was a good, substantial support for the Rose that enabled the growths to be kept from contact with the iron.

Standard Briars should be planted in deeply-dug, well-drained land. In heavy clay subsoils the roots are not so numerous, hence in such soils there are many failures. If a good supply of burnt earth is mixed with the subsoil, this will assist towards the desired result.

Tall standard Briars planted permanently to form weeping Roses may often be seen in country gardens, and there can be no doubt but that they are a great success. The weeping Rose is an object of great beauty when properly managed and suitable varieties budded upon the Briars.

Preparations should be made for winter protection in exposed gardens. I do not advocate coddling Roses, for I believe more Roses have been killed by covering them with wet, strawy manure than by frost. Fine soil and ashes are amongst the best protective materials, and one or other of these may be heaped around the bush plants, and all will be safe, for if the frost does penetrate, it will thaw so gradually that little or no harm will be done.

For standard Roses use bracken Fern, Gorse, or dry straw, but even in their case air should be allowed to enter and the covering removed at intervals in mild weather.

Rose beds that have been manured year after year should receive a dressing of chalk or lime at once. Agricultural chalk is cheap, and this is the best form in which to apply calcium. Basic slag may be applied now.

Roses should be planted under glass if plants from the beds are to be used instead of pot specimens. Standard Roses are beautiful objects when planted out in a house with a groundwork of bush varieties. The house should be ventilated to the fullest extent until frosts occur, and kept very cool until March, when the plants may be pruned and forced very gently. Standards of Maréchal Niel are more successful than grafted pot plants. Some growers make the mistake of severely pruning this variety the first year after planting. Allow it to make growth the first summer unrestricted, without much initial pruning, then, when root-action is established, the old wood may be cut away. This fine old Rose succeeds well planted down the centre of a greenhouse. The growths should be tied downwards after reaching the roof, to check the flow of sap, and thus favour the blossoming.

I once saw a fine house of this old Rose; the plants were hard pruned every alternate year, and the result was very satisfactory. They were short standards planted in an old vine border.

Rambler Roses in pots and all pot Roses should be brought under cover, placing them in an airy structure where they may be dried off preparatory to pruning, and starting them in January. Roses that were pruned recently will be swelling their growth buds. Syringe on fine

mornings. After one good watering, very little moisture will be required for some time after.

Rose borders under glass should receive a top-dressing of well-pulverised cow manure occasionally, or, better still, sheep manure with fibrous loam and burnt garden refuse. Where the roots are growing in outside borders, take care to preserve them from excessive moisture, and feed them occasionally. I have sometimes fed them with manure water applied in holes made with an iron crowbar. This plan may be adopted when it is not desirable to disturb the borders or where the latter are very narrow.

Weeping Roses in pots are growing in favour; they are very beautiful objects in the conservatory. The plants may be potted up at once and allowed to grow out-of-doors for one year, plunging the pots in ashes; or standard Briars may be potted up and budded next summer. There is no need to have them too tall, as they can always be elevated for decorative purposes, and a tree with a 4 to 5 foot stem is more useful than a taller specimen. Preparations should be made for grafting by potting up a supply of strong seedling Briars. Those with stems about as thick as a stout lead pencil are the best. After potting, plunge them out-of-doors until January. Many Rosarians graft plants of Maréchal Niel and grow them on the long rod system. The plants will make rods from 12 to 18 feet long in one season, and are then splendid material for blooming the following year.

Those who intend to exhibit at the National Rose Show in April should secure their stock at once. *Experience.*

CANADA.

Asters and Golden Rod.

A journey in the wilds of Ontario reveals the wonderful beauty of Aster versicolor and A. Novæ-Angliæ mingling with Golden Rods (Solidago) on hillsides and in the glorious Fir-laden ravines through which a rippling creek sometimes tumbles over stones and boulders. The fall of the year in Canada is characterised by wondrous colouring. A blaze of crimson comes from the great groups of Sumach and Maple with the contrasting shades of yellowing Birch and the dark sombre Pine and Thuja. It is interesting to study the Asters, which with the Solidagos spread a carpet of colour over waste places, even by dusty highways, where the blue of the Chicory recalls the same lovely flower by the sea-shore walks in many parts of England. One would like to bring a few of the finest forms of Aster Novæ-Angliæ to England, many rivalling if not surpassing named varieties that have brought to your gardens sumptuous studies in the richest tints of the year. Probably, however, under cultivation they would degenerate through the altered conditions and fail utterly to fulfil the promise of the exceptional colouring that makes the Dominion a paradise for the true landscape artist, who, like the late H. G. Moon, watches Nature and her garden in its varying moods as one season merges into another.

The Rose in Canada.

The Rose Society of Ontario has won its way into the hearts of the people of the province. A pleasant evening was recently spent when the President, Mr. E. T. Cook, distributed the prizes to the successful competitors at the first annual exhibition, which occurred last July. The Hon. President, Mr. J. T. Moore, whose Rose garden in North Toronto contains no fewer than 10,000 plants, including even the more recent acquisitions, gave a valuable silver trophy, and other silver cups and medals were from Lord and Lady Hyde, Sir Edmund Osler, the Society itself, and many interested in horticulture in the Dominion. A list of lectures to be given by experts during the winter months has been published, and the names include two gardeners from England, Mr. Bryson, Mr. Moore's excellent Rose-grower; and Mr. Allen, head gardener to Sir Edmund Osler. The promises for next year are so encouraging that the show will probably be held in a more spacious building. Things move rapidly, and a Rose annual is already in preparation, under the Editorship of the President. It will be issued in the spring, so as to contain the last lecture of the session, and will be freely illustrated with portraits and types of flowers in colour.

Roses in October.

Many flowers are in beauty even now, and the Rose gardens are wonderfully gay with blossom. It is a revelation to me, and two Hybrid Teas have stood out conspicuously, General Macarthur and the Lyon. I have never seen finer flowers in England, and the colouring is remarkable. The former has been in bloom continuously since June, Mr. Bryson gathering armfuls of those wondrous deep scarlet flowers that fill the air with the sweetest of scents. The Lyon Rose is planted in large groups, and when the sun shines on the coral-pink petals they light up into a peculiar beauty. It is as distinct in its way as Mme. Abel Chatenay. Although the collection contains the cream of the Hybrid Perpetual, Hybrid Tea, and Tea sections, it will be largely added to next year. At this date (October 24) the plants are still gay, but the Canadian winter is approaching, with months of glittering snows and those clear, starry nights that impress the traveller in this great Dominion.—*Canadian Correspondent, Toronto.*

Agricultural Possibilities of Zanzibar and Pemba.—In his annual report on these islands, the British Vice-Consul (Mr. Beak) points out that the principal products of the Sultanate remain to-day, as they were twenty years ago, Cloves in the first place and Cocoanuts in the second. The importance of the development of new industries was long ago realised by the Government, but their efforts have not been seconded by the population. While the experiments carried out at the Government station at Dunga have demonstrated that there are a large number of economic plants which can be grown in the islands, they have likewise demonstrated that nobody at present wishes to grow them. The latent resources of the islands are very considerable, and they only await the advent of European capital and energy for their profitable development. Owing to the abundance of fibre-producing plants which overrun the fertile portions of the country, an excellent opportunity presents itself for the development of a coir and fibre industry. There is also no reason why Rice should not be cultivated on an extensive scale. For the cultivation of fruits Zanzibar possesses facilities which are probably unequalled on this side of Africa; Mangoes, Tangerines, Oranges, Bananas, Pine Apples, and Pappaws grow in profusion, and are good and cheap. No effort, however, is made to cultivate any of them because there is at present no market. Zanzibar Chillies are famous as being the hottest in the world, and were at one time cultivated to a considerable extent in the eastern portion of the island by the Wahadimu, the original inhabitants, but the industry has declined and the quantity exported is insignificant, because the native objects to handling the plants, which cause irritation to the eyes and skin. There is no doubt, however, that if more care were taken with the cultivation and preparation of this useful commodity the produce of Zanzibar would compare more than favourably with that of other countries. Cinnamon and Cocoa have been successfully grown on the Government station. The Sisal plant also thrives well, and the Sugar Cane can be grown in the deep soil in all parts of Zanzibar.

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Disa grandiflora.—The plants of Disa grandiflora that have bloomed this season have made sufficient growth to permit of their being repotted, for the roots will bear being disturbed better now than at any other time. In breaking up large, crowded masses of these plants there is a danger of injuring the roots, which are extremely brittle. Therefore extra care should be taken. The strongest shoots which are intended to flower next year should be cleared of the long, white, root-like offsets, as these will develop tubers and roots at the expense of those tubers which support the flowering growths. In making up specimens with several new growths it is advisable to select shoots of a uniform size, so that they will flower at the same time. Details on the method of potting these plants with suitable compost, etc., were given in the notes for August 9. Plants of Disa Luna, D. langleyensis, D. Veitchii and others that were repotted several months ago must receive an abundance of water at the roots. During the winter months the plants should be stood near to the roof-glass, as during their season of growth Disas appreciate plenty of light, but not strong sunshine.

Epidendrum prismatocarpum.—This is a fine Orchid for exhibition purposes, but in some cases the plants fail to bloom freely. It grows well in a light corner of the intermediate house. If potting is necessary the work should be attended to at once. The plants root freely in Osmunda fibre, and grow best in rather large, well-drained pots. From the present time till growth is completed afford plenty of water, but afterwards only sufficient to prevent the roots from perishing. A slight shrivelling of the pseudo-bulbs during the resting period will do no harm. Although an evergreen species, the plant should be given a decided rest, failing which it will not flower satisfactorily.

Pleione.—Plants of Pleione that have ripened and shed their foliage may be placed in the Cattleya house to flower. These plants must never be kept long without water even at this time of the year, or both the young breaks and their bloom will be harmed. Pleione flowers are easily gathered without using the knife; a gentle pull causes the stem to part readily from the centre of the growths, and the stalks will be much longer than when cut.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Marguerite Mrs. F. Sander.— This variety is the best of the double-flowered Marguerites. Of a number of plants propagated from cuttings here this season, not one reverted to the single form. It has proved valuable for bedding, as extremes of wet and dry weather had no detrimental effect on its flowering property. Nor does continued wet weather spoil the appearance of the blooms, which is the case with many white flowering subjects. When associated with other plants, considerable thinning of the shoots has been necessary, as it has grown very freely. A stock is easily raised from cuttings inserted at any time. The best method is to pot up a few old plants in the autumn and cut them hard back, placing them in a warm, moist house, where they will quickly make fresh growths suitable for cuttings. The latter may be inserted thickly in pots or pans and placed in the propagating pit. When rooted, they should be potted singly into small 60-sized pots, and grown in a warm atmosphere near to the roof-glass. They should be transferred into larger pots as the roots need increased space, and the growths stopped at intervals to encourage a bushy habit.

Perennial Asters.—There are few plants to equal Michaelmas Daisies for late autumn flowering, but their beauty is often spoilt by allowing them to grow undisturbed for a number of years. They should be dug up and replanted every season, selecting only small pieces for re-setting, as each shoot will make a good specimen. Although most commonly grown in the mixed border, they are seen to better advantage planted in bold groups by themselves. Many of the old varieties are worthless compared with certain of the newer sorts, and as novelties are cheap, there is no reason why inferior sorts should be retained.

Perpetual-Flowering Carnations.—Plants which were rooted from cuttings inserted a few weeks ago should be placed on a shelf near to the roof-glass in a light, airy house. For the next two or three months, top growth will be slow; but the plants will be making numerous roots, and at the turn of the year it will be found that the young shoots will develop satisfactorily. The foliage must not be syringed during the winter, nor must the roots be allowed to become sodden. When the pots are well filled with roots, shift the plants into 5-inch pots, using a compost of loam, decayed leaf-mould, and a sprinkling of coarse sand.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

The Fruit Room.—The airing, cleansing and regulating of the heat of the fruit room must receive careful attention in order to preserve choice varieties in a fit condition for the dessert table for as long a time as possible. The fruits should be examined carefully at least once each week, and this will provide work on wet days. Any fruits that show the least signs of decay should be removed as quickly as possible, for not only may the decay spread to other fruits, but the odour and moisture given off are of a musty character. Where the fruit is stored in more than one layer, extra care will be needed in making the examination of the bottom fruits, and it will not suffice to just roll over the top fruits, for this will set up bruising. In these gardens nearly every variety of Apple and Pear came to maturity much quicker than usual. As the fruits of the different varieties come into use, it is a good plan to make notes of how they have kept, and those most appreciated for dessert. These notes will be valuable at planting time. There are many excellent Pears which ripen at the same time, and the note-book will be useful for recording which give the best-flavoured fruit in the individual garden, with other qualities compared, so that some of the sorts may be dispensed with to make room for later, better-keeping varieties.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Nursery Beds.—The mild, dry weather has suited the Lettuces pricked out during the past few weeks. Ventilation should be admitted both day and night until severe frost occurs. Although good, strong plants are needed for forcing early in the spring, they should not be developed too much just now, or they will be soft and liable to damage from mildew or frost. A quantity of dry, black soil should be passed through a ½-inch screen and placed under cover until required for top-dressing the beds of Cos Lettuce. These plants should be pricked out for the second time in the course of a few days, and this time only fourteen plants, instead of thirty as before, should be set under each cloche. The best plants must first be lifted and the cotyledons and yellow leaves removed. They must be set deeper this time than last. Success in the forcing of Cos Lettuces depends chiefly on the cultivation of the plants while in their nursery quarters. They should be kept hardy and given plenty of space, with a liberal allowance of black soil, to encourage root-growth and the swelling of the collar. The two batches of Cauliflowers are doing well, owing to the open weather permitting the lights to be left off every day until 4 p.m., and a certain amount of ventilation all night. A safeguard against possible damage to lights during a sudden storm would be to close the two end lights of each row on the outside edge, propping up the other side level with the rest of the lights, so as to present an unbroken surface to the wind.

Winter Crops.—Lettuces set in the autumn under frames can remain for another fortnight or three weeks if they show no signs of mildew. The second batch of Witloof Chicory should be lifted and laid on the ground for eight or ten days before being prepared and placed in the trench, as described last month. The first batch may be given another top-dressing 3 or 4 inches thick. This salad is now on sale, but very little Chicory is usually disposed of in the market before December 20.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

The Conservatory.—Make every effort to have the conservatory as attractive and bright as possible during winter. It is always advisable to try to have something new and attractive, either in the arrangement or the subjects. Heliotropes in groups arranged with Ferns to hide the pots set alternately wth Begonias of the Gloire de Lorraine type, Roman Hyacinths, Lilium longiflorum, and Lily-of-the-Valley are pleasing and soft to the eye. Groups of Chrysanthemums may be improved by placing scented-leaved Pelargoniums around them, as they help to hide bare stems and pots of the Chrysanthemums, besides adding a pleasing aroma to the house. The plants should have continual attention in picking off the old leaves and removing shabby specimens. All this will tend to keep the house trim, as the conservatory is more often entered by visitors than the other glasshouses.

Gloxinia and Achimenes.—Any spare time may be profitably employed in examining the pots and pans of these plants which have been dried off under stages, or in similar positions. The tubers should be removed carefully from the soil and placed in pans or boxes containing dry sand or fibre; whichever material is used must be perfectly dry, or the plants may start into growth. Partially bury them in the sand, and place the boxes in a dry store, or any room that is heated and absolutely dry, where they will not start into growth. Allow them to remain until required for starting into growth, when they may be removed to a plant house.

Chrysanthemums.—As the season advances and the blooms are cut from the plants it is advisable to give the old stools the best and most favourable position possible. Too often they are relegated to any odd corner, and the shoots required for cuttings are inferior in consequence. Encourage the plants to break from their bases as much as possible. Place the backward stools in a warm temperature and syringe them occasionally. Exercise great care in the watering of the roots that are backward in developing shoots for cuttings. These small matters are often neglected in the busy decorative season, but the observance of them is necessary for success in the forthcoming season.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Tomatos.—Plants that will furnish fruits from now onwards until January need very careful attention. Let them have the fullest amount of light, and take care to keep the side shoots pinched out, shortening the foliage a little so that fruits may have the full benefit of all the sunshine. During the middle of the day, pollinate the blooms by means of a camel-hair brush, and maintain sufficient heat in the water pipes to maintain the temperature at 60°. It is necessary to keep the air in constant circulation by admitting a little ventilation, more or less according to the weather conditions. When the pots are filled with roots, feed the latter with a little artificial manure and apply a top-dressing of rich loam. The fruits may be assisted to swell by occasional waterings with liquid manure, but an excess of moisture in any form must be guarded against in the winter season. Plants intended for fruiting early next spring that were raised from seeds sown at the beginning of October and are growing in 4-inch pots, should be placed on a shelf near to the roof-glass in a house with a mean temperature of 60°. The soil used for these successional batches of Tomatos should be of a light nature.

Strawberries in Pots.—The weather recently has been very suitable for pot Strawberries. They should now be removed from the trellises on which they have been stood in the open and brought under cover, as the rains and frosts will be harmful. They may be stood in a late Peach house or an Orchard house; a cold frame is also suitable, plunging the pots in leaves or ashes and covering with lights during times of rain or frost; during very severe frosts the glass should be covered with mats. In mild weather an abundance of air may be admitted, and when occasions are favourable, take the lights off entirely. Those that are wintered in the cool houses and not plunged will become dry at the roots more quickly than the others, and care must be taken that they do not suffer from drought. If a supply of berries is required very early in the season preparations must be made at the end of the present month to commence forcing. A pit furnished with hot-water pipes is the most suitable house, and it should be filled as far as the roof-glass with freshly-gathered tree leaves, trodden firm. Plunge the pots in the leaves, which will afford the roots a mild bottom heat.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cauliflowers.—Plants which are intended to produce heads in May and June are ready for potting. Large 60 size pots are best for the purpose, and they should be washed quite clean. The soil may consist of three parts sandy loam and one part leaf-mould, and should be made moderately firm about the roots, as firm potting has a tendency to produce stocky growth. After the plants are potted place them in a cold pit, keeping the heads within 18 inches of the roof-glass. Spread finely-sifted ashes over the surface of the bed in order to keep the pots free from worms. Keep the pit closed until the plants begin to make fresh growth, when air may be given in increasing quantities until, when the plants are hardened, the lights may be removed altogether during fine days, but they must be replaced at night or during times of heavy rains, when the lights should be tilted in such a way as will admit the greatest amount of air without subjecting the roots to an excess of moisture. Endeavour to grow the plants as hardy as possible without allowing them to become stunted.

Spinach.—All decaying foliage should be removed from autumn-sown Spinach, and the soil between the rows broken up with a hoe. Overgrown plants should be picked over whether the leaves are required or not, as this will encourage the development of clean, stocky foliage which will withstand the winter better than fully-grown leaves.

Parsley in Pits.—Overgrown leaves should be picked, and the soil amongst the plants stirred frequently with a Dutch hoe. A slight dusting of soot may be given, and the lights allowed to remain off the frames until severe frosts occur. Plants in the open must not be crowded; remove decaying leaves and encourage a stocky growth by hoeing amongst the plants frequently.

Potatos.—The tubers in store should be examined without delay, as many of them are now affected with disease. And, unless these are removed, many sound ones may be contaminated. When the work of overhauling has been accomplished sprinkle the tubers with lime.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, NOVEMBER 17—
National Chrys. Soc. Executive and Floral Coms. meet.

TUESDAY, NOVEMBER 18—
Roy. Hort. Soc. Coms. meet. Hort. Club Dinner and meet. (Lecture by Mr. Reginald Farrer.) Chester Paxton Soc. Sh. (2 days).

WEDNESDAY, NOVEMBER 19—
Newcastle Chrys. Sh. (2 days). Bristol Chrys. Sh. (2 days) Roy. Meteorological Soc. meet.

THURSDAY, NOVEMBER 20—
Norfolk Chrys. Sh. (3 days). Paisley Chrys. Sh. Linnean Soc. meet. Aylesbury Chrys. Sh., in the Town Hall. B.G.A. meet. at The University, Bristol, 7.30 p.m.

FRIDAY, NOVEMBER 21—
Bolton Chrys. Sh. (2 days). Blackburn Chrys. and Orchid Sh. (2 days). Dunfermline Chrys. Sh. (2 days). Dundee Chrys Sh. (2 days). Stockport Hort Soc. Sh. (2 days). Hawick Hort. Soc. Sh. (2 days).

SATURDAY, NOVEMBER 22—
Morley and District Paxton Soc. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 42.3°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, November* 12 (6 p.m.); Max. 57°; Min. 52°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, November* 13 (10 a.m.): Bar., 29.3; Temp. 47°. *Weather.*—Raining.

PROVINCES.—*Wednesday, November* 12: Max., 56°, Yarmouth; Min., 47°, Ireland, N.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY, AND FRIDAY NEXT—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, WEDNESDAY, AND THURSDAY NEXT—
Rose Trees, Shrubs, Lilies and Dutch Bulbs, at Stevens's Rooms, 38, King Street, Covent Garden.

TUESDAY AND WEDNESDAY NEXT—
Sale of Fruit and Forest Trees and other Stock, at Veitch's Nurseries, Feltham, by Protheroe and Morris, at 12

WEDNESDAY NEXT—
2,168 c/s Japanese Liliums, received direct, at 2.30. Miscellaneous Bulbs and Plants at 12. Palms, Azaleas, etc., at 5, at 67 and 68, Cheapside, E.C., by Protheroe and Morris.

THURSDAY NEXT—
Special Sale Roses, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

FRIDAY NEXT—
Herbaceous Plants, Roses, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

Dr. Russel Wallace

Alfred Russel Wallace, O.M., died at Broadstone, near Bournemouth, on Friday, November 7, in his 91st year. Wallace was the last of great Victorian explorers of the domain of Natural History. Like his fellow naturists of the 19th century he felt instinctively that the exploration of life must be world-wide, and that the discovery of the laws of life cannot come only from the study of dead and dissected things. So they went forth, alone, each their several ways into the world to explore the domain of life: Darwin to circumnavigate the globe, Hooker to climb the Himalayas, Huxley on H.M.S. *Rattlesnake* to study marine life, and Wallace to watch the ways of bird and beast in the forests of the Amazon and the islands of Malaya.

They made their journeys in quest of no special thing They went that they might see the world of life. Their experience of nature in wild places and the physical sufferings which they endured taught them, as no tranquil laboratories could teach, the grim law of natural selection. Darwin and Wallace, who had suffered most, each learned that law. Huxley and Hooker, ripe with like experience, accepted it as a revelation of the mode of life.

All were big men, and as only big men may, they dealt comprehensively with things. Their wide review of life taught them the truth—repellant to more fearful men—that Nature uses the struggle for existence as the hand wherewith to pick out, from the bran tub of chance variations, the numbers which win the prizes of life.

Neither Darwin nor Wallace was a specialist. They took all nature for their province, and the wide range of their experience led them each to this conclusion. Yet by their behaviour when they learned that they had both made the same discovery they showed that Nature does not live by the struggle for existence alone.

Whether the generalisation of natural selection is completely valid; whether evolution is entirely the outcome of the stress of life and lucky numbers, matters little at this moment. This it is that matters, that these men gave to thinkers a larger outlook and a nobler problem than they had had before. This also matters, that though they uttered the theory in the assemblies of the learned, they were virile, much-travelled men of modest and powerful expression, and hence their voices carried to the ears of all mankind. The more conventionally minded made the accustomed protest, but the day was past when a man might be condemned to death for showing a clergyman a flea under the microscope. The theory of natural selection and the idea of evolution took with surprisingly short delay firm hold of the imagination of men.

It is idle for critics to say that the Darwin-Wallace idea of evolution was not new. They made it new by making it real. They made it real by reason of the mass of their evidence. Without that evidence evolution was an opinion, and opinions are but the small change of gossip. Thanks to the two pioneers, the historian, the politican, the social reformer, and even the philosopher, came to think with the naturalist in terms of evolution. In perceiving the continuity and filiation of life processes the thinkers and the workers too discovered a dignity in life and an incentive to their labours. Darwin and Wallace bent their weight against the closed doors of nature; those doors gave way so far as to yield a glimpse of a new vision of life. In that glimpse the forms of life are seen in continuous series, proceeding with toil and pain from stage to stage of development, and evolution is shown as a mightier instrument of change than is the most cataclysmic revolution. None but the dead in imagination could fail to find new hope for the progress of mankind in the vision thus unfolded.

Now in these later days the eyes of some are tired as from gazing on a bright light, and now some suspect that it was but a mirage that was shown them. These are they that faint by the way. The men who can share the breadth of view which Darwin and Wallace had are yet of good courage, even though it may be that all visions are mirages. They know that though presently it be discovered that Nature effects evolution by more elegant methods, the discovery will not dim the fame of Darwin nor of Wallace. For it was they who propounded the problem and made it a great issue.

Wherefore all men do honour to-day, and for all time, to their names and memories. Wallace offered his life to the advancement of science. Fever-stricken and shipwrecked he escaped from his expedition to the Amazon, only to embark on another greater voyage in the Malay Archipelago. There he worked alone for eight years, discovered the unseen barrier—Wallace's line—which, set between the islands of Bali and Lombok, divides the oriental from the Australian floras and faunas.

From the experience gained in his wide travels Wallace wrote his greatest book, *The Geographical Distribution of Animals*, and also his most delightful volume, *Island Life*.

Like Darwin, Wallace was both robust and simple-minded, and hence he wrote well, obeying the famous rule of style, to have something to say, and to say it. Unlike Darwin, Wallace, as he grew older, was attracted to many subjects outside the range of natural science. To these subjects he bent a vigorous, naïve, and, as it would seem sometimes, an uncritical mind. But, right or wrong, there is always in what Wallace did the sign of the man who seeks truth with the ardour of a lover of truth and with contempt for conventional acceptances. He believed that the subtle are as apt to err as the simple, and in that belief all great men have shared. As he risked his life for science, so he risked his reputation in support of causes and beliefs uncongenial to orthodox science. In reverence it must be said that Wallace exemplified the divine truth that he that loseth his life shall save it.

His old age was serene, and like all serene old men, from Diocletian to Darwin, Wallace turned more and more in his advancing years to the cultivation of his garden.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will take place on the 18th inst., in the Vincent Square Hall, Westminster.

A Fifty-Guinea Cup for Garden Design.—Messrs. J. Cheal and Sons have been awarded the fifty-guinea gold cup which was offered at the recent Ideal Home Exhibition, for the best model of a garden design.

Royal Meteorological.—A meeting of this Society will be held at the Institution of Civil Engineers, Great George Street, Westminster, on Wednesday, November 19, 1913, at 7.30 p.m., when papers will be read on "The Daily Temperature Range at Great Heights," by W. H. Dines, F.R.S.; and "Eddy Wind of Gibraltar," by Mr. Henry Harries.

National Chrysanthemum Society.—The annual dinner will be held in the Holborn Restaurant on the 28th inst., when the President, Sir Albert Rollit, will preside. On Wednesday, December 10, a special show and conference will be held at Essex Hall, Essex Street, Strand. The proceedings will commence at 1 p.m., when the show will be opened. The novelties submitted to the Floral Committee will be on view in the Lower Hall at 4 p.m. At 7 p.m. the conference will take place in the Lower Hall. Mr. Norman Davis will read a paper entitled "The Evolution and Development of Outdoor Chrysanthemums." This will be followed by a paper by Mr. Thomas Bevan on "Chrysanthemums for Outdoor Garden Decoration," illustrated by limelight views.

Box Hill.—The news that Box Hill is to be preserved to the public will give pleasure to all who know that stretch of beautiful Surrey country. Thanks to the munificence of Mr. Leopold Salomons, some 235 acres east of the river Mole, and skirted on the south by the Pilgrims' Way, have been rescued from the prospect of falling into the builder's hands, and have been made over to the public. The property will be vested in the National Trust, which body, together with the Commons and Footpaths Preservation Society, opened up the negotiations for purchase now brought to such a happy issue.

A Bomb Among Cactuses.—A wanton outrage was committed on Tuesday, November 11, in the Cactus house at Alexandra Park, Manchester. A bomb exploded in the early hours of the morning and destroyed a portion of the house, and although the plants were not damaged directly, it is feared that their enforced exposure may have bad results. The Manchester collection of succulents was made by the late Mr. C. Darrah, of Heaton Mersey, and was presented by his widow to the city.

Basic Slag Unsuitable for Tennis Lawns.—The use of basic slag, which was recommended inadvertently for supplying phosphates to grass on lawns, is to be deprecated for this purpose. Though excellent for pastures, basic slag should not be used on tennis-lawns, owing to the fact that it encourages the growth of Clover. We are grateful to a correspondent, Mr. Alfred Brown, of Woking, for drawing our attention to this point, which we ourselves have on more than one occasion insisted on in these columns.

A New Agricultural Journal.—We welcome the appearance of the *Agricultural Journal of Behar and Orissa*, and can well believe from its contents that it is destined to do useful work for Indian agriculture. Thus we learn that the Indian agriculturist still regulates his cultivation—seed-sowing, irrigation, and the like—by the stars; we learn also that the native plough is as inefficient as it is ancient, scratching the surface lightly, and requiring to be run over the ground several times. Mr. N. S. McGowan is endeavouring to induce the native cultivator to use a more efficient iron instrument. Manuring does not come much as yet into the Indian's scheme of cultivation, and the *Journal* seems to think that the native will not take kindly to artificials. Surely there is a great scope for native instructors, for it would seem that in the task of ameliorating Indian agriculture it is as necessary to know Eastern minds as well as Western methods.

Lemon Oil Substitutes.—The *Chemist and Druggist* for September 20 draws attention to the use by aerated water manufacturers of Lemon oil substitutes in the preparation of lemonade; the substitution being in consequence of the high price that has prevailed of late for the true oil of Lemon. It is further stated that the basis of these substitutes is invariably citral, obtained either from the oils of Lemon-grass or of Eucalyptus Backhousia. It is, however, satisfactory to learn that this year's Lemon crop is from 40 to 50 per cent. larger than that of last year, which was a small one.

Precocious Flowering of Begonia Tubers.—Writing in the Austrian *Garten Zeitung* (10, 1913), Dr. Jevenko draws attention to an interesting observation on the premature flowering of certain tuberous-rooted Begonias which had been wintered in the ordinary way and brought into a warm house in February. Most of the plants developed vegetative shoots in the normal manner; but one tuber which had formed no root proceeded at once to flower. The phenomenon, which is by no means uncommon, attracted the attention of Mr. Doposcher Uhler, who undertook experiments (see *Flora*, civ., 1912), to ascertain whether the prematureness of flowering is to be attributed to the lack of roots. He found that the formation of flower-shoots or of vegetative shoots may be determined at will. If roots are allowed to form, vegetative shoots are developed in the normal manner; but if root formation be suppressed the tuber proceeds at once to form a flowering shoot.

Fig. 124.—Aster Miss Southall trained as a standard.
(*See page* 338.)

Treatment of Hard Seeds.—It is well known that the seeds of many Leguminosæ, and particularly the Cæsalpineaceæ and Mimosaceæ, do not readily imbibe water, and hence germinate tardily. Experiments by Mr. E. Verschaffelt (*Rec. Trav. bot. Néerl.* ix. 4, 1913) show that this defect may be remedied by treating the hard seeds with alcohol. The more rapid swelling, which occurs when the treated seeds are placed in water, is accounted for in the following way:—The alcohol penetrates into the seed

coat through the micropyle or other minute openings in the seed coat, into which water cannot pass. Once the spaces in the coat are filled with the alcohol, water, which mixes readily with alcohol, passes by diffusion into the integument.

HORTICULTURAL TRAINING FOR GOLF CADDIES.—The Committee of the Northwood Golf Club have lately been engaged in formulating a scheme by which many of the evils attendant on such a blind-alley occupation as that of the golf caddie may be avoided. They have now arranged to employ a permanent staff of caddies, who are on duty from Monday to Friday in each week. The boys receive a regular weekly wage, are provided with lunch, and are employed for regular hours each day. During such hours those caddies not actually carrying clubs are engaged in gardening work, either on the golf course or in a garden which has been specially made for the purpose. They are taught in this way the principles of elementary gardening, which will form the basis of a means of livelihood when they leave the club. The scheme will probably pay its way after the initial outlay on garden tools, preparing of the ground, etc., has been refunded, and the discipline and training will be of inestimable benefit to the boys employed.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

THE TRADE A CENTURY AGO.—Permit me to supplement the articles on the antiquity of the seed trade by Messrs. Roberts and D. McDonald, and especially to furnish the back record of Cooper, Taber and Co., which, as Mr. McDonald writes, is exceedingly interesting. First, however, allow me some historical facts of a more general character. Through the kindness of my friend Mr. John C. Gould, of Sleaford, I have had an opportunity of perusing a work entitled "*Systema Horticulturae; or, The Art of Gardening*, by J. Woolridge, Gent, third edition (London). Printed for Thos. Dring at the Harrow, over against the Inner Temple Gate in Fleet Street, 1688. Bound up with this book is a Catalogue of Seed, Plants, etc. Sold by Edward Fuller, at the Three Crowns and Naked Boy, at Strand Bridge, near the Maypole; Theophilus Stacy, at the Rose and Crown without Bishopsgate, and Charles Blackwell at the King's Head, near Fetter-Lane-end in Holborn, London." The book being in its third edition proves that considerable attention was then being paid to the art of gardening, and that the trade in seeds and plants was a recognised business. It is a fair inference that the three seedsmen named above were contemporaneous with the Mr. Crouch mentioned by Mr. Roberts. The seed and plant catalogue of Robert Furber, of Kensington, issued in 1730, with a splendid set of engravings, entitled *Twelve Months of Flowers*, of which I possess a copy, is evidence that he had been established for several years. His list of patrons included the famous hymn writer, Dr. Watts. Drummond, of Edinburgh, was a prominent seedsman in 1754, *vide The Scots Gardiners' Director*, by Jas. Justice, where the catalogue is printed in its entirety. Benjamin Townsend, mentioned by Mr. McDonald, was no doubt the successor of Edward Fuller, who in 1688 carried on business at the "Three Crowns and Naked Boy." I have some reason for believing that a seedsman named Child was in business in Pudding Lane long before any of the firms mentioned above. In the early sixties I entered the firm of Beck, Henderson and Child, and was often told that long before the amalgamation with J. and J. Field an ancestor of Mr. Geo. Child (then a partner in Beck, Henderson and Child) had carried on a prosperous business in the City of London, and occupied an honorary post (Common Councilman I believe) in the Corporation, and that the firm of Field was their principal competitor. However this may be, definite and reliable information respecting the pedigree of Cooper, Taber and Co. dates from 1771, when John and John Field and Minier and Co. appear in the list quoted by Mr. Roberts. It may here be noted that in 1771 Edward Cross carried on a seed business at 152, Fleet Street, and that a seed business was carried on at the same address until 1878, when Robert Cooper, the last occupant, removed to 90, Southwark Street, now occupied by Cooper, Taber and Co. About 1810 the competing firms of Field and Child were amalgamated, and the business was carried on at Pudding Lane until 1850, when it was added to the West-End firm of Beck, Henderson and Co., and under the name of Beck, Henderson and Child it existed until 1870, when Mr. Child, the only surviving partner, disposed of the business to Waite, Burnell and Co. The business of Beck and Co. was founded by John Beck in the latter half of the eighteenth century; in 1827 it was known as Beck, Allan and Shearman. Mr. Allan retired in 1835, and under the name of Beck, Shearman and Co. it was continued until in 1839 Robert Henderson, of Berwick, joined the firm, which was known as Beck, Henderson and Co. until the amalgamation with Field and Child in 1850. Retracing our steps to the firm of Minier and Co., although they are noted by Mr. Roberts as flourishing in 1771, they had been in existence many years before. In 1884 Mr. Wm. Nash showed me some of the contracts made by Minier and Co. 120 years prior to that date. As the contracts were on an extensive scale it was evident that the firm must have been for fully twenty years in business, so that it is safe to assume that it was founded at "Ye Orange Tree, No. 60, Strand," about 1740 or thereabouts. Between that date and 1880, when it was amalgamated with Waite, Burnell, Huggins and Co., it appears to have passed through a somewhat varied experience, as the following changes of firm-name will show:—In 1771, Minier and Co.; 1775, Minier, Mason and Teesdale; 1781, Minier, Mason, Teesdale and Minier; 1796, Minier, Minier and Fair; 1813, Minier, Minier and Nash; 1836, Nash, Adams and Nash; 1839, Minier, Adams and Nash; and a few years later, Minier, Nash and Nash, which name continued until the amalgamation with Waite and Co. in 1880, when the combined businesses were known as Waite, Nash, Huggins and Co. John Mason retired from the Minier firm near 1790, and took on the business of seedsman and netmaker at the sign of "Ye Orange Tree," at 152, Fleet Street, which was carried on by Edward Cross in 1771. A very complete catalogue, issued by Mason in 1793, is preserved in the library of Cooper, Taber and Co. It is a leather-bound book of 110 pages and is embellished with steel engravings of Double Hyacinths and Anemones. The title page reads as follows:—"Fine Double Hyacinth and other various Flower Roots and Seeds, Imported chiefly from Holland, France, America, Italy, Botany Bay, etc., by John Mason, Orange Tree, 152, Fleet Street." A similar catalogue appeared in 1800. In 1816 John Mason took his son into partnership, and the firm became John Mason and Son, until in 1827 Mr. Noble, a nephew, and a Mr. Goude took over the business and carried it on for three years as Mason and

FIG. 125.—ASTER CLIMAX GROWN ON THE SINGLE-STEM SYSTEM.

(See page 338.)

Goude. In 1830 the brothers W. and J. Noble became sole proprietors, and carried on the business under their joint names, until in 1848 they both died of cholera. In 1849 the surviving son of W. Noble "admitted to partnership Robert Cooper and John Bolton, both of whom had had long practical experience in his establishment," and the firm was known as Noble, Cooper and Bolton until June, 1867, when, by the retirement of John Bolton, Robert Cooper became sole proprietor and carried on the business under his own name, first at 152, Fleet Street, and, after the lease expired in 1878, at more commodious premises in Southwark Street. Mr. Cooper died in 1885, and shortly after, the executors decided to turn the business into a company. An amalgamation was effected with Taber and Cullen, a well-known firm of seed growers at Rivenhall, Essex, and the company was registered under its present title in 1887, with Mr. H. T. Huggins, formerly of Waite, Nash, Huggins and Co., as manager. In 1888 the firm of Waite, Nash and Co. was incorporated with C. T. and Co., and the surviving partners, Harry Simpson and F. Taylor, joined the board, the first-named becoming also the secretary. The same year the business of Hy. Clarke and Son, of Covent Garden, was also acquired. Originally established by James Clarke at 121, Leadenhall Street in 1815, it passed into the hands of Henry Clarke, the son, in 1823. A few years later a portion of the business was sold by auction, and the headquarters were transferred to Covent Garden, where it was known as Hy. Clarke and Son until 1888. A further incorporation took place in March, 1899, when the firm of Rutley and Silverlock, of the Savoy, passed into the hands of the Southwark company. This business was established in the Strand in 1840 by Geo. Batt, who was formerly connected with Beck, Henderson and Co. Later on Mr. Rutley, a former apprentice of Mr. Batt, and Mr. Silverlock, of Chichester, were taken into partnership. After Mr. Batt's death the name was dropped, and the firm was known as Rutley and Silverlock until its absorption by C. T. and Co. In 1912 the business of Howcroft and Watkins was also acquired. Originally founded by Geo. Charlwood in Covent Garden near the year 1820, it was known later as Charlwood and Cummins, but about forty years ago Mr. Howcroft, a traveller for Minier and Co., and Mr. Watkins, a relative of his, acquired the business and carried it on in their own names until the transfer in 1912. In 1905 Howcroft and Watkins purchased the business of Jacob Wrench and Sons, Ltd., and removed their headquarters to the premises occupied by Messrs. Wrench in Miles Lane, E.C. The firm of Wrench was one of the oldest and most respected in London, and the claim made by them that they had been in business 150 years appears to be well founded, seeing that in the *P.O. Directory* for 1794 the firm appears as Jacob Wrench and Sons, 126, Lower Thames Street. In 1839 the business was removed to King William Street, near London Bridge, and remained there until closed up in the way recorded above. A few words regarding the business of Waite and Co. will complete the tale. About 1830 J. G. Waite started as a seed grower and market gardener in Camberwell, and prospered so well that he removed to Hatton Garden and soon did an extensive English and foreign trade. At his death his stepson, John T. Burnell, who had practically managed the business for several years, entered into partnership with Henry Huggins and Felix Taylor, and as Waite, Burnell and Co. the business was carried on first at 181, High Holborn, and later in specially constructed premises at 79, Southwark Street. On the accession of Mr. Hy. Thos. Huggins to partnership his name was added to the firm's title, and when a few years later Mr. Burnell retired, the business of Minier and Nash having been amalgamated with it, it was continued as Waite, Nash, Huggins and Co. until Mr. Huggins retired and assumed the management of the business of Robert Cooper, as stated above. After the death of Messrs. William and George Nash an incorporation was effected with Cooper, Taber and Co., and the name of Waite disappeared. Such is a bare outline of the history of the various firms and companies which have built up the business of Cooper, Taber and Co., Ltd., as it exists to-day. It will readily be admitted that such a history is certainly unique. To the writer the most interesting point is that all the sheep who have at one time or another strayed from the fold have found shelter therein again. *S. B. Dicks.*

———I wonder whether Mr. W. Roberts, who has unearthed so much that is interesting, can tell me anything about Jas. C. Tate, who dealt in Mexican plants, apparently both living and dried, in 1833-4, and wrote from the "Botanic Garden," Sloane Street, Chelsea, at that date, to the late Sir William Jackson Hooker, offering dried plants, collected by a Mr. Staples, whom, also, I have not been able to trace? Sir William Hooker eventually purchased a selection of the dried plants, and these correspond, in part at least, both in labelling and naming, to specimens in the Candollean herbarium described by De Candolle. So far as my investigations go this Jas. C. Tate was not connected with the Physic Garden of the Company of Apothecaries at Chelsea. I may add that other nurserymen of the period styled their gardens "botanic gardens." *W. Botting Hemsley.*

Apple Nelson's Glory.—Reference is made to this Apple by Mr. Wilmot Yates (see p. 308), and I should like to say that when the orchard here was formed, about thirty years ago, I included, among the trees planted, one of Nelson's Glory. I found it identical in growth with Warner's King. The fruit was also the same, except that on the south side of the tree a few fruits assumed a pale red tint, which I have never seen in the case of the original trees of Warner's King. This slight variation, however, would not lead me to consider the Apple a distinct variety. I do not think it an advisable one to plant in an orchard; in fact, I am gradually clearing away the trees of Warner's King to make room for superior sorts, such as Bramley's Seedling, Newton Wonder, and Grenadier. *E. Molyneux, Swanmore Park Farm, Bishop's Waltham.*

Seven-Flowered Sweet Pea Spray.—It may interest Mr. Parkin and other readers to know that a spray of Sweet Peas was cut here during the last week in June which bore five fully-expanded blooms, another partially expanded, and a bud just formed, making seven in all. The flowers were in proper position and of natural formation. The length of the flower-stem was about 16 to 18 inches. The ground had been thoroughly trenched before the plants were put in, and all weak, lateral growths were removed as often as required to give the main stems plenty of room for light. I may mention that we had quite a number of sprays with five blooms of several varieties, and fours were innumerable. The variety which gave us the seven-flowered spray was Red Star. *H. Turner, Scrlby Hall Gardens, Bawtry.*

Runner Beans.—I enclose a bunch of Runner Beans composed of 10 pods: together they measure over 7 feet. Is this not rather unusual in the middle of October? *R. Peal, Ewell, Surrey.* [This is a very fine bunch, for every flower set and produced a Bean, which is a rare occurrence.—Eds.]

Antirrhinums at Wortley Hall, Sheffield.—On the occasion of a recent visit to Wortley Hall I was impressed by the display of Antirrhinums in the flower garden immediately in front of the residence. There were fourteen beds, containing together about 2,000 plants, the height of the plants varying from 1 foot to 5 feet, and the colours representing shades of pink, crimson, gold, white and apricot amongst the taller varieties, whilst the intermediate sorts included Orange King, Fire King, and similar varieties. There were fourteen beds, and many of these were 8 feet by 5 feet, whilst a few measured 30 feet by 6 feet. I ascertained that the seeds were sown in February in gentle heat; the seedlings were pricked out in a cold frame at the end of April, and planted in the beds in the first week of June. They were in full flower at the end of July. The soil had received no preparation as regards manure, and had merely been dusted with soot occasionally; apparently the soil was in a moderately poor condition. The display was in every sense very remarkable, and reflected very great credit upon the gardener, Mr. J. Cairns. *A. U.*

A New Vegetable and Its Origin.—In the leading article with the above title (*Gard. Chron.*, November 8, p. 324), the writer comments upon the transformation of the wild Radish, etc., into succulent vegetables, and suggests "that the succulence exists potentially in the wild plant; that it is not succulent in the wild state only because the conditions for the development of this quality and qualities dependent thereon are not forthcoming; that it might exhibit this quality as soon as it found itself in suitable soil; and that it would lose it with equal rapidity if caused to return to the place whence it came." The conclusion is that "this transformation . . . has nothing to do with the acquirement of new characters in response to new conditions of life." The writer must surely fail to see that there is no opposition but identity between these two quotations. "Potentiality" is only recognisable by the fact of the actual acquirement of succulency. It is not as if "succulency" lay dormant. Take Carrière's experiments with the seed of the wild Radish. Sowing it in a "stiff" soil he got mainly Turnip Radishes, but in a fine, alluvial soil near Paris he got mainly fleshy, spindle-shaped ones. What does this mean? That the Radish, like all other root crops, has "potentially" the responsive power to acquire such characters as the "direct or definite results of changed conditions of life." This description of Darwin's fully meets the case. Conversely, when I sowed seed of the Turnip Radish in a very fine and sandy soil 60 per cent. reverted to the wild form. How the changes are wrought no one knows, and most likely will never know, as it is executed by life, and we do not know anything as to what life is or whence it came, or how it acquired its powers to enable organisms to vary at all. There seems to be elsewhere objections to the present-day acceptance of "self-adaptation," instead of "natural selection," as the true basis of the origin of species. "Darwinians" have strangely overlooked Darwin's own alternative to his theory of natural selection. He admitted in later life that it was his "greatest mistake" not to have emphasised it, but there is no want of evidence of his convictions in his *Variation of Animals and Plants under Domestication* and in the sixth edition of the *Origin*. He accused Mivart of making him attribute the origin of species to natural selection alone, and I must say I have never seen any other view held by writers since. Yet if the reader will turn to p. 421 in the sixth edition he will perceive what Darwin thought of those who never recognised his alternative (see below). His exact words describing this alternative are as follows:—"The direct action of the conditions of life, whether leading to definite or indefinite results, is a totally distinct consideration from the effects of natural selection. . . ." "By the term 'definite action' I mean an action of such a nature that, when many individuals of the same variety are exposed during several generations to any change in their physical conditions of life, all, or nearly all, the individuals are modified in the same manner. A new subvariety would thus be produced without the aid of selection." (*Var. of An. and Pl. under Dome.*, Vol. II., pp. 271, 272). Turnip Radishes are thus accounted for. Life is not a force, but, as Sir O. Lodge says, a "director of forces." All known forces are lifeless, so are all known kinds of matter. It is, therefore, life which rules the physical forces, so that they move lifeless matters derived from food, when new cells, tissues and organs are built up with purposeful uses in adaptation to new external conditions of life. This is the view of botanical "ecologists" who study plants at home, as this word means. Thus Professor Warming, speaking of drought plants of Brazil, says:—"If I am asked whether I attribute this to natural selection or to self-adaptation, I prefer the latter interpretation." This is the conclusion which forty years' study has convinced me is the right one, and that it is his alternative explanation which will undoubtedly in time support his theory of natural selection. This is what he says about the neglect of his readers to notice his conclusions about the variations in relation to adaptive structures: "My conclusions have been much misrepresented," though he wrote in the introduction to the first edition of the *Origin*: "I am convinced that natural selection has been the main, but not the exclusive, means of modification." "This

has been of no avail. Great is the power of steady misrepresentation, but the history of science shows that fortunately this power does not long endure." This was written in 1872. Forty years have elapsed, and this misrepresentation still exists. *George Henslow.*

———With regard to your very interesting article (p. 324) on Allium triquetrum as a useful vegetable, its writer may be reassured as to the plant's hardiness. So little fallacious would be the hope that A. triquetrum might be expected to stand our climate, that it has long since proved its ability to do so by being a recognised member of our original English flora, its range extending as far north as Guernsey and Cornwall, by way of Spain, not of France. I may add that some odd bulbs of my own, raked up long since on the Ligurian Riviera, and poked into a waste corner of my Yorkshire garden, have there increased and multiplied for many years among the weeds without any further attention, so that tenderness, at least, is not to be expected of this latest vegetable. *Reginald Farrer.* [It is the hardiness in the extreme succulent condition, and not in the native state, that was under consideration by the writer of the article.—Eds.]

———I have not seen the report in the *Revue Horticole*, referred to in the interesting article on this plant as a new vegetable, but wherever I have seen Allium triquetrum growing in the South of France it has always been in damp, shady places, on the banks of streams or in shallow ravines. This plant, "common on the coast of Algeria," does, indeed, usually grow in Southern Europe, in natural conditions approaching those in which it is now being cultivated as a vegetable in N. Africa. Moreover, the plants I have seen are robust and succulent, and I well remember the trouble experienced in 1907 in drying herbarium specimens. The flower-stem is very triquetrous, the broad, channelled leaves are 18 inches or more long, and sometimes the white, tender, underground parts bear a distinct resemblance to an incipient Leek. These facts tend to show that, as you surmise, "the plant has not changed its nature at all," and that whilst growing on the sandy coast of Algeria "it did the best it could." My experience of the habitat of this plant in the South of France appears to agree with that given in books. Moist, shady places and borders of streams well describes the habitat, and in Guernsey it is not infrequent in hedges. It has perhaps been introduced into Guernsey, and also into Cornwall, for it seems to be a typically Mediterranean species, absent from the intervening region, but found in Spain and Portugal, the Balearic Isles, the French Riviera, and more rarely in the Italian Riviera, Corsica, though not in Sicily or Sardinia. But it nearly always grows within a few miles of the sea coast. Since writing the above I hear from my friend Mr. C. E. Salmon that A. triquetrum is abundant in parts of Jersey, where Lester-Garland says it is a "naturalised alien" and "spreading." *H. Stuart Thompson.*

Crinum Powellii (see pp. 198-308).—May I support the evidence you have already given touching upon the hardiness of this plant? It grows very vigorously with us on a west border, and flowers every year. In order to be on the safe side, the plant is protected by a slight covering of ashes when the foliage dies down, but I question the necessity of this precaution—at least in any ordinary winter—as an acquaintance of mine at Child's Hill never protects his plants, and they show no signs of harm from frost. *C. Turner, Ken View Garden, Highgate.*

Silver-Leaf. — Now that silver-leaf disease is being so much discussed, it might be of interest to know if any of your readers have had an experience similar to the following :—Among my Tomatos I have had for several seasons past a few plants, perhaps one or two per thousand, on which the leaves have developed, if not the same thing, a very similar silvery appearance to the well-known silver-leaf. These plants, not being profitable, have in the past been pulled out as soon as noticed, so what the end would have been I cannot say; but I purpose on the next appearance of this condition to forward a plant for your inspection. *G. Lamb, Swanley.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

November 4.—*Present*: Mr. E. A. Bowles, M.A., in the chair; Sir Everard im Thurn, Messrs. C. E. Shea, J. T. Bennett-Poë, R. H. Pearson, A. Worsley, E. M. Holmes, J. Fraser, G. Wilson, G. Gordon, and F. J. Chittenden (hon. sec.).

Decaisnea Fargesii Fruiting. — Mr. R. W. Wallace exhibited fruits of Decaisnea Fargesii from a garden in the East of England. The curious Bean-like, but fleshy fruits of this Berberidaceous plant are produced frequently in the West of England, but this is the first instance known to any member of the Committee of their ripening in the open in East Anglia.

Scented-leaved Pelargoniums.—Mr. J. Fraser continued his observations on the history of these plants in gardens, illustrating his remarks as usual by means of beautifully dried specimens from the Wisley collection.

Quilled Chrysanthemums.—Mr. Worsley showed flowers of quilled Chrysanthemums from his garden, where he had none hitherto, these having been raised from seed ripened there, and apparently from plants not crossed with any quilled form. Mr. Shea remarked that Chrysanthemums rarely set seed without cross-pollination, and suggested that the pollen may have been brought by insects from a neighbouring garden. The earliest drawing of a Chrysanthemum was exhibited, and apparently showed traces of quilled flowers, so that the early-introduced plants no doubt brought this character with them.

Carnation-Chrysanthemum Graft.—A correspondent from Greenock sent Chrysanthemum flowers from plants which he claimed to have grafted on Carnation stocks, and said that the flowers varied from those of the plants from which the scions were taken. The Committee were unable to see whether the grafting had actually occurred or whether the scions had produced roots, and sought further information.

Organisms in an Orchid House.—Some curious seeds were referred to the Committee by the Orchid Committee, to whom they had been sent as insects which infested an Orchid house, without, however, any damage being traceable to them. They were the seeds of some plant, probably an Oxalis, which had been scattered by the plant over the house, and bore a distant resemblance to minute beetles, without legs.

Multiple Pear.—Mr. Druery showed a multiple fruit of Pear formed from a summer flower in a garden at Acton. It appeared to consist of parts of four Pears in close contact, but was no doubt derived partly at least from the cortical tissues of the lower parts of the flower-stalk.

Peloric Cattleya.—Mr. G. Wilson showed a peloric form of Cattleya labiata alba, remarking that peloric forms of albinos were decidedly rare.

Iresine Sporting.—Mr. Longmire, of Clapham Common, showed a shoot of Iresine acuminata, in which the normal red foliage had been replaced on one side of the shoot by green leaves yellowish along the veins. The leaves and shoots were arranged so that alternate leaves on the one side of the stem were green, while the intervening leaves were half green and half red. The shoots in the axils of these leaves were green or half green and half red respectively. Shoots propagated from either side came true to these variations.

SCOTTISH HORTICULTURAL.

November 4.—The monthly meeting of this association was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on the 4th inst. Mr. King, the president, occupied the chair, and there was an attendance of 115 members.

Dr. W. G. Smith, of the Edinburgh and East of Scotland College of Agriculture, delivered a lecture, with limelight views, on "The Influence of Drought on Plant Form." The large size and rapid annual growth of many tropical and aquatic plants presented, he said, a strong contrast to the dwarfed form of plants grown under drought conditions. The Cactus house furnished examples of extreme drought forms evolved in hot climates with low rainfall. The rock garden, a more familiar place for observation, contained numerous examples. Here plants from many varied types of natural habitats were grown together and required a very varied treatment. The one feature in common was inability to withstand competition, and to escape this a rock life was adopted, but as rocks occurred mainly in exposed places the plants must be able to meet special conditions, of which drought was important. The modifications of plant form were illustrated from experiments on plants grown at high and low altitudes, those at high levels becoming dwarfed and otherwise modified like true alpines. The liability of many alpine plants to vary under lowland cultivation was mainly due to the new environment. All rocky places tended to promote the same types of plant form, and this was illustrated in the case of limestone vegetation. The influence of peat was to produce drought forms, notably the Heaths. Sand was another habitat inducing adaptations for drought.

The exhibits were: New Single Chrysanthemum Lady Cayzer, exhibited by Mr. R. H. Cockburn, Gartmore, Perthshire; Single Chrysanthemums Miss H. M. Cowan, Ceddie White, Miss Callender, and Weston Gem, exhibited by Mr. W. G. Pirie, Dalhousie Castle, Bonnyrigg.

A Cultural Certificate was awarded to Mr Pirie, for his Chrysanthemums, and to Mr. W. H. Sands, Hillsborough, Co. Down, for tubers of Potato Irish Gem, exhibited at the previous monthly meeting.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

October 26.—*Committee present*:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, W. H. Hatcher, J. Howes, J. Lupton, D. McLeod, C. Parker, W. Shackleton, H. Thorp, Z. A. Ward, G. Weatherby, A. Warburton, and H. Arthur (secretary).

A Large Silver-Gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), who staged a fine group of Odontoglossums and other Orchids.

Silver-Gilt Medals to A. Warburton, Esq., Haslingden (gr. M. Dalgleish), for a miscellaneous group, and W. R. Lee, Esq., Heywood (gr. Mr. Branch), for a choice group of Cypripediums.

Large Silver Medal to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for Odontoglossums in variety.

Silver Medals to Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes); Rev. J. Crombleholme, Clayton-le-Moors (gr. Mr. Marshall); Messrs. Cypher and Sons, Cheltenham; Messrs. A. J. Keeling and Sons, Bradford, for miscellaneous groups.

Other exhibitors included Col. J. Rutherford, M.P., Blackburn (gr. Mr. Lupton), and O. O. Wrigley, Esq., Bury (gr. Mr. Rogers).

NEW AWARDS.

First-Class Certificate.

Cattleya Iris "*Walton Grange*" *var.*, a round, evenly-coloured flower, with bright lip, shown by Wm. Thompson, Esq.

Award of Merit.

Cypripedium Actaeus var. "*leucoxantha*" (bianca × Actæus); *Odontoglossums ardentissimum Violette and Plotinum*, all shown by Wm. Thompson, Esq.

Odontoglossum × *Ne Plus Ultra* (a Cultural Certificate and Bronze Medal were awarded for excellence of culture); and *Cattleya Armstrongiae var.* "*Jasper*," both shown by Z. A. Ward, Esq.

Cattleya Isidor (Mantinii × gigas), from A. Warburton, Esq.

Odontoglossum amabile var. "*Bella Donna*," from R. Ashworth, Esq.

Cypripedium Tracyanum var. "*Virginale*" and *Oncidium bicallosum*, both from Messrs. A. J. Keeling and Sons.

HIGHGATE CHRYSANTHEMUM.

November 5.—The 29th show of this society was opened by the Mayor of Hornsey, at the Alexandra Palace, on the 5th inst. The quality of the exhibits was generally very good and there were 160 entries in the various classes.

The society, which is in its thirtieth year, is to be congratulated upon the results of this latest effort.

In the class for 24 Japanese blooms, in eight distinct varieties, A. Franks, Esq., Highgate (gr. Mr. S. North), won the 1st prize. Notable blooms in his exhibit were Rose Pockett and O. H. Broomhead. C. E. Webb, Esq., Hampstead (gr. Mr. J. Clement), was placed second. Miss Wyburn, Barnet (gr. Mr. Jones), was placed first for 24 Japanese blooms in not fewer than 18 distinct varieties; her best specimens were Mrs. R. Luxford, D. B. Crane and Frank Payne; 2nd, E. F. Powell, Esq., Brondesbury Park (gr. Mr. G. Wilson). Mr. Jones also won the premier prize in the class for twelve white and twelve yellow Japanese blooms, showing the Hon. Mrs. Lopes, Mrs. A. T. Miller and White Queen exceptionally well. J. Gemmell, Esq. (gr. Mr. J. Hinnell), staged the best exhibit of twelve Japanese blooms, distinct; whilst H. Scallard, Esq. (gr. Mr. Gosling), won in the class for six Japanese blooms, one variety, with goodly-shaped but poorly-coloured specimens of Reginald Vallis. Mr. Jones again excelled in the class for specimens of incurved and Japanese varieties with Romance and Bob Pulling respectively. Mr. Powell showed the best three vases of incurveds, the varieties being C. H. Curtis, Edwin Thorp and H. Hearn. The same exhibitor also showed the best three vases of Japanese blooms. In the class for six vases of Japanese blooms, Miss Abethell, Devonshire Lodge, Muswell Hill (gr. Mr. E. P. Cooper), gained the leading award with a remarkable collection, which included the varieties Mrs. J. Mileham, Frances Jolliffe, Sir Frank Crisp, White Queen, and W. Mease; 2nd, Mr. Gemmell. Miss Wyburn was again successful in the class for one vase containing six Japanese blooms, distinct varieties, Lady Talbot and Sir F. Crisp being the best blooms. Mr. Riches, Hornsey, excelled in the class for a vase of Pompon varieties, a bloom of the variety W. Sabey being especially good. The class for three vases of Japanese flowers, distinct, brought a keen competition, and Miss Abethell was successful, Messrs. Hinnell and Clement being second and third respectively. The winning exhibit contained a beautiful bloom of Valerie Greenham, measuring 14 inches across. Miss Abethell also led in the class for six incurved and six Japanese blooms, the variety Triomphe de Montbrun being prominent.

Some of the amateur exhibits were excellent, and the vase of singles set up by Mr. Highatt, Finchley, was the best in the show. Magnificent blooms of Sylvia Slade, Florrie King, Mentor and Bronze Pagram were included in this exhibit. Mr. Marriott, Hornsey Rise, staged fine blooms in the class for eight Japanese varieties, the variety W. Mease attracting especial attention. In his 2nd prize exhibit of four bush plants Mr. Cooper showed a new white seedling Japanese incurved, the result of a cross between White Queen and Mrs. A. T. Miller. The variety named B. G. A. seems very promising. The exhibits of vegetables were good, and Mr. Gosling succeeded in gaining outright the Cup presented by Messrs. James Carter and Co., winning it for the third time.

PUTNEY, WANDSWORTH AND DISTRICT CHRYSANTHEMUM.

November 5 and 6.—The thirty-sixth annual exhibition of this society took place in the Town Hall, Wandsworth, on the above date, and in some respects it was one of the finest the society has held. The competition in the class for a semi-circular group of Chrysanthemums was very keen, no fewer than six groups being staged. The first prize, consisting of a silver cup, given by the tradesmen of Putney, and 20s., was won by A. J. Pickett, Esq. (gr. Mr. W. Limmer), with a very meritorious exhibit: Alderman J. W. Lorden (gr. Mr. Walton) followed closely, and Mrs. Berry de Brown (gr. Mr. J. H. Payne) was 3rd. There were four entries for a group of miscellaneous plants, the prizes being won by Mrs. Berry de-Brown, Dr. Lacroze, and A. J. Pickett, Esq., in the order named.

For the best six vases of Japanese Chrysanthemums, three blooms in a vase, Mme. Thunder, The Convent, Roehampton (gr. Mr. A. Smith), was awarded the 1st prize for magnificent examples of Rose Pockett, Mrs. W. T. Smith, Reginald Vallis, Eclipse, H. E. Converse, and Bryant's Beauty. The 1st prize for 24 blooms shown on boards was won by the same exhibitor. This exhibit included the premier bloom in the show, a very fine specimen of Lady Talbot. Other prominent exhibitors in the classes for cut blooms of the Japanese type were: The Dowager Countess of Kintore (gr. Mr. D. Anderson), J. F. Schwann, Esq. (gr. Mr. W. Gill), and Geo. Fores, Esq., Raynes Park (gr. Mr. C. Pullen).

The classes for single Chrysanthemums, shown in vases, were well filled, the Dowager Countess of Kintore winning the 1st prize for six vases disbudded, and Dr. H. W. Hoffman (gr. Mr. T. Dolley), in the class for blooms not disbudded. Vegetables were not so numerous as usual. For prizes offered by Messrs. Jas. Veitch and Sons, Dr. Hoffman was placed first, whilst Geo. Fores, Esq., was first in the open class. The best Pears and Apples were shown by Mme. Thunder, the best black Grapes by Sir W. T. Lancaster, and the best white Grapes by J. F. Schwann, Esq. Gloire de Lorraine Begonias, always a great feature at this show, were well shown by T. Aikman, Esq., Wimbledon (gr. Mr. T. Pink), S. M. Napier, Esq., Putney Heath (gr. Mr. S. Mynett), being a good second. It was gratifying to note that the classes arranged for amateurs were on this occasion well filled.

Amongst the non-competitive exhibits was a splendid collection of vegetables from Messrs. Jas. Carter and Sons, Raynes Park, comprising about fifty dishes and containing many kinds not well known to the general public, such as Sweet Corn, Celeriac, Salsafy, Finochio, and Kohl Rabi, besides all the better known vegetables in season. Mr. L. R. Russell, Richmond Nurseries, lined the staircase with plants of his well known strain of Celosias, Crotons, and other foliage plants, including ferns, the whole having a very pleasing effect. Floral designs were shown by Messrs. Mahood and Son and Mr. W. R. Mann, both of Putney.

BIRMINGHAM CHRYSANTHEMUM, FRUIT AND FLORICULTURAL.

November 11, 12, and 13.—This society's fifty-third annual exhibition, held in Bingley Hall, on the above dates, was a good average show. Chrysanthemums, Begonias, Salvias, fruit and vegetables, were the principal features. Of Chrysanthemums, single and decorative varieties were extensively and well shown, but incurved and large-flowered Japanese varieties seemed to be fewer than usual. In the large plant group class some exceedingly well-grown and superbly-flowered specimens were exhibited, Mr. J. A. Kenrick's (gardener, Mr. A. Cryer) group being very meritorious, and perhaps the best of its kind ever seen at Birmingham. Mr. Cryer has succeeded in winning the leading prize in the principal group class for five or six consecutive years, and, although competitors have never come forward in great force, Mr. Cryer's exhibits have always been characterised by good culture and refined flowers.

Large specimen Chrysanthemum plants do not possess the attractions for either exhibitors or the public that they did formerly. For several years competition has been disappointing, and the prizes have been divided between two or three—generally two—exhibitors. On the present occasion Mr. Cryer was the only competitor in five of the six classes reserved for these plants. In the remaining class there were four exhibitors. Mr. Cryer was awarded the 1st prize in each of them.

As usual, many of the cut bloom classes were arranged on low staging down one of the bays near the centre of the hall: this method enabled visitors to examine the flowers in comfort. The effect of the flowers was further enhanced by the use of Palms as a background.

Primulas, which used to be uncommonly well grown in the Birmingham district, were represented by plants of indifferent quality, and Cyclamens left something to be desired.

The general arrangements were superior to those of previous years. Mr. C. H. Herbert (Staging Director) and Mr. A. Noakes (Secretary) are to be congratulated upon an innovation that met with general approval. A still further improvement would have been appreciated if it had been possible to keep the whole of the cut bloom classes more together, instead of distributing them over several parts of the hall. A beautiful effect was created by the Chrysanthemum plant group classes, which were arranged on both sides of the large central bay, leading to the band stand, and immediately facing the main entrance. The tables, decorated with Chrysanthemum flowers, which have generally been placed in the long narrow bay at the south side of the hall, among vegetables, were on the present occasion transferred to the body of the hall, and given greater prominence than hitherto.

There were upwards of one hundred exhibitors in the competitive classes, and about thirty in the non-competitive sections. The weather on the opening day was very wet.

Groups.

There were three group classes. The principal one was for a group occupying a space of 16 feet by 10 feet. Cut flowers in water and foliage plants were allowed. As already mentioned, the 1st prize was won by Mr. Cryer, whose collection of healthy, well-flowered specimens consisted largely of Japanese and incurved varieties. Single and decorative varieties were added for effect.

In the next class, which was smaller than the first-named, there were two exhibits. The 1st prize was awarded to H. Green, Esq., Gravelly Hill (gr. Mr. A. H. Fewkes), who had a large number of well-grown Japanese varieties, but some of the specimens were past their best. In the 2nd prize group, which came from the Horticultural College, Studley, decorative and single-flowered varieties were extensively used.

As in the big group class, J. A. Kenrick, Esq. (gr. Mr. A. Cryer) won easily in the class reserved for decorative Chrysanthemums, arranged as grown with foliage plants for effect, on a space of 12 feet by 8 feet. The plants were profusely flowered and beautifully arranged.

Specimen Plants.

Mr. A. Cryer was awarded first prizes for (1) six Japanese varieties, (2) six large-flowering varieties (Japanese excluded), (3) three Japanese varieties, (4) one large-flowering variety (Japanese excluded), (5) one Japanese variety, and (6) three single-flowered varieties. The 2nd and 3rd prizes in the last-named class were awarded to T. W. Piggott, Esq., Moseley (gr. Mr. R. Bullock), and Godfrey Nettlefold, Esq., Edgbaston (gr. Mr. J. Higley), respectively.

Cut Blooms.

There were three exhibits in the champion cut bloom class, which was for Japanese and incurved varieties, arranged on a table 18 feet long by 5 feet wide. Foliage plants were allowed, and exhibitors were at liberty to use any kind of vase or stand. The 1st prize of £8 and a silver challenge shield was won by Mr. Norman Davis, Framfield, Sussex (last year's winner), who showed massive, well-finished blooms, in stands of varying height, intermingled with Ferns, Crotons, and Selaginellas; 2nd, Mr. H. Woolman, Shirley; 3rd, Mr. John Sherratt, Burton-on-Trent.

In the next class, which was for single Chrysanthemums, to occupy flat table space of 8 feet by 4 feet, there were also three exhibits. The 1st prize was won by Major Everett, Knowle Hall, Knowle (gr. Mr. W. Newton), whose blooms were very large and beautifully fresh. Yellow shaded varieties predominated. 2nd, T. W. Piggott, Esq., The Lions, Moseley (gardener, Mr. Raymond Bullock).

There were five splendid exhibits in the class for twelve Japanese varieties, arranged on a table space of 6 feet by 3 feet. The 1st prize was won by Hugh Andrews, Esq., Winchcombe (gr. Mr. J. R. Tooley), whose specimens of W. Rawlings, Frances Jolliffe, G. J. Beer, John Peed, F. S. Vallis, W. Mease, Pockett's Crimson, Reginald Vallis, White Australie, Bessie Godfrey, Queen Mary, and Bob Pulling were interspersed with reddish-coloured, narrow-leaved Crotons. This exhibit was much admired. 2nd, T. W. Piggott, Esq. (gr. Mr. R. Bullock); 3rd, Mrs. Richard Peyton, Edgbaston (gr. Mr. A. W. Young).

In the class for 18 Japanese Chrysanthemums, one bloom each of three varieties in a vase, Lieut.-Colonel Beech, Brandon Hall, Coventry (gr. Mr. E. J. Brooks), excelled with magnificent blooms of F. S. Vallis, W. Turner, Francis Rowe, Queen Mary, W. Mease, Frances Jolliffe, Lady Talbot, Kara Dow, Madame P. Radaelli,

Hon. Mrs. Lopes, O. A. Bromhead, Miss A. E. Roope, Reginald Vallis, His Majesty, Fred Green, President Viger, and Mrs. D. Syme. 2nd, Mr. H. Woolman, Shirley, who had grand flowers of Lady Talbot, Miss A. E. Roope, Mrs. Gilbert Drabble, and Mrs. R. E. Whitby. 3rd, Hugh Andrews, Esq. (gr. Mr. J. R. Tooley).

The first prize for three Japanese varieties, three blooms of each, was also awarded to Lieut.-Colonel Beech (gr. Mr. E. J. Brooks), whose flowers of John Peed, F. S. Vallis, and W. Turner were large and richly coloured. 2nd, Mr. H. Woolman, Shirley, whose best flower was Mrs. G. Drabble. 3rd, J. H. Wheatley, Esq., Berkswell Hall, Coventry (gr. Mr. W. H. Westbury).

The best vase of three blooms of a pink coloured Japanese variety was exhibited by Lieut.-Colonel Beech (gr. Mr. E. J. Brooks), who had exquisite flowers of Reginald Vallis. The same exhibitor had the winning vase of a white-flowered Japanese variety, with W. Turner.

Mr. H. Woolman won 1st prizes in classes for (1) three blooms of any crimson coloured Japanese variety with His Majesty, and (2) three yellow Japanese varieties, with beautiful examples of Miss A. E. Roope.

There was spirited competition in the class for four varieties of single Chrysanthemums, eight sprays of each. 1st, James Booth, Esq., Claverdon (gr. Mr. M. V. Wall), with praiseworthy blooms of Countess of Egmont, Coronation, Ceddie Mason, and J. H. Greswolde Williams. 2nd, Mr. A. H. Hickman, Cookley. The last-named exhibitor took the lead in the next class, which was for six varieties of decorative Chrysanthemums, six sprays in each vase.

The winning exhibit of twelve varieties of incurved varieties came from H. F. Keep, Esq., The Grange, Edgbaston (gr. Mr. T. W. Davis), whose flowers of Clara Wells, Eclipse, and G. F. Evans were particularly good.

The 23 dinner table exhibits were a show in themselves, and found many admirers. The 1st prize was won by Mrs. Batchelor, Hampton-in-Arden, for a daintily arranged table, consisting of yellow and orange-coloured Chrysanthemums, relieved with sprays of Selaginella and Ampelopsis. 2nd, Miss Herbert, Acocks Green, who relied upon orange-coloured flowers; this was a very pretty table. Special prizes were offered by Mr. J. Udale, Droitwich, for three vases of such old-fashioned incurved varieties as Mrs. Dixon, Mr. George Glenny, and Mrs. G. Rundle. 1st, Mr. W. J. Wakefield, Harborne; 2nd, Mr. W. H. Price, Harborne.

Messrs. Wells and Co. offered prizes for the best bloom of one of three varieties, viz., Queen Mary, Mrs. Gilbert Drabble, and William Turner. The 1st prize was won by J. H. Wheatley, Esq., Berkswell Hall, Coventry (gr. Mr. W. H. Westbury), with a superb bloom of William Turner.

Mr. H. Woolman offered prizes for three vases of nine Japanese blooms in not fewer than six varieties. 1st, Mr. Thomas Clift, Saltley; 2nd, Mr. E. J. Holder, Bordesley Green.

Miscellaneous Plants and Flowers.

Messrs. James Randall and Sons, Shirley, were the only exhibitors in a class for cut tree Carnations, arranged on a space of 10 feet by 4 feet. The long-stemmed, richly-coloured flowers, tastefully arranged in masses, were much admired.

A class for twelve plants of Begonia Gloire de Lorraine, grown in pots, not exceeding 6 inches inside measurement, made a bright display. Many of the specimens were unusually large and profusely flowered. There were four entries, against eight a year ago. 1st, J. A. Kenrick, Esq., Edgbaston (gr. Mr. A. Cryer), who also won 1st prizes for (1) twelve Cyclamen, (2) six Palms, (3) one Palm, and (4) one tree Fern.

Godfrey Nettlefold, Esq., Edgbaston (gr. Mr. J. Higley), excelled in classes for (1) six Cyclamen and (2) six Primula obconica. Neville Chamberlain, Esq., Edgbaston (gr. Mr. J. P. Catt), showed the daintiest bouquet of Chrysanthemums, and Mrs. Greaves, Wormington Broadway, showed the winning basket of natural autumn-tinted foliage and berries.

The 1st prize offered by Mr. H. N. Ellison for six exotic Ferns was won by Mr. J. Higley, Edgbaston.

Fruit.

Fifteen classes were reserved for fruit. The class for a collection of British grown fruit maintains its hold upon the public, as was evidenced by the number of interested visitors who gathered round the three exhibits. The 1st prize was won by Hugh Andrews, Esq., Toddington Manor, Winchcombe (gr. Mr. J. R. Tooley), with good Gros Maroc and Gros Colmar Grapes, and a good selection of large, well-coloured Apples and Pears, decorated with Crotons and sprays of Ampelopsis. In the 2nd prize collection, which came from Lady Henry Somerset's garden, Eastnor Castle (gr. Mr. G. Mullins), Apples and Pears were particularly good. 3rd, the Earl of Harrington, Elvaston Castle, Derby (gr. Mr. J. H. Goodacre).

Separate tables, each 8 feet by 4 feet, were required in the next class, which was for a collection of British-grown hardy fruit. The 1st prize was won by A. Mitchell, Esq., Impney, Droitwich (gr. Mr. C. Crooks), who had remarkably well coloured Apples and Pears, also Medlars, and fruits of Passiflora edulis. 2nd, Lord Biddulph, Ledbury Park. 3rd, Mr. C. W. Powell, Hereford.

Hugh Andrews, Esq. (gr. Mr. J. R. Tooley), had the best six bunches of Grapes, in not fewer than three varieties, showing Black Alicante, Gros Colmar, and Muscat of Alexandria.

Lady Henry Somerset (gr. Mr. G. Mullins) showed the winning exhibit of three bunches of black Grapes, having well finished specimens of Gros Maroc. Hugh Andrews, Esq. (gr. Mr. J. R. Tooley), won first prizes for (1) three bunches of White Muscats, and (2) two bunches of white Grapes, Muscats excluded. The best of seven entries in a class for two bunches of black Grapes, reserved for local exhibitors, came from Godfrey Nettlefold, Esq. (gr. Mr. J. Higley).

Lady Henry Somerset (gr. Mr. G. Mullins) was awarded 1st prizes for (1) six dishes of culinary Apples, (2) six dishes of dessert Apples, (3) eight dishes of Pears, and (4) four dishes of Pears. There was very poor competition in the last four classes.

Vegetables.

The W. H. Parton Challenge Cup, open to societies whose headquarters are within a radius of six miles of the centre of Birmingham, was won by the Severn Street Allotment Association, Selly Park, with a very fine collection of twelve kinds.

Robert Sydenham, Limited, offered prizes for nine kinds. 1st, Mr. T. Jones, Ruabon, for a very fine collection. 2nd, Mr. Fred. Barratt, Overton.

Messrs. Sydenham's 1st and 2nd prizes, reserved for local exhibitors, were won by Mr. E. Deakin and Mr. J. C. Griffiths respectively.

Messrs. Sutton and Sons' prizes were offered for nine kinds. 1st, the Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. E. Beckett), who showed excellent Ailsa Craig Onions, Student Parsnips, Red Intermediate Carrots, and Prizetaker Leeks.

Messrs. Webb and Sons offered prizes for eight kinds. 1st, Mr. Fred. Barratt, Overton. 2nd, Mr. T. Jones, Ruabon. The last-named exhibitor was very successful in Messrs. Dickson and Robinson's classes.

Non-Competitive Exhibits.

Messrs. Clibrans, Altrincham, had a large group of Begonias, in which the varieties Clibrans Pink and Scarlet Beauty stood out prominently. (Large Gold Medal.)

The Lapworth Nurseries, Hockley Heath, had a miniature rock garden, planted with a variety of interesting plants. (Silver Medal.)

The Right Hon. Lord North, Wroxton Abbey, Banbury (gr. Mr. E. R. Barnes), exhibited a magnificent collection of Onions, interspersed with cut flowers of Cyclamen, and single Chrysanthemums. (Large Gold Medal.)

The King's Acre Nurseries, Hereford, sent a large collection of well-coloured Apples and Pears. (Large Gold Medal.)

The Horticultural College, Studley, showed Carnations, and six bunches of Grapes. (Silver Medal.)

Messrs. R. J. Barnes and Son, Malvern, displayed single and decorative Chrysanthemums. (Bronze Medal.)

Messrs. W. J. Godfrey and Son, Exmouth, showed a handsome collection of single and decorative Chrysanthemums, together with bunches of double and single flowered varieties of zonal Pelargoniums. (Small Gold Medal.)

Messrs. W. H. Simpson and Sons, Birmingham, staged a collection of Antirrhinums and a number of plants of Primula obconica. (Silver-gilt Medal.)

Messrs. Hewitt and Co., Solihull, had a collection of Conifers and standard plants of golden-leaved Privet. (Silver-gilt Medal.)

Messrs. Webb and Sons, Stourbridge, contributed a handsome group of vegetables and well-flowered plants of Begonias and Saintpaulia ionantha, also single Chrysanthemums. (Small Gold Medal.)

Messrs. Wells and Co., Merstham, exhibited a choice collection of Chrysanthemums. (Silver-gilt Medal.)

Mr. H. N. Ellison, West Bromwich, showed Ferns. (Silver Medal.)

Messrs. Cannell and Sons, Eynsford, Kent, were awarded a Small Gold Medal for Apples and Pears.

Messrs. Dickson and Robinson, Manchester, sent Onions, Potatos, and Gourds. (Silver Medal.)

From Messrs. John Waterer and Sons, Bagshot, Surrey, came an extensive display of hardy Shrubs. (Large Gold Medal.)

Messrs. John Piper and Sons, Bayswater, put up a handsome stand of Dahlias. (Small Gold Medal.)

Messrs. Toogood and Sons, Southampton, exhibited choice vegetables, nicely arranged, and a few Apples. (Small Gold Medal.)

Mr. H. Woolman, Shirley, had a choice exhibit of Chrysanthemums. (Silver-gilt Medal.)

Miss Thompson, Handsworth, showed an interesting collection of cactaceous plants. (Silver Medal.)

Messrs. J. Peed and Son, West Norwood, staged single-flowered Chrysanthemums. (Bronze Medal.)

Messrs. J. H. White and Co., Worcester, were awarded a Silver Medal for a collection of Apples.

ECCLES AND PENDLETON CHRYSANTHEMUM.

November 7 and 8.—This society held its annual exhibition on the foregoing dates, and it is to be regretted that the space was not sufficient to accommodate all who wished to exhibit.

For 24 blooms, 12 Japanese and 12 Incurved, in not fewer than eight varieties three competed. Miss Agnew's Silver Challenge Cup, the premier award, was won by last year's winner, Sir Gilbert Greenall, Bart. (gr. Mr. H. Goves), Warrington, for massive flowers, including (Japanese) F. S. Vallis, Marie Loomes, Master James, W. Turner (very fine), Lady Talbot, Robt. Pulling, (Incurved) Godfrey's Eclipse, Lady Isabel, Clara Wells, Mrs. G. Denyer, and Yellow Hygate; 2nd, Lieut.-Colonel Gaskell (gr. Mr. J. Stoney), Woolton, who showed His Majesty, Mrs. G. Drabble, Buttercup and H. Hearne, extra well; 3rd, Thomas Henshaw, Esq. (gr. Mr. J. George), Huyton.

For 24 Japanese blooms, Sir Gilbert Greenall was again to the fore, the varieties Frances Jolliffe and Robert Pulling being especially fine; 2nd, H. Belk, Esq. (gr. Mr. J. Copper); 3rd, Mr. J. Stoney. In the three remaining open classes, Mr. Goves was well ahead in each class, followed by Mr. Stoney and Mr. J. Cooper.

In the classes open only to growers within a radius of eight miles from the Town Hall, most interest was centred in that for 18 Japanese blooms in six varieties shown in vases. The Silver Challenge Cup presented by T. C. Ansdell, Esq., was included in the 1st prize, and it was won by Lord Brackley (gr. Mr. G. W. Byrom). Mr. F. Browsfield and James Brown, Esq. (gr. Mr. J. Balson), were 2nd and 3rd respectively.

The 1st prize for 12 Japanese blooms was won by Mr. J. Balson; whilst the best 12 blooms incurved, 6 Japanese and 6 incurved blooms respectively, were shown by W. S. Forbes, Esq. (gr. Mr. W. Holmes). Mr. G. Ridgway was successful in the classes for 3 Japanese and 3 incurved blooms. The best six vases of single varieties were shown by T. C. Ansdell, Esq. (gr. Mr. A. E. Fox).

In the section for plants the best half-circular group of three was exhibited by Miss G. Agnew (gr. Mr. H. Palethorpe); J. Smylie, Esq. (gr. Mr. E. Rollitt), was a close 2nd; with

Miss A. M. Phillips (gr. Mr. W. D. Wilson), 3rd.

Mr. A. Porter was very successful in the decorative classes—he showed the best three bouquets of Orchids, the best bouquet of Chrysanthemums, and the winning epergne; Mr. J. Copper followed in each class. E. W. Dew, Esq., won the Mayor's Silver Challenge Cup, offered for 3 pots of single Chrysanthemnms. S. D. Petrochina, Esq. (gr. Mr. W. Foster) showed the best dinner-table plants, Mr. D. Sweeney the best Roman Hyacinths, and Mr. A. E. Fox the best Begonias.

COVENTRY CHRYSANTHEMUM.

November 6, 7, 8. — The number of entries (155) at this exhibition, which was held on the foregoing dates, constituted a record. It was the nineteenth annual exhibition of the society and was in every way successful. A marked feature of the show was the groups of Chrysanthemums, embracing most of the best-known varieties. Lord Leigh, who was accompanied by the Hon. Agnes Leigh, opened the exhibition, the Mayor (Alderman W. F. Wyley, J.P.) presiding. Special mention must be made of the amateur classes, which year by year show distinct advances in merit. Hugh Rotherham, Esq. (gr. Mr. Geo. Griffin, the secretary of the society), deservedly gained the premier prize in the open classes for a remarkably fine representative collection of Chrysanthemums. The same exhibitor was also placed 1st in the classes for six pot Chrysanthemums, and miscellaneous foliage and flowering plants respectively. The Earl of Craven (gr. Mr. H. Chandler) was a successful exhibitor in this section both with Chrysanthemums and Gloire de Lorraine Begonias. W. Clifford, Esq. (gr. Mr. W. Hancox), was also a 1st prize winner in the open classes for plants. Colonel Beech, J.P., of Brandon (gr. Mr. E. J. Brook), a regular exhibitor at this show, scored several popular successes in the classes for Japanese Chrysanthemums. In the cut bloom section other 1st prize winners were Councillor C. V. Pugh, the Earl of Craven and Mr. A. Hoyle.

Fruit and vegetables of fine quality were exhibited. A special large Gold Medal was awarded the executors of Thomas Webb, Coventry, for a remarkably good display of fruit and vegetables. An Award of Merit was given Alderman W. H. Batchelor for a collection of Orchids, etc. Medals were also awarded to Mr. Wm. Ward, Coventry; Mr. E. J. Parsons, Worcester; Mr. H. N. Ellison, West Bromwich; Miss Langdon, Coventry; Messrs. Hewitt and Co., Solihull; and Mr. H. L. Curzons, Coventry.

MANCHESTER CHRYSANTHEMUM.

November 11 and 12.—This exhibition was held in the Town Hall, Manchester, under the auspices of the Royal Botanical and Horticultural Society of Manchester. The hall was filled with flowers, that afforded a glorious glow of colour, the Orchids and decorated tables adding a charming and rich effect to the more sombre greenery of Palms and other foliage plants. The arrangements were ably carried out by Mr. P. Weathers, the Society's capable secretary.

Fifteen classes were devoted to cut blooms, and many of the exhibits were of a high order of merit. The premier class was for 48 blooms, 24 Japanese and 24 incurved. The 1st prize was won by Sir Gilbert Greenall, Bart., Warrington (gr. Mr. C. Goves). The best blooms were:—Japanese—W. Turner, Bob Pulling, Alice Lemon, Hon. Mrs. Lopes, F. S. Vallis, Leigh Park Rival, His Majesty, Frances Jolliffe, Purity; incurved—Pantia Ralli, Mrs. B. Hankey, Clara Wells, G. F. Evans, Calypso, and Romance.

Sir Gilbert was also successful in the class for 24 incurved blooms in not fewer than 12 varieties, having specially fine blooms of C. H. Curtis and Mrs. G. Denyer; for 36 blooms of Japanese Chrysanthemums in not fewer than 18 varieties, and for 18 Japanese blooms. Mr. Jones followed in the two last classes.

For 12 incurved blooms, Lieut.-Col. J. B. Gaskell, Woolton (gr. Mr. J. Stoney), won the 1st prize, followed by C. Lamb, Esq. (gr. Mr. G. Corbett).

Mr. Lamb was the winner in the class for 12 Japanese blooms, followed by J. W. Pritchard, Esq. (gr. Mr. H. Phillips).

For 36 miscellaneous blooms, to include not fewer than six incurved, six Japanese and six reflexed varieties, the 1st prize was won by Col. Gaskell, whose reflexed and anemone varieties were interesting, these types being not so well known as formerly; 2nd, Miss Lightbown (gr. Mr. J. Roberts).

In the class for 24 blooms, 12 Japanese and 12 incurved, the prize-winners were:—1st, F. Ashworth, Esq. (gr. Mr. S. Ollier); 2nd, F. Phillips; and 3rd, Col. Gaskell.

The winners in the local classes for 12 blooms of Japanese and 12 blooms of incurveds were Mr. F. Phillips and Mr. S. Ollier respectively.

For nine large-flowered Chrysanthemums, L. Breslauer, Esq. (gr. Mr. P. Siddall), excelled; also for six Japanese varieties, the plants having fresh bright flowers in each case.

The best display of cut blooms arranged for effect with foliage was shown by Mr. W. J. Garner. This magnificent exhibit furnished the whole of the space on the stage, the background being composed of well-grown Kentias and other Palms, the flowers interspersed with Ferns and other foliage.

The best six pots of Roman Hyacinths were shown by J. S. Procter, Esq. (gr. Mr. B. Burch).

Mr. W. Bramwell had the best Primulas and Cyclamens; Mr. M. Woollard the best winter-flowering Begonias; and Mr. H. Mallion the best six dinner-table plants.

Samuel Gratrix, Esq. (gr. Mr. J. Brown), won the Gold Medal offered for the best display of Orchids, open to amateurs only.

Messrs. J. Cypher and Sons, Cheltenham, and Messrs. Charlesworth and Co., Haywards Heath, were both awarded Gold Medals for collections of Orchids.

Mr. A. J. A. Bruce showed Sarracenias interspersed with Palms and Ferns.

Messrs. Dickson and Robinson contributed a bank of Chrysanthemums and Michaelmas Daisies, for which they were awarded Silver-gilt Medal.

DERBY CHRYSANTHEMUM.

November 7, 8.—The annual Chrysanthemum show of the Derbyshire Gardeners' Association was held at the local Albert Hall on these dates. Sir Thomas Roe, M.P., in declaring the show open, congratulated the promoters, and endorsed the opinion that the exhibition surpassed all others that had preceded it.

All the available space in the building was utilised, and the whole presented a mass of floral wealth. Amongst the non-competitive exhibits was an imposing display of miscellaneous plants from the Rev. Henry Buckston, Sutton Hall (gr. Mr. A. Shambrook), for which a gold medal was awarded. The group filled a space measuring 150 square feet, and consisted chiefly of Begonia Gloire de Lorraine and the white Turnford Hall variety; Cyclamen Mrs. Buckston and some new hybrids, centred with Orchids, Cattleya Bowringiana violacea, Vanda cœrulea, and Begonia Ideala, relieved with Ferns, dwarf Carex, Caladium argyrites, and Eulalia. A specimen plant of a single yellow Chrysanthemum, shown by Mr. A. Preston Jones, Mickleover House (gr. Mr. J. Bacon), bore 320 blooms, which was sufficient to merit special comment. Mr. Jones has kindly offered the Association two silver cups for 1914.

Miss Wilmot, Chaddesden Hall (gr. Mr. J. Evans) exhibited a number of well-grown Japanese Chrysanthemums. The Earl of Harrington, Elvaston Castle (gr. Mr. G. H. Goodacre), staged a superb exhibit of fruit, for which a silver medal was awarded. Cut blooms of Chrysanthemums were shown well by Sir W. A. H. Bass, Bart., Byrkley (gr. Mr. R. Nisbet), Mr. Oswald Mosley, Rolleston Hall (gr. Mr. H. Collier), and Mr. C. W. Catt, The Outwoods (gr. Mr. J. H. Coley). Mr. Mosley's specimen of Lady Talbot was adjudged the premier bloom. Sir W. A. H. Bass won the 1st prize for six vases of Japanese Chrysanthemums (the most striking variety was R. Luxford). Mr. C. W. Catt followed closely. 3rd, Mr. F. Meakin.

For eighteen Japanese blooms displayed on boards, Mr. Oswald Mosley led with the varieties Lady Talbot, Valerie Greenham, H. E. Converse, Hon. Mrs. Lopes, Frances Jolliffe, F. S. Vallis, R. Luxford, Mrs. G. Drabble, Mrs. G. C. Kelly, Mrs. C. H. Totley, Rose Pockett, Geo. Hemmings, Miss A. Nicol, Walter Jinks, Marquis of Northampton, Mrs. Marsham, W. A. Etherington and Edith Smith; 2nd, Mr. W. A. H. Bass; 3rd, Mr. Catt; while for twelve Japanese Sir W. A. H. Bass beat Mr. Mosley and Mr. Catt.

For twelve incurved blooms Mr. Mosley was successful, Sir W. A. H. Bass and Mr. J. Wood, Alvaston, being placed 2nd and 3rd respectively.

For a group of Chrysanthemums, 6ft. by 5ft., Mr. A. Preston Jones was well ahead of Mr. C. Buck, Derby, and Mr. G. Potter, Derby. The prize-winners in a second group class were: 1st, Mr. A. Cripps; 2nd, Mr. S. Potter; and 3rd, Mr. J. White, Derby.

In the various classes for single varieties in vases there were numerous exhibits, which elicited admiration. There was also a large entry in the class for an epergne or basket of Chrysanthemums, in which Sir W. A. H. Bass was successful.

For twelve pots of Cyclamens there were only two exhibits, and Mr. G. H. Strutt, Makeney House (gr. Mr. G. T. Pallett), was awarded the 1st prize.

The remaining classes were fully represented, and exhibits in the artizan classes were an advance on those of previous years.

Vegetables and Fruit.—There were twelve exhibits of collections. The chief winners were Messrs. O. Mosley, H. C. Smith, Alvaston, and J. White; Capt. Drury-Lowe, Locks Park, exhibited the best Grapes; whilst good Apples were shown from the gardens at Rolleston Hall.

ROCHFORD AND DISTRICT HORTICULTURAL AND CHRYSANTHEMUM.

October 28-29.—This Society held its annual exhibition of Chrysanthemums, fruit and vegetables on these dates. J. Tabor, Esq., The Lawn, Rochford (gr. Mr. P. J. Burles), had the best display of Chrysanthemum plants, Mr. E. Bines, Stroud Green, Rochford, being a good 2nd. In the class for a group of miscellaneous plants, J. W. Green, Esq., Lackshill, Rochford (gr. Mr. T. Lock), excelled with a creditable arrangement of suitable plants; Mr. Burles being a good 2nd. In the cut-bloom classes Mr. Burles won four 1st prizes, and Mr. Bines, Mr. Flavell, Hawkswell, and Mr. Bright, gr. to G. Harvey, Esq., Southend, were also successful in winning prizes.

Ald. J. C. Ingram, J.P. (gr. Mr. A. Root), was placed 1st for black Grapes, with the variety Black Alicante. Mr. Langstone, Barling, Essex, was a good 1st for dessert and cooking Apples; 2nd, Mr. H. B. Herbert, Prittlewell. In each class Cox's Orange Pippin, King of the Pippins, Warner's King, Newton Wonder and Peasgood's Nonesuch were extra good. Mr. Herbert was placed 1st for dessert Pears, Mr. Boosey, Eastwood Nursery, Rochford, occupying a like position for stewing Pears. Mr. Lock excelled for a collection of vegetables; 2nd, Mr. Molling, gardener to Dr. Lewis.

PORTSMOUTH CHRYSANTHEMUM.

October 29, 30, 31.—This annual show was held in the Town Hall, and was a great success. Cut blooms were conspicuously good, especially the single-flowered varieties. Groups of Chrysanthemums, arranged for effect, were staged around the sides of the hall.

Cut Blooms.

The leading class in this section was for 36 Japanese blooms in not fewer than 18 varieties. Captain Dalgety, Lockerby Hall, Romsey (gr. Mr. W. Baxter), won the 1st prize with good flowers of leading varieties, well staged. Lady Talbot, Mrs. Stevenson, Bob Pulling, Master James and F. S. Vallis are a selection; 2nd, Pantia Ralli, Esq., Ashtead Park, Epsom (gr. Mr. G. J. Hunt), with neatly-arranged blooms, only a little inferior in quality to those in the 1st prize collection. This gentleman won the premier prize for two dozen Japanese blooms with specimens similar to those staged by him in

the larger class; 2nd, W. GARTON, Esq., Sarisbury Court, Southampton (gr. Mr. Edwards).

Incurved blooms were exhibited by Mr. GARTON. In the class for 12 specimens he had large, fully-developed, beautifully-finished blooms of Mrs. J. C. Bryce, and its primrose-coloured sport, Mrs. P. Wiseman. Godfrey's Eclipse, W. H. Thorp and Mrs. G. Denyer were also prominent varieties. 2nd, Mr. P. RALLI, in a keen competition.

Single-flowered varieties were also well shown, and the competition was keen. For 6 blooms of 6 varieties 7 competed. Sir F. FITZWYGRAM, Leigh Park, Havant (gr. Mr. Herbert), was placed 1st for fully-developed blooms of Mensa, Edith Taylor, Draco, Metta, Edith Pagram and its bronze sport. Mr. GARTON followed closely, showing Silvia Slade.

Pompon varieties have for long been popular at the Portsmouth shows, and on this occasion they were again well represented. For 12 sprays Mr. H. SNOOK, Fratton, was placed 1st. His best varieties were W. Kennedy, W. Westlake, Eclipse and Fermy. 2nd, Mr. G. JOHNSON, Southsea.

Anemone-flowered varieties were fairly well represented. Mr. SNOOK excelled in the class for 12 specimens, with medium-sized blooms possessing good centres.

In the leading class for groups of plants the space allowed was 60 square feet, and 5 competed. Mr. W. E. GILL, Osborne Road, Southsea, an amateur, was easily 1st with high-class blooms on dwarf, well-grown plants. 2nd, Mr. W. B. JEFFREYS, Southsea, with taller plants carrying good blooms.

Groups of single-flowered varieties made an equally prominent display. Mr. BURRIDGE, North End, Portsmouth, was placed 1st; 2nd, Mr. J. JOHNSON.

EXETER CHRYSANTHEMUM, FRUIT AND VEGETABLE SHOW.

NOVEMBER 6 AND 7.—This was the 213th exhibition held by the society, and was, considering the season, satisfactory in all respects. Chrysanthemum blooms were not so large as on some former occasions, but the quality was good, and a pleasing feature was the increase in the entries for single Chrysanthemums. Vegetables were, as usual, very good, and competition in this section was keen. Specimen table plants were only moderate.

CHRYSANTHEMUMS.

A Silver Cup was offered by the President, Mr. H. E. Duke, K.C., the member for Exeter, for a group of Chrysanthemums, arranged in a circle of 8 feet in diameter. The Cup was won handsomely by Mrs. GIDLEY, Hoopern House, Exeter (gr. Mr. W. R. Baker), who, with the same group, won the N.C.S. Certificate and the Medal offered for the best professional exhibit in the show. Among her best blooms were Mrs. Loo Thompson, primrose-yellow; Ideality, white; Josephine, yellow; Peter Plant, pink; and Sandown Radiance, deep crimson; 2nd, Mr. W. BROCK, Parkerswell (gr. Mr. A. E. Truman).

For a group of Chrysanthemums in pots filling a circle of 10 feet in diameter a Silver Challenge Cup was offered by Mrs. W. J. Pring, Exeter, to be won three times before becoming the final possession of the winner. Mr. W. BROCK, Parkerswell (gr. Mr. A. E. Truman), was the only exhibitor, and was awarded the 1st prize. His best blooms were Lady Talbot, W. Mease, and Pockett's Crimson.

For 9 vases of Japanese Chrysanthemums in 9 varieties, 3 blooms of each, Sir R. BAKER, M.P., Blandford (gr. Mr. A. E. Usher) was placed 1st with exceptionally fine blooms, conspicuous among them being W. Turner, white; Mrs. Gilbert Drabble, white; and Francis Rowe, yellow and bronze, Bessie Godfrey, His Majesty, J. Peed, and Master James. Mrs. GIDLEY was placed 2nd with H. E. Combers, W. Turner, Mrs. G. Drabble, Algernon Davis, H. E. Converse, Pockett's Crimson, Mrs. R. H. B. Marsham, and Lady Talbot.

In the class for 24 Japanese in not fewer than 18 distinct varieties, Mrs. A. H. SKARDON (gr. Mr. G. Hall), was placed 1st with well-finished flowers, which included F. S. Vallis, Mrs. G. Drabble, Frances Jolliffe, H. Silsbury, Lady Talbot, Mary Poulton, and Pockett's Crimson; 2nd, Sir R. BAKER.

Mrs. SKARDON also excelled in the class for 12 Japanese blooms distinct, and Sir R. BAKER was again 2nd.

For 6 white blooms of Japanese in 2 varieties Sir R. BAKER was placed 1st with W. Turner and Mrs. G. Drabble; 2nd, Mrs. GIDLEY, with the same varieties, and Sir R. BAKER also won in the class for 6 yellow Japanese blooms in 2 varieties with Mrs. Lopes and Lady Talbot; 2nd, Mr. BROCK, with Lady Talbot and F. S. Vallis.

For 6 Japanese blooms of any other colour, two varieties, Sir R. BAKER was awarded the 1st prize for the varieties F. Rome and J. Lock; 2nd, Mrs. GIDLEY, with Beecham Keeling and W. Mease.

For 9 vases of singles, distinct varieties, disbudded, Mrs. GIDLEY won the 1st prize easily with Ideality, Sandown Radiance, Mrs. Loo Thompson, Josephine, and Peter Plant.

FRUIT.

For 3 bunches of Grapes, any kind excepting Black Alicante and White Muscat, Mr. H. ST. MAUR (gr. Mr. G. Richardson) won with the variety Mrs. Pince; 2nd, Sir W. FERGUSON-DAVIE, Bt. (gr. Mr. Seward), with good bunches of Gros Maroc.

Mr. F. R. RODD, Launceston (gr. Mr. T. A. Billings), was placed 1st for White Muscats.

In the class for a collection of 24 Apples, distinct, 12 dessert and 12 culinary sorts, Sir W. FERGUSON-DAVIE was placed 1st. Margil, Fearn's Pippin, Lord Hindlip, American Mother, Bismarck, Bramley's Seedling, Tibbett's Pearmain, Mère de Menage, Peasgood's Nonesuch, and Warner's King were all shown well; 2nd, the Countess of EGMONT (gr. Mr. T. Ley), with Allington Pippin, Gabalva, King of Tompkin's County, Bismarck, and Red-ribbed Greening.

For 6 dessert varieties Mr. A. MARE, Wouford, was placed 1st with Charles Ross, Allington Pippin, Star of Devon, Crimson King, Blenheim Pippin, and Gascoyne's Scarlet; 2nd, Dr. SAMIWAYS, Clyst St. George (gr. Mr. A. C. Williams). He showed Allington Pippin, Cox's Orange Pippin, and Adams's Pearmain well.

For 6 varieties of culinary Apples Sir W. FERGUSON-DAVIE was placed 1st with Alfriston, Warner's King, Striped Beefing, Lord Derby, Peasgood's Nonesuch, and Blenheim Pippin.

Pears were smaller than usual.

Sir R. BAKER won the 1st prize for 3 dessert varieties with Charles Ernest, Beurré Bachelier, and Doyenné du Comice; 2nd, Dr. SAMIWAYS.

Mr. F. R. RODD showed best in the class for 3 varieties of cooking Pears with Uvedale's St. Germain, Catillac, and Glou Morceau; 2nd, Sir R. BAKER.

VEGETABLES.

In the premier class for a collection the 1st prize was awarded to Mrs. A. H. SKARDON (gr. Mr. G. Hall), who showed Ailsa Craig Onions, New Intermediate Carrots, Prizetaker Leeks, White City Potatos, Tender and True Parsnips, Exhibition Sprouts, Solid White Celery, and Autumn Mammoth Cauliflower; 2nd, Dr. SAMIWAYS, whose exhibit included Asparagus and Cucumbers.

In Messrs. R. Veitch and Son's class Dr. SAMIWAYS was placed 1st. In nearly all the vegetable collections the same kinds were shown by all the competitors.

Trade exhibits were staged by Messrs. ROBERT VEITCH AND SON; the DEVON ROSARIES, Torquay; Messrs. W. J. GODFREY AND SONS, Exmouth; and Messrs. JARMAN AND CO., Chard.

WARGRAVE CHRYSANTHEMUM AND FRUIT SHOW.

NOVEMBER 5.—The twelfth annual non-competitive show under the auspices of the Wargrave Gardeners' Association took place on the 5th inst. in the Woodclyffe Hall. This year the exhibition was in aid of the Royal Gardeners' Orphan Fund, and proved very successful, both as regards the quality of the exhibits and the interest taken by the general public, the hall being well filled, especially during the evening. The inclusion of three large groups, 7 feet in diameter, down the centre of the hall, was a great improvement on the arrangements of former years. The following exhibits were shown:—Centre groups, by Sir CHAS. HENRY, Bart., M.P. (gr. Mr. R. Doe), Mr. A. B. GILL (gr. Mr. W. Pope), and Mr. MARTIN J. SUTTON (gr. M. S. Capon). These were very pretty, both in arrangement and colour, and were much admired.

The tables around the hall were occupied with exhibits by Mr. G. STANTON, dried flowers, leaves, seed pods, etc., entitled "Winter Reminders of Summer Beauty"; Mr. W. BAZELEY, Ferns, Orchids, and dwarf Junipers; Mr. S. C. DAVIES (gr. Mr. T. Tunbridge), Chrysanthemums; Captain COLERIDGE (gr. Mr. W. H. Scott), Begonias, Browallias, and Ferns; Mr. G. T. S. GILL (gr. Mr. F. Gray), specimen Chrysanthemums and fruit; Mrs. GROVES (gr. Mr. A. Mackenzie), decorative Chrysanthemums and various showy plants as edging. Sir CHAS. HENRY also had a collection of Apples, interspersed with plants of Cattleya labiata. The WARGRAVE PLANT FARM arranged a miniature rockery. Mrs. RHODES (gr. Mr. T. Haskett) showed splendid Apples and foliage plants. Major C. BULKELEY, D.S.O. (gr. Mr. W. Massey), showed Grapes, Chrysanthemums, Carnations, Violets, and other flowers. Mr. H. C. BOND (gr. Mr. E. Cartwright), exhibited a collection of Chrysanthemums in pots, and various smaller plants.

WEST OF ENGLAND CHRYSANTHEMUM.

NOVEMBER 4.—The annual show of the above society was opened in the Guildhall, Plymouth, on the 4th inst. The entries were the largest on record, and the exhibition was by far the best that has ever been held by the society. The hall presented a very attractive appearance, the exhibits having been most artistically grouped, and competition was exceptionally keen. In the class for Japanese blooms the quality was extremely high, the size of the flowers was immense, and certainly such blooms as those in the 1st prize stands have never before been shown at Plymouth. Among other noteworthy features in the show were three enormous Apples. One fruit, Lord Derby, shown by Miss HAWKER, had a circumference of 17¾ inches and weighed 30oz.; and two of Mère de Ménage, shown by Mr. J. A. PATEY, were 16½ inches in circumference and weighed 28oz.

The 1st prize in the class for 36 Japanese blooms was won by Sir R. BAKER, Blandford (gr. Mr. A. E. Usher). The blooms of Mrs. G. Drabble, Master James, Frances Rowe, Rose Pockett, His Majesty, F. S. Vallis, and Hon. Mrs. Lopes were exceptionally fine. Sir R. BAKER also excelled in the class for 18 Japanese blooms shown in vases with equally perfect blooms of such varieties as Lady Ryder, G. Lock, W. Turner, R. Vallis, Mrs. G. J. Beer and Rose Pockett. For 12 vases of single Chrysanthemums the 1st prize was awarded to Mr. VERE CHOLMONDLEY for Manor House Terra Cotta, R. B. Burke, Mrs. Tresham Gilbey, Mrs. W. Buckingham, Mrs. Mary Pope, Countess Egmont, Snowflake, Ceddie Mason, Lillie Godfrey, Mrs. F. C. Hunter and Mrs. Dudley Thompson; the best three vases of white single Chrysanthemums were shown by Mr. T. B. BRADSHAW; the best three vases of single yellow Chrysanthemums and the best three vases of any other coloured single Chrysanthemums by Mr. V. CHOLMONDLEY.

For a group of stove and greenhouse plants the 1st prize was won by Mr. J. WEBBER, his collection including Cypripediums, Odontoglossums, Crotons, Cyclamens, Begonia Gloire de Lorraine, Carnations, Lilium longiflorum, Erica gracilis, E. melanthera, Chrysanthemums, and Bamboos, with a tall Palm in the centre.

For table decoration there were eleven entries against one last year, and the 1st prize was won by Mrs. W. LIDDLE with a table decorated with salmon-pink Rose Madame Abel Chatenay.

Other 1st prize winners were:—Group of single Chrysanthemums, Mrs. R. BAINBRIDGE, with a very artistically arranged collection of fresh and well-coloured flowers; four Japanese Chrysanthemums, Mr. E. J. HANNAFORD; one white Japanese Chrysanthemum, Mr. W. J. ELLIS; six Primulas and six Primula stellata, Mr. G. SHELLABEAR; six Pelargoniums and six white Gloire de Lorraine Begonias, Mrs. R. BAINBRIDGE; six Begonias, any variety, Sir R. POLE CAREW; and six stove or greenhouse table

BERBERIS WILSONAE, ONE OF THE NEWER BARBERRIES FROM CHINA

plants, the Earl of Morley. In the classes restricted to residents within fifteen miles of Plymouth the Silver Cup for twelve Japanese blooms was won by Mr. W. J. Ellis. For 24 Japanese blooms the 1st prize was won by Lady Buller.

Vegetables and Fruit.—For a collection of vegetables the 1st prize was won by Mr. Corydon Matthews, who also won the majority of prizes for vegetables.

Collection of salads, 1st prize Mrs. R. Bainbridge. This was an excellent exhibit, and included Chicory, Cucumbers, Watercress, Beetroot, Celery, Lettuce, Cress, Endive, Chives, Radishes, Capsicums and Tomatos. Collection of 24 dishes of fruit, 1st prize Mr. H. St. Maur. Twenty dishes of Apples, 1st prize the Earl of Morley. In the fruit classes the chief prizes were won by the Earl of Morley, the Earl of Mount Edgcumbe and Mr. St. Maur.

SOCIÉTÉ DES CHRYSANTHÉMISTES FRANCAIS.

ANNUAL CONGRESS AT GHENT.

October 25-28.—In conjunction with the Autumn Horticultural Show, held from October 25 to 28 in Ghent, the French Chrysanthemum Society held its annual Congress. The programme extended over four days, and, although essentially a French function, the congress was officially recognised by the 22nd Group of the International Exhibition authorities and by the Belgian Government, whose representatives attended in their official capacity.

The members had free access to the Exhibition as well as to the flower show. Several of them were members of the jury, and attended the luncheon, over which M. Callier presided. M. Ph. de Vilmorin, president of the jury, replied to the welcome offered by the authorities. On Sunday evening the members of the Congress —French, English and others—were invited to a reception by the Royal Agricultural and Botanical Society of Ghent in the ballroom of the Casino. On Tuesday there was an excursion to Bruges, a large party assembling at the Gare du Sud as early as 8 a.m. Under the guidance of the Curator of the Bruges Museum the party was conducted round the old town, and visited all the chief objects of interest, including the nursery of Messrs. Sander and Sons. Lunch was provided at the Hotel de Lourdes by M. Firmin de Smet, who was cordially thanked by M. Couillard, Vice-President of the French Chrysanthemum Society, on behalf of his countrymen, and by Mr. Harman Payne on behalf of the English visitors, of whom there were nine present.

The official part of the Congress was begun at 9 a.m. on Monday, when M. Viger presided. He was supported by a representative Committee, consisting of M. Vernieuwe, the Belgian Government official; M. Couillard; M. Firmin de Smet, President of the Horticultural Group of the International Exhibition; M. Quentin, President of Conseil Général de la Seine; M. Toscanelli; M. Rosain-Boucharlat; M. Callier, President of the Ghent Agricultural and Botanical Society; M. Dubreuil; M. Rible; M. Philippe Rivoire, Secretary of the French Chrysanthemum Society; and Mr. Harman Payne.

The first subject dealt with was "Insect Pests and Diseases," by Dr. Chifflot, of Lyons. This was followed by several papers on chemical questions relating to Chrysanthemums, and another on a revised system of classification by M. Couillard.

By unanimous vote the Congress Medal was awarded to Dr. Chifflot. A similar award was made to M. Firmin de Smet, and also to M. Godde. The Chairman announced that the French Government had decided to promote M. Couillard to the rank of Officier du Mérite Agricole. It was resolved that the next Congress be held in Melun. Arrangements are pending for the publication of the pocket edition of the *Répertoire de Couleurs*. M. Viger thanked the members who had taken part in the Congress, whereupon the Belgian Secretary for the International Congresses invited the company to attend the closing ceremony and distribution of prizes by the King, which was held in the presence of an enormous crowd in the Grand Palais des Fêtes.

Obituary.

Anthony Hall.—The death from pneumonia of Mr. Anthony Hall on October 26, at the age of 78 years, terminates his remarkably long service of 56½ years as gardener at Park End, near Wark-on-Tyne. Mr. Hall was apprenticed in the gardens at Nunwick Hall in 1845. At that time Figs and other fruits were grown on flued walls, and lawns were mown with scythes only. From Nunwick he went to the Hermitage, near Hexham, as journeyman, and in 1857 took charge of the Park End gardens. He was highly esteemed by each of the four generations of the old Northumberland county family of Ridley, descendants of Bishop Ridley, the martyr. To commemorate his 50 years' service he was presented by his employer, Mr. C. N. Ridley, with a suitably inscribed silver tea service. Mrs. Hall died in 1907, having been married for 49 years. Mr. Hall was a contributor to the Gardeners' Royal Benevolent Institution for 30 years. Of four sons two survive. The elder has charge of the

THE LATE ANTHONY HALL.

Sunderland Public Parks, where he has been for more than 23 years. The funeral took place in the old churchyard at Simonburn, in the county of Northumberland.

LAW NOTE.

An action was heard at Brentford County Court on the 24th ult. by His Honour Judge Scully, in which the plaintiff, Mrs. Ella Louisa Fiddian, of Park View, Upper Butts, Brentford, sought to claim against Mr. Richard Rapkin, of Sundridge, Upper Butts, an injunction restraining him from growing Mangold Wurzels instead of table vegetables in and about the garden and lawn attached to Park View and Sundridge. Damages to the amount of £18 were claimed in respect to the alleged breach of an agreement; or, alternatively, £17 10s., the half value of the Mangold Wurzels grown.

The circumstances of the case were that in 1911 Park View was let by the defendant to the plaintiff at a rental of £55 per annum, and an additional rental of £65 for the use of the garden and lawns common to both houses, which, including the orchard, cover three acres. The defendant was also to be entitled to a half share of the fruit and vegetables produced in the garden and conservatories, the defendant undertaking to keep the garden in order and to provide a good supply of produce.

In the course of his evidence the defendant said that about half an acre of ground was used for growing Mangold Wurzels. He had occupied the ground for twenty-one or twenty-two years, and had grown the same quantity each season. He added that during last year fourteeen or fifteen different kinds of vegetables were grown in the garden. He had done his best to grow all the vegetables plaintiff asked for, but the soil was unsuitable for some. In cross-examination he said there were over 500 fruit trees and 790 plants of winter green vegetables—sufficient for both houses for the next six months. He maintained that the garden had been kept in first-rate condition, two gardeners being employed to look after it, with occasional extra assistance. He admitted there had been a partial failure in some of the crops in the spring, but attributed it to the weather.

The Judge dismissed the action, remarking that, in any event, there had not been anything done of which the plaintiff was not aware when she signed the second agreement.

ENQUIRIES AND REPLIES.

Mixture for Protecting Shrubs.—I should be much obliged to any correspondent who would give me the recipe for a mixture to be put on flower buds of Almonds, Peaches, etc., to protect them from birds, also to protect the leading shoots of Conifers from attacks of squirrels. *E. G. Loder, Leonardslee, Horsham.*

African Umbrella Tree.—Could any reader inform me what plant is known as the African Umbrella Tree? I have several bulbs sent direct, and should like the proper name. *Bristol.*

Tennis Court.—I wish to make a gravel or other hard-surfaced tennis court this winter, but not a cinder court. How do I go about it? How do I manage to bind the top layer? Is tar a good thing to use? I have plenty of broken stone, gravel and sand. *Firwood.*

———Below are four methods of procedure for forming a tennis court, and one or other will suit your particular circumstances: —(1) Drain and level the site to the required size. Though the regulation court is 78 feet by 36 feet, for obvious reasons make the prepared area 90 feet by 48 feet if possible. Place a layer of stones evenly over the bed to a depth of 4 inches. The second layer 2 inches in depth may be of broken stones or gravel passed through an inch screen, and the top layer 1 inch in depth of broken stones or pit gravel passed through a ½ inch screen, mixed with a third of its bulk of broken limestone or chalk. Spread evenly to a level surface. Water and roll with a heavy roller until the surface is quite smooth. Much depends on the binding quality of the local material in making the surface of such a court sufficiently lasting.

(2) Prepare the court with the first and second layer as in No. 1. Then, as regards the top layer, to every ton of the material, i.e., broken stones, gravel, and limestone, there are added 6 gallons distilled tar, 14 lbs. pitch, and 1 gallon pitch oil (the pitch oil only being used if the viscosity of the tar is high); boil the tar and pitch, and pour over the stones, which should be dry; thoroughly mix by turning the material at least four times. Then spread the mixture evenly, and level, damp and roll until the surface is firm and smooth. If a finer finish is desired paint a coat of the warm tar and pitch on the surface as soon as it is set, and dust it with dry lime.

(3) *Tar Macadam.*—Prepare site as in No. 1. Fix a creosoted wood border 3 inches by 1 inch round the area; over the bottom layer of broken stones or brick, place a binding layer of ashes, gravel, or fine stone shivers; roll thoroughly with a heavy roller—10 to 15 cwt. Then lay tar macadam to a depth of 1½ inches in two layers, the first layer being composed of stone broken to 1 inch and 1¼ inch sizes, thoroughly coated with standardised bituminous tar. Spread the layer evenly and roll thoroughly; the second layer to be composed of crushed limestone to pass a ⅜-inch screen and be caught in a ¼-inch screen, the limestone to be heated and mixed

with bituminous tar. Spread the mixture evenly and roll thoroughly. After the tar macadam has hardened for about a week, it is advisable to paint it with a light coating of bituminous tar, and sprinkle over it limestone dust. This fills up the interstices, and leaves a surface which is practically impervious to water.

(4) *Limmer Asphalte.*—Prepare the site as in No. 1. Lay a foundation of concrete 4 inches thick, with a surface unfinished but thoroughly level, on which lay the asphalte to the thickness of ¾ inch in one coat, the asphalte to be tempered to withstand traffic. If permanent lines are desired fix wood screeds say 2 inches broad in the concrete on the lines, and work the asphalte on either side. Then, after the asphalte has set, remove the screeds and fill the spaces with a specially made up asphalte mastic, with which is incorporated fine marble chippings or other material to make the lines distinct, carefully pressing the mixture in to join with the surrounding asphalte without breaking the line edges, the surface being brought true and even by rubbing. Permanent lines can be made in all these methods by adapting the coloration of the material to suit. In all hard-surfaced courts there should be a slight camber from centre to sides to throw off rainwater; $\frac{1}{16}$ to $\frac{1}{8}$ inch to the foot will suffice. It may be advisable to point out that ordinary coal tar is of no use for the purpose, as it never binds, and in the heat of summer becomes a positive and disagreeable nuisance. Limestone is recommended owing to its affinity for tar. There is a preparation called "Rocmac," which makes an excellent binding for ordinary macadam roads, which might also suit such a surface as given in No. 1. This, however, we have not tried for tennis courts, but should occasion arise we certainly shall. *Expert.*

MARKET GARDENERS' COMPENSATION ACT.—We shall be extremely obliged if you can inform us whether or not for the purposes of the above Act Roses, Azaleas, Rhododendrons and other shrubs when planted out in houses built on land held on lease as a market garden, are treated as removable property, or whether the tenant can recover compensation for same. We may say the greenhouses are the tenant's property. In the event of compensation being payable, will you kindly state for what period prior to the expiration of the lease it is necessary for the plants to have been grown in the houses. If you can furnish the information required through the columns of your valued journal at an early date, we shall be greatly indebted to you. *Herodex.*

————Your question seems to relate more to a nursery than to a market garden. Unless your lease makes special provision on the point, you can remove nursery stock without your landlord's consent. If, however, your lease provides that the land is to be used as a market garden and not as a nursery, then your right of compensation would depend on the date of your lease, and we should require further particulars before definitely advising you.

Answers to Correspondents

ADDRESSES: *Rosarian.* Messrs. Barbier and Co., 16, Route d'Olivet, Orleans, France; F. Boujard, Villeurbanne-Lyons, France; Messrs. J. Pernet-Ducher, Venissieux-les-Lyon, Rhone, France; and Messrs. Soupert and Notting, Luxemburg (Grand-Duchy).

CAMPANULA ISOPHYLLA ALBA AND REHMANNIA: *M'head.* It would be useless to retain the trailing shoots that have flowered so poorly this season. Prune them back to the pot's rim, and rely upon the new growth of next season for flowering. In all probability the trouble has been caused by drought. If you re-pot the plant in February, dividing it if necessary and affording a generous shift with good soil, better flowering should result next season. This Campanula when in full growth requires abundant supplies of root moisture. Stopping the Rehmannia will only result in inferior spikelets of flowers, the best blooms being produced by plants having a single spike. Doubtless the conditions of the sitting-room have been responsible for the elongated and flowerless spike. Try planting or plunging in the open another year.

ELMS: *Arbre.* The description you give of the Elm trees and the way they are dying from the top downwards points very strongly to their being attacked by the Elm beetle (Scolytus destructor). This destructive insect nearly always commences its depredations at the top of the tree, and spreads downwards. It deposits its eggs on the bark, through which the larvæ bore their way to the wood, then make channels to left and right; ultimately the tree dies, the bark falls away, revealing curious markings arranged like the backbone and ribs of an animal. The presence of this insect is first revealed by the little round holes in the bark. We do not know of any practical remedy. Trees affected should be cut down and burnt. They are most liable to attack during periods of drought, after injury to the roots, or after the flow of sap has from some cause or another been checked.

EMPLOYMENT IN AMERICA AND CANADA: *U. S. A.* We are informed that head gardeners and superintendents in America generally have trouble in getting good men, and New York seedsmen are often glad to hear of men coming from England. March and April are the best months to arrive there. The wages for journeymen or assistants, as they are termed, is about $50 to $55 per month, without board; board and lodging being worth $20 per month. It is contrary to the law of the U.S. for anyone to become engaged before landing by advertising in the American papers, and the parties who do so are subject to a heavy fine and are liable to be deported. With regard to Canada, Mr. Joseph Cheal, in a lecture at the Horticultural Club, mentioned that there was no better place than Canada for an energetic young man with a little capital. Mr. Cheal's advice in this connection was that the emigrant should refrain from investing until he had obtained practical experience by hiring himself out for a year or two, and so making himself thoroughly acquainted with the climatic and general working conditions.

GRAPES WITH GREEN BERRIES: *Puzzled.* Your soil "with a good many small gravel stones" in it may not be sufficiently retentive, in which case it has become exhausted of the vegetable matter it contained, and is short of humus so necessary for the multiplication of bacteria. Gros Colmar is the first variety to show signs of distress, because of its vigorous growth and heavy cropping. In similar conditions the bunches sometimes shank, but at other times the vine is unable to colour and ripen all the berries, as in your case. The berries from the earliest fertilised flowers take the lead, and the others, though they may swell to their proper size, are unable to "finish." It may be that you depend too much on the use of artificial or concentrated manures, which are all very well in certain conditions, but should not be used exclusively, or even mainly, on a non-retentive soil, as the practice would be sure to result in a deficiency of humus. We advise giving the border at once a good dressing of basic slag and kainit, six pounds of the latter to the perch will do no harm if applied now. Let all the fruit be gathered at once, and then give the border a coating of half-decayed stable manure, or, preferably, mixed farmyard manure where straw has been used for bedding, and cover with fresh loam.

KAINIT ON LAWN: *E. H. W.* You will probably find that the roots of the grasses are not killed by the excessive dressing of kainit, and, as the winter rains will wash the greater part of the fertiliser away in the drainage water, the turf may recover in the spring, and show good rather than harmful effects. Under any circumstances, it will be best to leave the renovation of the turf until March or April.

MEAT AND BONE DUST: *W. Adams.* The material should not be used in a fresh state. Let it be well dried. You may mix it with fine, dry soil, in layers, and allow it to remain for some months before applying it as manure. You would do better to use dung mixed with soot for making the liquid manure.

MELONS: *H. J. G.* Sow the seed singly in 3-inch pots at the middle of December, and grow the young plants near to the roof-glass without subjecting them to any check, either before or after being transplanted on the ridges. Pollinate the flowers at about midday when the pollen is dry, by picking off a male flower, removing the petals therefrom and inserting the anther gently into the large open flowers and leaving it there.

NAMES OF PLANTS: *Cliveden.* Origanum Majorana.—*W. E. Rix.* We do not recognise the variety of Chrysanthemum. Send to some grower who can match it in his collection.—*A. Moore.* Gymnocladus canadensis.—*A. Young.* 1, Caryopteris Mastacanthus; 2, Veronica speciosa var.; 3, Vaccinium corymbosum; 4, Cupressus Lawsoniana var.; 5, Betula nana; 6, Symphoricarpos orbiculatus; 7, Berberis vulgaris var.; 8, B. Darwinii; 9, Danaë Laurus; 10, Cistus villosus.—*A. E. Friend.* 3, Aster diffusus horizontalis. The others are shedding their seeds and cannot be identified.—*Enquirer.* 1, Saxifraga crustata; 2, No specimen; 3, Saxifraga Aizoon; 4, S. Andrewsii; 5, Erythræa Centuarium; 6, Santolina Chamæcyparissus; 7, Inula sp. (too scrappy to identify); 8, Sedum reflexum; 9, Cannot name without flower; 10, Sedum praealtum.—*A. O. J.* 1, Eupatorium purpureum; 2, Lysimachia Ephemerum; 3, Tanacetum vulgare; 4, Hieracium aurantiacum; 5, Alchemilla conjuncta: Coriaria terminalis.—*Llandaff.* Hakea laurina, a native of Australia. It thrives fairly well in the warmer parts of the South-west of England and Ireland, but requires a sheltered position and protection from severe frosts. It may be rooted from cuttings similar to those you sent us, but it is a somewhat tedious process. They are best inserted in September in sandy peat in a frame with slight bottom heat, and kept rather close until rooted. The plant is a rather disappointing subject for pot culture, but makes a fine evergreen shrub when planted out under suitable conditions.—*A Reader.* 1, Beet (next week); 2, Malva sylvestris; 3, Plumbago capensis; 4, Skimmia japonica; 5, Stachys sylvatica.—*H. Y.* 1, Cyrtanthus lutescens; 2, Ceropegia Woodii; 3, Sollya heterophylla.

ORIGIN OF COAL: *John Haynes.* Coal consists of the remains of plants which once lived on the surface of the earth. These remains are often so well preserved that not only may their position in the vegetable kingdom be recognised, but also the minute details of their structure. The kinds of plants which contributed to the formation of coal range from the highest to the lowest; but the vascular cryptograms (Ferns and Fern allies) predominate. An excellent account of the origin of coal may be found in the volume on Coal in the "Cambridge Manuals of Science" (1s.).

VINE BORDERS: *H. T., Ireland.* The best time to apply lime to a vine border is as soon as the crop is gathered, so that the lime may lose its caustic properties before the application of nitrogenous manures. About a peck to the perch is recommended. Slake it, and apply to the surface of the border as soon as it becomes cool enough to handle. Break up the surface of the border slightly, and if it is entirely indoors do not water it for some time afterwards, but moisture should be afforded before the application of the lime if the soil is dry.

WOOLLY APHIS: *H. C.* Spray with one of the numerous winter washes on the market when the trees are at rest, and again in summer with Calvert's Carbolic soap, 1 ounce of the soap to each gallon of water.

Communications Received.—A. G. L.—S. S.—A. W.—E. W. D. M.—H. C., Carmarthen—G. W.—W. H. A., Co. Kerry—A Reader—G. G.—G. D., Perthshire—R. P.—T. & Co.—E. H. W.—S. M.—W. H. P., Tilehurst—G. W.—Tyehurst—E. C.

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CONTENTS.

ILLUSTRATIONS.

HUNTERCOMBE MANOR.

(See figs. 127, 128, and Supplementary Illustration.)

DURING the year 1882 a delightful series of articles, entitled *A Buckinghamshire Garden*, appeared in the *Gardeners' Chronicle* from the pen of the Hon. Mrs. Boyle, and the subject of the articles was the Buckinghamshire garden attached to Huntercombe Manor, Mrs. Boyle's home near Taplow. A year or so later these monthly articles were revised and published in book form under the title of *Days and Hours in a Garden*. This volume was followed by others:—*A Garden of Pleasure* and *Seven Gardens and a Palace*. Thus Mrs. Boyle may almost be considered the originator of the graceful, literary garden-lovers' books, of which there are now so many. The making and describing of a charming garden illustrates one aspect of Mrs. Boyle's versatility; in the house—"an old house full of echoes"—are numerous panels and framed pictures of garden scenes and beautiful exotic plants, which demonstrate that she is no less gifted with the brush than with the pen.

The age of Huntercombe Manor can only be guessed. During the time the monks of Burnham Abbey held sway over the district it was the mansion-house of the convent. Long afterwards it became the residence of George Evelyn, cousin of the celebrated John Evelyn, who, after a visit, recorded in *Evelyn's Diary* that it was a "pretty seate in the forest; a staunch, old house, and had exquisitely kept gardens." The "noble cork tree," of which in November, 1774, the Rev. W. Cole wrote that it was "in full leaf and green and was then shedding its acorns and was supposed to be a hundred and fifty years old at least," has gone the way of all trees, but perhaps the splendid Phillyrea media, with a trunk 3 feet across, is its coeval. Magnificent old Elms on the boundary of the garden are also survivors of days long past.

When Mr. and Mrs. Boyle acquired Huntercombe, some 43 years ago, no vestige of Evelyn's "exquisitely-kept gardens" remained. Like the country surrounding it, in Mrs. Boyle's words, it was quite flat; there were no bosky paths or green surprises of nut-tree close, nor hidden grassy ways or pleasant orchard corners. The whole place could be seen at a glance. In front of the house there was an oblong-shaped lawn laid out with flower beds, with tall Roses bordering a broad gravel walk—otherwise the garden was featureless. Then "one dark November evening," when Mrs. Boyle was pondering what she could do to make the dreary flat interesting, the vision of trim Yew hedges flashed upon her. Thus the wonderful Yew hedges, illustrated in fig. 128, came into being. They enclose the smooth, rich green, level lawn, and started as three-feet-high Yews and planted thickly, they produced in a few years these perfect hedges. Beside the low Yew walls, three feet high and four feet across, with their tall finials, are Yews clipped in other fashions; but topiary work, as exemplified by pheasants, dogs, and the like, finds no place at Huntercombe. Dignity and repose were sought and are found, and the topiary which roused Addison to pen his famous satire has no place; but is replaced by a short pergola and square pyramids with conic spires which stand at points of vantage on the lawns. More fanciful is the "ruined house" at the end of one of the small lawns. It was made from a large Yew, fully 50 years old, and at first it was intended to lower the hedge some six feet, leaving square bastions at either end. But this impulse yielded to the happy idea of transforming the Yew into the semblance of a ruined house, and by dint of much patience and a deal of skill the old Yew has been transformed—the living symbol of a dead past.

[Photograph by H. N. King.

FIG. 127.—HUNTERCOMBE MANOR, BUCKINGHAMSHIRE, THE RESIDENCE OF HON. MRS. R. BOYLE.

THE FLOWER BORDERS.

These stately hedges of Yew, which create the illusion of a terraced garden, are but one of the notable characteristics of Huntercombe. Others are the many old, iron gates of beautiful workmanship, through one of which the flower garden is reached. But the visitor who hopes to find the conventional flower garden is foredoomed to disappointment. Nor may the ordered "colour schemes," which so vex the soul of many gardeners, be found. The "flower garden" is the old kitchen garden, where centuries past the monks dug and tilled the ground for vegetables and sweet herbs, and judging from the broken faces of the old, old red brick walls, nailed many a fruit tree against them. And here also, says Mrs. Boyle, their successors must have smoked much tobacco, for "all over the garden little old tobacco pipes are dug up from time to time; funny little narrow-mouthed pipes, all with stems broken off to within an inch or two of the bowl."

The vegetables, all but the sweet herbs, were banished from this walled-in garden, but some of the fruit trees were retained.

So we find a few very old standard Apple trees, which give a charming spring blossoming, standing here and there above the flowers; whilst against the walls are Peaches and Plums, Winter Sweet (Chimonanthus fragrans), and Roses. A narrow border around the walls was made, and then a paved walk was laid, with intersecting paths of gravel and grass. From early spring, through all the summer, and into late autumn, there is a profusion of flowers, and although there are no ordered colour schemes, the skill of the artist may be seen on all sides. Violets, especially the white Violet, are grown in great profusion, spreading around the Roses and Irises. Then come Daffodils, Primroses and Tulips, to be followed by every kind of Iris that will thrive. Hemerocallis, Anchusas, Pæonies, Delphiniums, Campanulas, Roses, and many more plants all contribute to the floral pageant of the year.

At irregular intervals the walls of this charming garden are pierced by iron grilles, which admit of glimpses of the outer world, of the stately Wellingtonia towering above the cool, green sward, and of the rock garden, where the plants are allowed to intermingle but not smother each other, and where Chionodoxa lucillæ seedlings spread and cover the spaces with blue and white flowers.

From the rockery the way leads past another wonderfully clipped Yew hedge, with a perfectly curved face and level-topped finials, and on to the glass houses, where Carnations, Pelargoniums, Heliotropes, Richardias, Begonias, Nerines, Chrysanthemums and Cypripediums all flower freely; and so back to the Manor house, where on this side a large Magnolia grandiflora still bears a few delicious blooms—the last of the year. The house border has no definite boundary; the Rosemary and Lavender bushes push out over the gravel walk and encircle the Myrtles and the Magnolia fusca, which in the summer perfumes the air with curious Clove-like scent.

No description of Huntercombe could be complete without mention of its veteran gardener, "my dear old friend," as Mrs. Boyle introduced him. Mr. Jesse Foulk was previously at Marston, Somersetshire, and when the Hon. Mr. and Mrs. Boyle purchased Huntercombe in 1872, Mr. Foulk came with them. He has carried out Mrs. Boyle's scheme ably and faithfully, and, though of advanced age, his great skill and enthusiasm are as evergreen as the Yews themselves. *Cecil Bartlett.*

[*Photograph by H. N. King.*

FIG. 128.—VIEW IN THE GARDENS AT HUNTERCOMBE MANOR, MAIDENHEAD.

NEW OR NOTEWORTHY PLANTS.

THE WAHLENBERGIAS OF AUSTRALIA AND NEW ZEALAND.

(*Concluded from p.* 337.)

II.—PERENNIAL SPECIES (*concluded*).

W. SAXICOLA, A. DC. *Monogr. Campan.* p. 144 (1830).—Plant 1-4 inches high, perennial. Leaves 8-12, all radical, in a lax rosette ¾-1 inch in diameter, sessile, ½-1 inch long, 1-3 lines broad, lanceolate, spathulate-obovate or oblanceolate, acute or obtuse, slightly toothed or subentire, glabrous, green on both sides. Peduncles 1 to each rosette, 1-4 inches long, slender, erect, 1-flowered, glabrous, usually without bracts. Calyx 3-5-lobed, glabrous; tube ellipsoid, green, usually with 10 darker veins; lobes ascending, 1½ line long, ½-⅓ line broad, linear-lanceolate, subacute, green. Corolla campanulate, 4-5 lines in diameter, 4-5-lobed, bright light blue; tube 1½-2 lines long; lobes ascending, 2½-3 lines long. 1⅓-1¾ line broad, oblong-lanceolate, acute. Style reaching to the base of the corolla-lobes, 3-lobed. —Campanula saxicola, R. Brown, *Prodr. Fl. Nov. Holl.* p. 561 (1810). Streleskia montana, Hook. f. in Hook. *Lond. Journ. Bot.* vol. 6, p. 267 (1847). Wahlenbergia saxicola, Hook. f. (partly) *Fl. Tasm.* vol. 1, p. 239, tab. 71, fig. A only (1860). Renth, *Fl. Austr.* vol. 4, p. 138, as to the Tasmanian plant only (1869); Irving in *Gardeners' Chronicle*, 1912, vol. 52, p. 216.

A native of Tasmania.

W. vincæflora, Decaisne in *Revue Hort.* 1849, p. 41, with coloured plate. Stem 9-18 inches high, 1-3-flowered, glabrous. Leaves confined to the lower half of the stem, opposite or alternate or the basal subrosulate, ½-2½ inches long, ½-4 lines broad, linear to oblong or those of the rosette spathulate, often wavy, glabrous. Calyx 5-lobed, glabrous; lobes ⅛ to ⅜ in. long, ascending-spreading, subulate-attenuate, very acute; tube (ovary) narrowly obconic, uniformly green. Corolla 1-1½ inch in diameter, glabrous, light bright blue or white; tube campanulate, 3-5 lines long and as much in diameter; lobes spreading, ½-¾ inch long, ⅓-½ inch broad, ovate or elliptic-ovate, obtuse or subacute, with a small apiculus. —Campanula vincæflora, Ventenat, *Hort. Malmais.* t. 12 (1803). C. gracilis, *Bot. Mag.* t. 691, not of Forster (1803). Wahlenbergia gracilis, A. DC. *Monogr. Camp.* p. 142 (partly) (1830). W. littoralis, A. Richard, *Essai Fl. Nouv. Zel.* (*Voy. Astrolabe*), p. 226 (1832). W. vincæflora, Lindl. and *Paxt. Flower Gard.* vol. 2. p. 13, fig. 142 (1851). W. gracilis var. vincæflora (excluding var. littoralis), Hook. f. *Fl. Tasm.* vol. 1, p. 239 (1860). W. vincæflora, Irving in *Gardeners' Chronicle*, 1912, vol. 52, p. 216.

A native of Australia and New Zealand.

Var. littoralis, N. E. Br. Leaves all opposite, very narrowly linear, ½-1 line broad.—Campanula littoralis, Labill, *Nov. Holl. Pl.*, vol. 1, p. 49, t. 70 (1804). C. gracilis var. littoralis, R. Brown, *Prodr. Fl. Nov. Holl.* p. 561 (1810). Wahlenbergia gracilis var. littoralis, A. DC. *Monogr. Camp.* p. 142 (1830).

A native of Tasmania.

The variety littoralis seems only to differ in having all its leaves opposite and uniformly narrower than in the type. Original specimens of it collected by Labillardière are preserved in the British Museum.

W. cartilaginea, Hook. f. *Handb. New Zeal. Fl.* p. 170 (1864).—A dwarf perennial 1½-2½ inches high, sometimes quite glabrous, sometimes more or less pubescent. Leaves all radical in a shortly elongated rosette, ascending-spreading, ½-1 inch long, spathulate, with a flattened petiole and an ovate, elliptic or rarely obovate blade, obtuse at the apex, rounded or subcordate at the base, entire, with thick cartilaginous margins. Peduncle ¾-1½ inches long, 1-flowered. Calyx 5-lobed, glabrous or pubescent; tube (ovary) shortly obconic; lobes ¼-½ inch long, 1-1½ lines broad, linear-oblong, obtuse or subacute, entire, with cartilaginous margins. Corolla about equalling or up to ⅛ inch longer than the calyx-lobes, 5-lobed; tube shorter than the lobes, shortly tubular; lobes oblong-lanceolate or elliptic-oblong, obtuse. Capsule ½ inch in diameter, broadly obconic. Flowers stated to be sweet-scented — Cheeseman, *New Zealand. Fl.* 403 (1906).

A native of New Zealand. *N. E. Brown.*

EUPHORBIA EUSTACEI.

It is probable that most people, upon looking at the illustration of this plant (fig. 129) for the first time, would think that it represented a hedgehog or similar animal crawling over a rock. Few, indeed, would conceive that it is a reproduction of a photograph, taken by Dr. R. Marloth, of a plant growing naturally in the crevice of a rock on a mountain side in South Africa, and kindly furnished us by Sir Frank Crisp, Bt. The plant is a very remarkable species of Euphorbia, the spiny mass being composed of a large number of short, densely-crowded branches armed with formidable white spines an inch long, forming a densely spiny cushion-like mass, rising to a height of about 6 inches above the rock or soil. Usually the cushion is more or less circular in outline, but the specimen photographed, having started its career in the crevice of a rock, has been compelled to assume an elongated form, hence its remarkable animal-like appearance. The photograph was taken at a time when the plant was leafless. When the leaves are present the spines are mostly concealed by them, and then the plant has the appearance of a harmless leafy cushion of glaucous-green. Not only is Euphorbia Eustacei different from any British or European species in appearance, but also in being unisexual, one plant being male, another female. *N. E. Brown.*

THE ROSARY.

NEW ROSES.

(*Continued from* p. 301.)

These are Roses of the years 1910, 1911, and 1912 which I happen to have grown in my own garden (see p. 301).

Geoffrey Henslow (H.T., A. Dickson, 1912). —This Rose is not to be confused with Turner's crimson sport from Mme. Victor Verdier of the same name, which is a Hybrid Perpetual. The H.T. of this name, which I am now dealing with, has a wonderfully bright colour of orange crimson. My single plant did not flower freely in the early summer, and later it has had no chance of doing so as the stems have been used for buds; but this is not necessarily to be taken

Fig. 129.—Euphorbia eustacei growing wild in south africa.

against it, and the brilliant colouring is an attribute that should attract those in search of something new and striking. The shape of the flower is of the globular type, and the foliage rather light green in shade.

George Arends (H.P., Henner, 1910).—This Rose is a very strong grower of much the same shade of pink as Elizabeth. I think the flowers are larger and looser than those of the latter Rose, but not so freely produced, and though Arends often looks as if it would make a good exhibition flower, it seldom seems to do so. It makes huge autumnal shoots, and being so very strong those in a bleak exposed situation might prefer it to Elizabeth, but in most cases the freer flowering of the latter should give it the preference.

George Dickson (H.T., A. Dickson, 1912) is a Rose on which many exhibitors are building their hopes for the coming season. The colour is a deep crimson with a curious velvety veining. It is of strong growth, readily pushing up fresh shoots, and there can be little question but that the flower is of fine form. My plant has not produced many flowers, and seems to have suffered badly from mildew. I have had it in a bed of Victor Hugo, and have managed to keep this latter fairly free from disease, but the autumn shoots of George Dickson, almost like those of a Hybrid Perpetual, have suffered in spite of some attention, and I have noticed a similar defect in a neighbouring nursery. My impression, which may be altered next year, is that it will prove chiefly an exhibition Rose.

Herzogin Marie Antoinette (H.T., Jacobs, 1911).—This is quite at the other end of the scale of H.T.s, resembling a Tea Rose in habit. It is a most charming little flower, of perfect shape and deep orange colouring, the buds splashed with red. Both in growth and flower it is nearer to Lena than anything else I can think of. No visitor to my garden has passed it without remark whenever there has been a flower out, and it is seldom without one. Yet with all this it is impossible to recommend Marie Antoinette to one's friends. Though the habit is spreading and bushy and the foliage beautiful, the growth is poor and weakly, and it is exceedingly tender. I seldom lose a Rose in my garden, yet of three that I planted two years ago I have lost two. Yet for those who will be at the pains to grow a difficult Rose, who will not be disheartened by failure, and are willing to prize something small, delicate and beautiful beyond the fat and flourishing flower half a pound in weight, I hold the attempt is worth making, but they must not blame me if they fail. The flower is of the high centred type, but quite small and very suitable for a buttonhole. It has a delicate Apricot fragrance.

Lady Barham (H.T., A. Dickson, 1911) is an upright-growing plant, bearing at the top of its stalks a blush-pink flower which, if one is lucky, and the weather be fine, opens to a well-shaped flower. To my mind it is too stiff for a garden Rose, and seems to be of little use in bad weather. In colour and habit it belongs to the Mildred Grant type, but the foliage is darker.

Lady Hillingdon (T., Lowe and Shawyer, 1910).—Few Roses and still fewer Tea Roses have sailed into the immediate popularity attained by Lady Hillingdon, and beautiful as it is at the shows, I prefer it in the garden, in a well-grown bed where the dark and claret-tinted foliage sets off so well the orange colour of the flowers. Its parentage is stated as Papa Gontier ×Mme. Horte, and we seem to trace the first-named parent in the lovely buds and rather loosely-built character of the flower. I think it looks better in a bed than in a border—perhaps there is no yellow Rose that makes so charming a bed. Its chief weakness lies in its stalk, which is hardly stiff enough to carry the flower well; not because the flowers are heavy, but because the stalks are weak. Another defect is that sometimes a number of the flowers may come of a rather uninteresting fawn colour, particularly in bad weather, instead of the lovely golden orange we want to see. I fancy both these defects are a little more marked in my garden than in that of some of my friends, and from the vigour with which Lady Hillingdon seems to grow on a chalk subsoil I am thinking of giving my plants a good dressing of lime this winter. It is very free flowering, and continuously in bloom. It is purely a decorative Rose.

Lady Pirrie (H.T., Hugh Dickson, 1910) is another decorative Rose, of coppery-salmon colour. The buds are very attractive, long, and pointed in shape. They open very quickly in hot weather, too quickly, forming flowers that are scarcely semi-double. For this reason my bed of Lady Pirrie is planted in the shade, where the plants are making good growth, but I think a standard in full sunshine has been more free in flowering. It is about the same amount of duplicity as Dorothy Page Roberts, but the fully expanded flowers of Lady Pirrie are, I think, more decorative, that is, it will stand being open rather better, and the petals have gracefully crinkled edges.

LESLIE HOLLAND (H.T., Hugh Dickson, 1911) has been one of my failures, so I can say little of it this year, my plants having made very little and poor growth. The high place (25th) to which it has attained in the analysis should be some indication of its value to exhibitors. The colour is crimson.

LIEUT. CHAURÉ (H.T., Pernet Ducher, 1910), derived from Liberty × Etoile de France, is a good grower and flowers well. The flowers are crimson, but personally I find neither the shape nor the shade of colouring particularly pleasing, the latter being rather dull. I have, however, seen it a better colour in other gardens.

LITTLE DORRIT (T., Paul and Son, 1913).—This strikes me as a charming little flower. It is after the build of Mme. Antoine Marie and the petals have a similar creamy texture, but they have more yellow in them, being peach colour, heavily tipped with soft rose. The growth is spreading and dwarf, and I shall be disappointed if it does not prove a pleasing bedding variety, in which capacity I propose trying it this coming year.

LOUISE CATHERINE BRESLAU (Aust. Hyb., Pernet Ducher, 1911) I have only grown this Rose in a pot so cannot write of its behaviour in the garden; the foliage is good, of a Rayon d'Or type, the colour is coral red and orange, the flower semi-double, rather flat, and those I have had not well shaped; its colour seems its chief attraction, and it may be worth growing for this.

MABEL DREW (H.T., A. Dickson, 1911).—This is a fine flower, creamy yellow in colour, apparently of the Kaiserin Augusta Victoria type, but a better grower. It seems likely to make a good exhibition Rose, as it has the staying power that Mrs. David Mackie lacks, excellent though it be as a garden Rose. It was noticeable in the amateurs' boxes of new Roses, exhibited at the N.R.S. summer show, as perhaps the best of the Roses in most of the boxes, but I think it has not yet attained a place in the analysis.

MME. JULES BOUCHE (H.T., Croibier, 1911).—This has proved one of my successes in the garden this year. The flowers are white, or nearly so, there may be a faint tinge of blush in the centre; they are quite a fair size, well formed, and rather deep. They are very freely produced and the buds are long. The plant is a good grower and carries its flowers erect but not stiffly. I am hoping to have a bed of this Rose next year, and think I can safely recommend it for general garden purposes.

MLLE. DE LA VALETTE (China, Schwartz, 1910).—For those who are fond of the China Roses this is a very pleasing addition to the group. The colour is difficult to describe. One of the catalogues calls it coppery-red on a golden-yellow ground, and this may be a correct analysis of the colours, but the general effect is rather a mixture of coral-pink and yellow. Be that as it may, it is a very pleasing little plant, producing its flowers freely, but like most of its race they have little claim to form, and are slightly pendulous.

MAMAN TURBAT (Poly. Pons., Turbat, 1912).—This is one of the Polyanthas that looked so well at the International Show, the flowers, a china-pink colour, very freely produced in large trusses. Its strong point appears to be its clear and pleasing colour.

MELODY (H.T., A. Dickson, 1911).—Under glass and early in the year this Rose is a deep saffron-yellow, which is very beautiful, but later in the season the flowers have very much lost this colour, and come at times nearly white. I took a fancy to this Rose partly I think from its name, which is a great improvement on those which most Roses unfortunately have to bear, and I planted eight or nine plants of it. They have made nice bushy little shrubs and flowered with tolerable freedom, but have suffered somewhat, though perhaps not very badly, from mildew. Its loss of colour as the season progresses, if it prove usual, will, I fear, prevent it making a first-class yellow Rose for garden purposes, and it may be it will be best under glass. *White Rose.*

HARDY FLOWER BORDER.

KNIPHOFIA MULTIFLORA.

IN fig. 130 is given an illustration of Kniphofia multiflora flowering in the Royal Gardens, Kew, only a few days ago. It is in such a season as the present that this interesting species gets its opportunity to flower, owing to the fact that (like K. Saundersii, mentioned by Mr Divers in the next paragraph) it has the habit of flowering so late as November. The general appreciation the plant receives may be partly due to the infrequency that it is seen at its best; but, in any case, the group of plants at Kew has attracted more attention recently than anything else in the gardens. The species was introduced from the mountains of Natal, where it grows at an elevation of 5,000 to 6,000 feet above the sea-level. It is interesting as belonging to a small section of Kniphofias which have the individual flowers erect.

[Photograph by E. J. Wallis.

FIG. 130.—KNIPHOFIA MULTIFLORA FLOWERING IN THE ROYAL BOTANIC GARDENS, KEW.

The species is not common in gardens; a plant flowered in the Cape House, Royal Gardens, Kew, in 1900; whilst specimens flowered in the open in 1909, both in Mr. Gumbleton's garden at Belgrove, Co. Cork, and Mr. T. Smith's nursery, Newry, and doubtless there are instances of the plant blooming in most seasons, but rarely so finely as in the present year.

KNIPHOFIA SAUNDERSII.

THIS Kniphofia is one of the finest plants for brightening up the herbaceous garden at the end of autumn. A large specimen with 54 spikes of bloom is now in full beauty; it is by no means unusual for the plant to flower at this period, and in some seasons we have had several spikes at Christmas; Kniphofia Saundersii is very similar to K. aloides in general characters, but the flower stems are not quite so rigid, which is an improvement for gardens.

BORDER CHRYSANTHEMUMS.

THE great value of these plants for flowering in sheltered positions in late autumn was never more exemplified than this year. Notwithstanding frequent heavy rains the blooms are still fresh and good; the remarkable absence of frost,

hitherto, has no doubt been much in their favour, but showers of snow do more damage than anything else, and they have not yet commenced. Some of the best varieties at the present time are Roi des Précoces, dark crimson; Ryecroft Glory, yellow; Précocité, crimson; Vivid, bronze; Madam Charvin, pink and white; Gloire de Mezzin, brown; Madame La Comtesse Foucher de Careil, orange; Profusion, yellow; Coral Queen, salmon; Alexander Dufour, purple; Fiberta, yellow; and Nina Blick, bronze. *W. H. Divers, Belvoir Castle Gardens, Grantham, Nov.* 14.

THE MARKET FRUIT GARDEN.

SILVER-LEAF EXPERIMENTS.

The article on this subject by Mr. E. Molyneux in this paper of October 25 (p. 293) is interesting, and the results of the experiment will be still more so. In this case the silver leaf affected two Apple trees, and one tree, treated in March last with 6 lbs. of sulphate of iron scattered among the uncovered roots, caused the silvering to disappear, at least for one season. It is a pity that only one tree was available for the trial, the other being left as what our American cousins call a "control" tree; also that the trial was not made also on Plums. I have had no experience with silver leaf in Apples, but a great deal, unfortunately, in Plums. In 1910 I began experiments by dressing affected trees with sulphate of iron, sulphate of magnesia, separately and in combination with farmyard manure or mixed artificials, consisting of one part sulphate of ammonia and two parts each of superphosphate and muriate of potash. The trials have been continued to the present season, but only one of the trees originally treated is now left, others having been dug up and burnt in 1911 or 1912. There was an improvement in three out of the seven cases left up to 1912, but a relapse took place in 1913 in all cases but one, and the relapsed trees have been destroyed. Farmyard manure alone appeared to do no good, and sulphate of magnesia was a complete failure, as also was a combination of the two. Farmyard manure and 3 lbs. of iron sulphate benefited the tree to which the combination was applied, and the report in 1911 was that it was nearly cured. There was a relapse in 1912, however, and the tree was dug up. Another tree treated in the same way never improved, but a third improved up to 1912, and then relapsed. The only tree left was dressed in 1910 with 6 lbs. of iron sulphate alone. It improved slightly in 1911, but not nearly as much as two trees which had the mixed artificial manures named above and 3 lbs. of iron sulphate. In 1911 7 lbs. of complete artificials were applied, and the tree recovered to all appearance, and bore a big crop in 1912. The dressing of artificials was repeated in 1912 and again in the past season, and there is every reason to believe that the tree is finally cured. The cure was attributed to the artificial manures, though the iron sulphate may have helped, and this year in a number of fresh cases only artificials have been used. In addition to applying the mixture to all affected trees, the whole of my Victoria Plums, according to age, have recently been dressed with a mixture of equal parts of high-grade superphosphate and kainit, working out from over 4 lbs. to over 6 lbs. per tree, in proportion to age, young trees getting the smaller quantity. This dressing will be followed in the spring with 2 cwt. per acre of nitrate of soda. Also, I shall try the effect of 7 lbs. of iron sulphate on each of a few trees silvered this year for the first time, though there is a good deal of iron in my soil. I am disposed to think that farmyard manure encourages rather than checks silver leaf, as both my Plum orchards, one in 1911-12 and the other in 1912-13, had a liberal dressing of that manure—at least 25 tons per acre. Most of it was the best London dung. *A Southern Grower.*

THE FORCING OF SPANISH IRIS.

The word "forcing" in regard to Spanish Iris seems somewhat inappropriate, as they cannot be forced into flower quickly like Tulips, Narcissus, and Hyacinths. All that can be done is by exercising very great care to induce them to flower a few weeks before those growing out-of-doors.

Both pots and boxes may be used to hold them, but the box is so far the superior receptacle that it is not necessary to take the pots into consideration. Boxes about 12 inches to 15 inches square and about 3 inches to 4 inches deep are the best size, and they should be fairly strong, so that no unnecessary movement of the roots will take place when they are carried into the house. They should also be particularly clean to ensure freedom from fungous pests.

Unlike most bulbs for forcing, Irises are not benefited by a layer of leaf-mould, manure, or litter placed in the bottom of the boxes, as this tends to encourage soft, fleshy roots which are easily broken, and when once they are broken the plants seldom produce fresh ones.

The best kind of soil to use is the top layer from a piece of ground which has been well treated for a previous crop by good manuring and liming; it should be sterilised by steam or chemicals some time before it is required, so that all insects, slugs, etc., are destroyed, turned several times to aerate, and covered to ensure a not too wet condition when boxing the bulbs.

When this is ready the box is filled loosely to the top with soil, the bulbs pressed in until they are about ½ inch below the edge of the box, and the whole made firm by pressing with the tips of the fingers. This will leave the bulbs just below the surface, sufficiently deep so that they will hold the plant firmly, but which will allow the roots a fair depth of soil below the bulb. In this way it is possible to get a maximum of roots with a minimum depth of soil.

After boxing place them in a well-drained position outside, give them a thorough soaking with water, using a fairly fine "rose" on the can, so that the soil does not cake, and cover to a depth of 3 inches or 4 inches with ashes. These should have been outside exposed to the weather to neutralise the acids which they contain. All that is then necessary is to see that the soil in the boxes is not allowed to become dry, especially after the roots have started to grow

The slightest check caused by dryness at the roots will damage the embryo flower.

When the time comes round to place them in the houses the preparations must be thorough. If they are to be placed on a staging a light covering of soil should be scattered on which to stand them, and when they are to occupy ground space the soil should be left fairly loose on the surface. This is necessary in order that the roots, which penetrate through the interstices and drainage holes of the boxes, may enter the soil. If it is too hard they creep along the surface, and in some cases are exposed to the atmosphere. In this way the roots are damaged by sunlight and dryness, and the flower is destroyed, although the ill-effect is not shown on the foliage. After the boxes have been put in position a little soil should be placed round the exposed parts of them for the reasons mentioned in regard to the loose soil.

Watering is a simpler matter than with most winter subjects, as it is best to give a little more than less, but a fairly fine "rose" should always be used. If the water is thrown heavily on the plants the foliage is laid, and as the flower stems develop they fall, and many of the under ones are lost.

There is nothing better than a fine spray of water over the foliage about midday on sunny days to give a clean, healthy growth, and to ensure that the tender tips of the leaves are not damaged.

The Iris is one of the few bulbs of this type which will respond to artificial feeding when forced, and for this purpose a little manure-water the colour of straw can be given frequently any time after the flower stems are showing, but it must not touch the foliage. Give it through a small spout can held close to the soil, and water the space adjoining the boxes, and it will do good.

If a few simple rules are borne in mind Spanish Iris can be made a success, giving 95 per cent. of good flowers instead of 40 per cent., as I have frequently seen them. See that they receive no check through exposed roots or dryness. Do not move them on any account after the boxes are placed in their permanent quarters, and "do not count how many blooms you are going to have—until you cut them." The latter is the remark of an old hand.

Slugs bent on mischief will come out and eat the flower stem half-way through just below the bud when the buds are starting to open. If at any time it is seen that there are slugs, traps of Potato, Carrot, or Turnip should be laid until the animals are captured.

The best temperature at which to keep the house is the same as it would be on a fairly mild day at the particular season. Thus, if the temperature is 45°, try to keep it steady about that by giving a little fire heat when frost is about. It is also necessary that the radiated heat from the pipes should not affect the growth near them, and if any hot-water pipes are situated in such a way that the boxes are near, a board deep enough to protect the plants should be placed beside them.

Flowers of Spanish Iris are best cut as soon as they show colour, or at latest when they are half open. They will then develop quite freely in water, and if they are to be packed for travelling the breakage is reduced to a minimum.

The following tables and remarks are the outcome of carefully kept records of quantities frequently reaching one hundred thousand bulbs, and while they are not intended as the last word in forcing Spanish Iris, they can be relied on as a criterion to guide one in reaching safe results:—

Cold House—No Fire Used at any Time.
Housed on March 9.

Name.	First bloom ready.	Remarks.
White.		
Blanch Superb ..	May 27	Good. Pure white.
British Queen ..	,, 24	,, ,,
Blanche Fleur ..	,, 29	,, Not quite pure.
La Tendresse ..	,, 28	,, Yellow white.
Blue.		
Louise	,, 27	,, The best pale blue.
Heleana	,, 28	,, Mid-blue.
King of Blues ..	,, 28	,, ,,
Count of Nassau	,, 28	,, Syn. King of Blues.
Solfataire ..	,, 28	Very good.
Darling	,, 27	Good. Intense blue.
Darius	,, 23	,, Mid-blue (early).
Yellow.		
Cajanus	June 6	Very good.
Belle Chinoise ..	,, 23	Good. Intense yellow.
Chrysolora ..	,, 25	Fair. Rather pale in colour.
Queen Emma ..	,, 27	Better than Crysolora.
Beauty		Good. Colour mixed blue.
Violet King ..	,, 26	,, Green to violet.

House Heated to Keep the Temperature Equal by the Use of Fire Heat and Ventilation.

Name.	Housed.	First bloom ready.	Remarks.
Belle Chinoise ..	Jan. 19	Apr. 20	Fair.
Blanche Fleur ..	,, 19	,, 22	Good.
Louise	Mar. 20	May 10	Good.
Alex. Van Humboldt	Jan. 19	,, 10	Bad.
British Queen.. ..	Mar. 20	,, 10	Good.
Count of Nassau ..	Feb. 26	,, 26	Good.

A box of each of the above varieties was placed in a house which was kept at a temperature of 60° to 65° Far. The buds came up quite plump and healthy, and then withered, in spite of ample supplies of water. A remark in the record reads: "Twenty boxes of Blanche Fleur withered owing to dryness." That is, they de-

veloped fully, but the flowers dried up. Probably the fact is that the bulb is so small in comparison with the fully-grown plant that it has not sufficient latent vitality to develop the flower when hard forcing is attempted. *T. W.*

ORCHID NOTES AND GLEANINGS.

HYBRID ORCHIDS.

THE following are new or rare hybrids which have recently flowered. They are recorded with the names of the exhibitors or of those who have sent us flowers.

Hybrid.	Parentage.	Exhibitor.
Adaglossum Juno	Ada aurantiaca × Odontoglossum Edwardii	J. and A. McBean.
Brasso-Cattleya Iris	C. Iris × B.-C. Thorntonii	J. and A. McBean.
Brasso-Cattleya Matthewsii	B.-C. Digbyano-Warneri × C. Hardyana	F. J. Hanbury, Esq.
Brasso-Cattleya Mrs. Pitt	C. labiata × B.-C. Digbyano-Warneri	H. T. Pitt, Esq.
Brasso-Lælio-Cattleya Eric	B.-C. Madame Chas. Maron × L.-C. Violetta	Flory and Black.
Brasso-Lælio-Cattleya Morna	B.-C. Madame Chas. Maron × L.-C. bletchleyensis	Flory and Black.
Cattleya Drapsia a [Andreana]	Dowiana aurea × Mrs. Pitt	J. and A. McBean.
Cattleya Acis	Maroni × Dowiana aurea	Armstrong and Brown.
Cattleya Bristowiana	C. F. W. Wigan × C. Mossiæ	Armstrong and Brown.
Cattleya graniris	Gramulosa × Iris	C. J. Phillips, Esq.
Cattleya Moira	Fabia × Mantinii	Hassall and Co.
Cattleya Esther	Gaskelliana × Cleopatra	Lieut.-Col. Sir Geo. L. Holford, K.C.V.O.
Cattleya Surprise	Trianæ × granulosa	Wm. Bolton, Esq.
Cattleya Thela	Mrs. J. W. Whiteley × Hardyana	H. T. Pitt, Esq.
Cattleya Thomasii	Bowringiana × Peetersii	F. J. Hanbury, Esq.
Cattleya Prince John	Hardyana × Dowiana Rosita	Armstrong and Brown.
Cypripedium Estella	Godefroyæ × Fairrieanum	Sander and Sons.
Cypripedium Olympus	Alcibiades × Leeanum Clinkaberryanum	Lieut.-Col. Sir Geo. L. Holford, K.C.V.O.
Cypripedium Tracery	Psyche × bellatulum	W. H. St. Quintin, Esq.
Lælio-Cattleya Ameeia	C. Mantinii × L.-C. Wellsiana	H. T. Pitt, Esq.
Lælio-Cattleya Anthela	L.-C. Phryne × C. Warscewiczii	Pantia Ralli, Esq.
Lælio-Cattleya Aphronysa	Aphrodite × Nysa	Armstrong and Brown.
Lælio-Cattleya Armstrongæ	L.-C. Geo. Woodhams × C. Dowiana Rosita	Armstrong and Brown.
Lælio-Cattleya George Woodhams	C. Hardyana × L. purpurata	Armstrong and Brown.
Lælio-Cattleya Hera	L.-C. Issy × C. Hardyana	Charlesworth and Co. and Hassall and Co.
Lælio-Cattleya Maqueda	L.-C. Geo. Woodhams × C. Lord Rothschild	Armstrong and Brown.
Lælio-Cattleya Jacobus	C. Dowiana aurea × L.-C. Sappho	Armstrong and Brown.
Lælio-Cattleya Intea	L. Latona × L.-C. Ophir	H. T. Pitt, Esq.
Lælio-Cattleya Moyra	C. Warscewiczii × L.-C. Clonia	W. H. St. Quintin, Esq.
Lælio-Cattleya Duranta	L.-C. Martinetii × L.-C. Dallemagnei	H. T. Pitt, Esq.
Lælio-Cattleya Neleus	C. Iris × L.-C. Ophir	Lieut.-Col. Sir Geo. L. Holford, K.C.V.O.
Lælio-Cattleya Mrs. Donald Macmaster	L.-C. luminosa × C. Dowiana aurea	Francis Wellesley, Esq.
Lælio-Cattleya Perdita	C. granulosa × L.-C. Tydea	H. T. Pitt, Esq.
Lælio-Cattleya Rainbow	C. Iris × L.-C. Phryne	Armstrong and Brown.
Lælio-Cattleya Sandhurstiana	L.-C. Norba × C. Mossiæ	Armstrong and Brown.
Lælio-Cattleya Scampstonensis	L.-C. La France × C. Dowiana aurea	W. H. St. Quintin, Esq.
Lælio-Cattleya Thyone	L.-C. Ophir × C. Dowiana aurea	Charlesworth and Co. and Armstrong and Brown.
Lælio-Cattleya Saturn	L.-C. Clive × C. Dowiana Rosita	Charlesworth and Co.
Lælio-Cattleya Centaur	L.-C. bletchleyensis × C. Lord Rothschild	Mrs. Bischoffsheim.
Lælio-Cattleya Sulla	C. Mendelii × L.-C. purpurato-Schilleriana	Lieut.-Col. Sir Geo. L. Holford, K.C.V.O.
Lælio-Cattleya × Cantiana	C. Harrisoniana × L.-C. Geo. Woodhams	Armstrong and Brown.
Odontioda Brunette	Oda. Bohnhoffiæ × O. Harryanum	Charlesworth and Co.
Odontioda Cupid	O. ramosissimum × C. Noezliana	Sir Jeremiah Colman, Bart.
Odontioda Gladys	O. Rossii rubescens × Oda. Bradshawiæ	E. H. Davidson, Esq.
Odontioda Isis	C. vulcanica × O. Rolfeæ	R. G. Thwaites, Esq.
Odontioda Minerva	Od. Edwardii × Oda. Bohnhoffiæ	J. and A. McBean.
Odontioda Seymourae	Charlesworthii × Bradshawiæ	Armstrong and Brown.
Odontonia Farnesiana	Od. Edwardii × M. Warscewiczii	Sander and Sons.
Odontonia MacNabiana	Od. Edwardii × M. Blenana	Sander and Sons.
Odontoglossum Dioscorides	Crispo-Harryanum × Andersonianum Ruckeriana	H. T. Pitt, Esq.
Odontoglossum Meredithæ	Rossii rubescens × vemustulum	R. G. Thwaites, Esq.
Odontoglossum Wilsonii	Vuylstekei × Rolfeæ	R. G. Thwaites, Esq.
Sophro-Lælio-Cattleya Laconia	L.-C. Callistoglossa × S.-L. heatonensis	Charlesworth and Co.
Sophro-Lælio-Cattleya Niobe	L.-C. Gottoiana × S.-L. Felicia	Charlesworth and Co.

The names and parentages are those given by the owners of the plants. If any of our readers know of prior records, either of name or parentage, we shall be glad to make corrections where error is proved.

Orchid raisers are asked to send us flowers of new crosses, with particulars.

FOREIGN CORRESPONDENCE.

SAMBUCUS RACEMOSA.

IN respect to Mr. Divers' question (see p. 216), I have never heard that S. racemosa is poisonous, though in the mountains of Germany it sometimes grows in great masses. The plant is a very attractive shrub, specially in the autumn, when the red berries show in relief against the dark foliage. *Oth. Wallenberg, Ramin per Gramboro, Pom., Germany.*

MR. ELWES' AMARYLLIDS.

I READ with much pleasure Mr. Elwes' notes on Amaryllids (see p. 198). I can well understand the keen interest he takes in his fine specimens. Most of the species he enumerates grow in the open here; and some would, I believe, be hardy in some parts of England I miss two species of Hymenocallis from the list—H. Harrisiana Bak. and H. concinna Bak. Mr. Lynch has written to me to the effect that both these species are hardy at Cambridge It is possible that H. Harrisiana is a northern form of H. speciosa. The leaves are smaller, but the flowers are larger than those of H. speciosa. The perfume, especially in the afternoon, is rich and pleasing. The plant is a native of Mexico.

H. concinna Bak., also from Mexico, differs from the other species in not being evergreen. The spring leaves are ovate-lanceolate glaucous; usually three to four white, sweetly-scented flowers are produced. The species produces large seeds, resembling those of Belladonna, of a fresh green colour, which germinate almost immediately on coming into contact with moist soil. I have many seedlings, but am unable to cross the species with any other, as it is the first in flower; but if it were possible, a race of half-hardy plants, of tropical aspect, might be obtained. The species is hardy at Cambridge.

Mr. Tubergen sent me a plant of Crinum H. J. Elwes, but it has not yet flowered. Crinum Belladonna is one of my hybrids; it is a good variety, but not one of the best. About twenty different hybrids have been raised. Most of these are in England, and a Cornish friend writes that all the fifteen varieties I sent him are growing luxuriantly. Most people make the mistake of thinking that they are not hardy, and grow them in pots—they do not do at all well cultivated in this way, being emphatically plants for the open garden.

Every year, in August, I make an excursion to a town near Amalfi (Maiori) to see the Vallota purpurea in flower. The little town presents a charming appearance; on every house, along every terrace, are masses of Vallota purpurea bloom. The plants are often grown in large casks, the casks often being broken, exposing the roots to the air. In some of these casks I have seen as many as eighty flower stalks; the plants are grown in the same place all the year round, and it is difficult to find what sort of culture they receive. It would be interesting to know from whence the town first obtained bulbs of the plant; I asked an old woman when they were first planted, but she replied that casks full of bulbs had stood always in her father's house, and no one seemed to remember the time before they became an institution. It is my own belief that they came from England; the town exports large quantities of Lemons to that country, and it is probable that one of the shippers brought the bulbs on his return from a visit there. In any case, it is a fact that I have seen the plant growing nowhere else. I obtain my own plants from Maiori; I have them in a little border near the house, with Campanula garganica fragilis and C. g. f. alba; also Asparagus plumosus (the tall variety), A. Cooperi, and another large climbing species. The aspect is south-east, and during the winter I cover the border with leaves. The soil is enriched with a little leaf-mould and large quantities of cow-manure.

Two years ago I received from Basutoland a few bulbs of Nerine angustifolia Bak. resembling bulbs of Zephyranthus. The first year they grew well, but I was not able to recognise them. The leaves were long, green and something like the Mexican Chlidanthus fragrans, and evergreen. This year the flowers appeared, and made recognition easy. In shape and colour the blossoms resemble those of Nerine undulata, but they are larger. Seed is freely borne, and I have already crossed some small seedlings with N. corusca. N. angustifolia is very pretty, the leaves green all the year round. It is a quick grower, and increases rapidly by means of shoots.

I have had many other Amaryllids in flower, notably Cyrtanthus angustifolius and C. Mackenii, besides numerous species of Zephyranthus. Of these, however, I will write another time. *Willy Müller, Fratti di Salerno, Naples.*

FLORISTS' FLOWERS.

NEW JAPANESE CHRYSANTHEMUMS.

MRS. H. J. JONES (Jones, 1913).—This is quite a novelty among Chrysanthemums, not only in colour, but also in the formation of the flowers. The blooms, when fully developed, are 10 inches deep and 9 inches in diameter, with extra large florets, which droop in a graceful and regular manner. The colour is soft yellow, tinged with green; or, if preferred, the term "Chartreuse green" could be applied.

Mrs. R. C. Pulling (Jones, 1913) belongs to the incurved Japanese section. The broad florets, neatly arranged, form a full, bold flower, of massive proportions; the colour is a pleasing shade of soft yellow. It is one of the most promising varieties sent out for some time.

Colonel George Dixon (Davis, 1913).—This flower is an intense crimson-scarlet, with pale gold reverse. It is a brightly-coloured, promising variety, which should prove useful for exhibition.

Mrs. Will Dennis (Davis) has long, drooping florets, forming a flower of attractive character. The colour is rich lilac or rose, paling with age.

Rosamund (Davis), with its broad, reflexed florets, gracefully drooping, is a full, solid bloom 9 inches in diameter. The colour is attractive—old rose or wine-colour.

Mrs. Howard Kinsey has semi-drooping florets, white suffused with cream.

Joan Stratton (Jones, 1913) is a full, solid bloom with reflexed florets of a delicate pearl-pink colour.

Mme. T. H. Morel (Wells) has broad, flat florets, of which the colour is yellow with an amber suffusion.

William Vert (Wells) is one of Pockett's Australian-raised varieties, bright chestnut-red, suffused with a deeper shade of the same colour. The flower is full and solid.

Miss Ethel Surry has narrow reflexing florets, of a refined character. The colour is a pretty shade of soft pink, on a white ground.

Bob Pulling is quite the finest yellow Japanese variety in cultivation. The blooms, when fully developed, measure 9 inches each way, and the long florets are deep, almost orange, yellow.

Mrs. Thomas Stevenson is a large bloom, with long, curling florets. The centre is a deep yellow, but the colour of the lower incurved florets is much paler.

Mrs. Rodwell, although not quite new, deserves attention. The fully-developed blooms measure 10 inches deep, and the long, drooping florets, of pale rose colour, are attractive.

The variety known as "Daily Mail" is a large, solid flower of an attractive shade of yellow, but the florets are too narrow and too closely interwoven.

Mrs. G. Lloyd is yellow with a faint buff shading. It has fairly broad florets, and is a solid flower. *E. M.*

THE ROCK GARDEN AT LEALHOLM.

The Cleveland hills and dales of north-eastern Yorkshire comprise some of the most beautiful scenery in England, and attract many visitors during the summer months. Situated about midway along the River Esk is a little village called Lealholm, the home of Sir Francis Ley, Bart., who has of late years greatly added to the beauty of the landscape by planting ornamental groups of trees and shrubs; but the principal feature of the place is the rock gardens, which may claim perhaps to be the most extensive in the country. The rockeries are on the banks of the Esk, which at this place rise from the river bed to a height of from 60 to 80 feet; the banks are so steep that much of the work has to be done by means of ladders. Huge masses of stone in the cliffs and in the river bed add much to the rugged beauty in this ravine, which is also well wooded. Walks are cut out on the banks; the dangerous places on the steep sides are protected by rail fences. Starting from the top at one end and making a circuit by the far end of the rockeries, returning by the river bed to the starting-point, it is over a mile and a half in length. The construction and planting of the rockeries were commenced about seven or eight years ago, under the personal supervision of Sir Francis Ley. Later the work was entrusted to Messrs. James Backhouse and Sons, York, and for the past three years the work has been continued by Mr. D. Peary, the present head gardener. Extensive additions are carried on year after year. Many specimens of Coniferæ, ornamental trees and shrubs, rock and border plants, are annually added to this fine collection. It is an ideal situation for a rockery, and all through the planning and planting the natural features incident to the situation have been carefully preserved and beautified. It combines in one harmonious whole, ornamental, woodland wild flowers and fern intermingling with popular and some rare garden border flowers and rock plants. Massing in groups without geometrical design is a feature in certain places, but is not carried on to such an extent as to make the effects monotonous or unnatural. *Alfred Gaut, University, Leeds.*

NOTICES OF BOOKS.

Trees and Shrubs at Leonardslee.*

We are glad to receive one more catalogue of a private collection of hardy trees and shrubs. We have already seen the catalogues prepared by Mr. Woodward, junior, of Arley, by Sir John Ross, of Bladensburg, and that made by Mr. A. B. Jackson of the Sion House collection for the Duke of Northumberland. The present one is of the Leonardslee collection, and has been compiled by Sir Edmund Giles Loder, Bart. The conditions at Leonardslee are undoubtedly very favourable for the cultivation of trees and shrubs. It lies 270 feet above the sea level; 9 miles from the northern slopes of the South Downs, and 13 miles in a direct line from the sea at Shoreham. The smallest rainfall on record (that of 1893) is about 23½ inches, and the average for the last 31 years 29.65 inches.

Leonardslee is particularly rich in Ericacea, and the species and varieties which are entered in the list are probably between 350 and 400. Sir Edmund has also been successful in getting together an exceptionally fine collection of Coniferæ, of which there are over 200 entries. Altogether the catalogue occupies over 50 pages 8vo, and the number of species and varieties enumerated must approach 2,000. This is a remarkable achievement in a private garden, and one on which Sir Edmund is to be congratulated. In the introductory notes to the list the compiler gives some interesting particulars about the more important and finely-developed examples at Leonardslee. Portugal Laurel is 39 feet high, 4 feet 3 inches in girth of trunk; Pieris formosa is 15½ feet high; Erica lusitanica 13 feet 8 inches; Pittosporum tenuifolium 23½ feet; Fremontia californica 20 feet; Picea morindoides 32½ feet (this tree produces cones); and Ilex cornuta 9½ feet high. These particulars show that the Leonardslee collection is as notable for the fine development of its individuals as for their number.

The catalogue is well printed and remarkably free from typographical errors. We note Cytisus Heuffeli has an "f" too few and an "l" too many, and that the names in the introductory notes do not always tally with those in the list itself. Thus Acanthopanax ricinifolium becomes an Aralia, Ægle sepiaria a Citrus; but these are only small slips in an extremely interesting and carefully-made compilation.

Monograph of the Gooseberry.*

The publication of Herr Maurer's monograph of the Gooseberry has been long anticipated by pomologists, and a study of its contents shows that it will fulfil the highest expectations.

It is curious that a fruit so essentially English should not have received more careful attention from pomologists in this country. With the exception of Robert Thompson's excellent descriptions in the *Transactions* of the Royal Horticultural Society (1835), and Hogg's shorter descriptions in *The Fruit Manual*, no exhaustive study of this fruit has been made in this country. The work of Herr Maurer's father, published in 1867 in the *Illustriertes Handbuch der Obstkunde*, has remained up to now the best available source of detailed information.

The plan of the present work is as follows:—

Firstly, the different organs of the plants are minutely described, and their value as aids to the determination of varieties is discussed. It may be remarked parenthetically that to many this part of the work will be considered as containing an over-elaboration of detail. But it cannot be too much emphasised that for the correct identification of varieties no constant character is too small to be valueless to the expert, and the tendency in this country to attempt to identify varieties from the fruit alone is one fraught with great danger, and has lessened the value of much English pomological literature. An instance of the great care exercised by the author is that for his descriptions of the fruits no fewer than 120 specimens of each sort were examined, and that these examinations were continued over a series of years.

After a consideration of all the constant characters, which have a value as aids in determining varieties, there follow excellent chapters on culture and on pests and their treatment. The value of the book, however, consists in its descriptions of varieties and the excellent illustrations which are given. No fewer than 183 varieties are figured in life-sized photographs, and 14 coloured plates, each showing some 12 or more sorts, are also given. These plates will make the book of value even to those who do not read German.

The plain plates show a small branch with leaves and fruits, and are superb examples of technical photography. The coloured plates are from drawings by A. Giltsch, and are excellently lithographed, a process which seems yet to stand ahead of the "process" work in the exact rendering of natural colours.

It is refreshing in these days, when horticultural literature owes so much to the employment of scissors and paste, to find a book which contains real and original work, and it is to be hoped that it will attract attention to this fruit, which is far too little cultivated. Coming as it does when other fruit is scarce, it is remarkable how little Gooseberries are grown so far as the really fine-flavoured sorts are concerned.

A unique feature of the work is the careful and detailed historical account given of each variety, and we note with pleasure the practice of placing the name of the first describer after the varietal name, as in botanical practice.

These small points, unimportant as they may seem to many, are of the greatest help in settling cases of doubtful nomenclature, and are but an index of the care for detail which characterises the whole work, and which will without doubt make it the standard work of reference for many years to come. *E. A. B.*

Alpine Plants in the Oberland and Valais.*

Mr. Malby, well known for a very useful little book on the rock garden, has given us his impressions of the flowery places of the Alps in a pleasantly enthusiastic volume. It deserves to be read both by those who go to the high places and to those who stay at home but nevertheless love the plants of the mountains. The book contains much besides allusions to the flora, for the author manages, in describing his own enjoyment of his wanderings, and his appreciation of scenery, to convey to his reader some of that sense of exhilaration which is one of the many good things that come to one in the pure air of the higher altitudes.

But why does Mr. Malby perpetuate the horrid error embodied in the word "rücksac"? The idea that it means a sack for the back is simply a blunder—one which has already been pointed out in the pages of the *Gardeners' Chronicle*. The word is "rucksac," and it is derived from *rucken*, which means to jostle or jumble up—a very apt description of what happens to the contents of the more primitive types of this useful form of knapsack.

There are a few obvious slips in the text—e.g., on p. 35, where Erinus alpinus is spoken of as a crucifer. On a later page occurs the curious statement that the horns of bonquetin or ibex not infrequently are to be seen on the fronts of chalets in the Oberland. Is it not of the chamois that Mr. Malby is thinking? For the bonquetin is now only found wild in the southern range of the Graians, where they are preserved by the King of Italy. Attempts to introduce it into Switzerland which were made by the Seilers were unsuccessful.

It is impossible to close this short notice of the book without referring to the admirable illustrations and photographs which it contains. Both are of a most unusually high order of excellence, and some of the views of mountain and village are wonderfully pleasing. We think, however, that the little advertisement contained on the sheet preceding the frontispiece, for which the author is probably not responsible, might with advantage have been omitted. *F.*

* Printed by the Army and Navy Co-operative Society, Ltd., 1913. (For private circulation.)

* *Maurer's Stachelbeerbuch.* By Louis Maurer. E. Ulmer, Stuttgart. English agents: Messrs. Wesley & Co.

* *With Camera and Rück ac in the Oberland and Valais.* By Reginald A. Malby. With over 70 photographic studies. (London: Headley Brothers.) 10s. 6d. net.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

LYCASTE.—Lycaste Skinneri and its rare variety alba have almost completed their growth, and the plants are sending up flowers. Whilst growing actively Lycastes require plenty of water at the roots, but at this particular stage they may be kept somewhat drier. On no account must the pseudo-bulbs be allowed to shrivel for want of water, but the slight check which they will receive from having less moisture will often cause them to send all their flowers up together instead of two or three at a time. Plants of this species should be rested after flowering by withholding water, as but little moisture is needed so long as the pseudo-bulbs remain plump. They may be grown in the cool house in an average temperature of 50°. Although plenty of light is an advantage, their foliage must not be too close to the glass in winter. Some of the varieties of Lycaste lanipes, an intermediate-house plant, are well worth growing, the flowers being, in some instances, nearly pure white, many in number, and delightfully scented during the hours of darkness. The plants of this species, also those of L. Barringtoniæ and L. costata, grow well together. The flower spikes are appearing, and, as the pseudo-bulbs are not yet fully matured, the plants must be kept moderately moist at the roots until the flowers begin to open. Afford water less frequently to L. leucantha, L. Deppei, L. aromatica, L. cruenta, L. macrophylla (plana), L. macrobulbon and L. Lawrenceana, all of which thrive satisfactorily in the cool house the whole year round.

CATTLEYA.—Some of the plants of C. labiata are in full flower, whilst others have finished blooming. As the plants pass out of flower, remove the spike to its base, and the double sheath as close as possible to the apex of the pseudo-bulb. In places where Cattleyas are grown in the same house as stove plants, the large amount of atmospheric moisture is often harmful to the Orchids, as damp accumulates at the base of the sheaths and flower spikes, and in a short time the leaves become diseased and drop, whilst the new pseudo-bulbs frequently decay. If the plants are affected from this cause, cut off the decaying parts at once and place powdered slaked lime thickly upon the severed part. When the powder has become quite damp it should be removed and fresh lime substituted. If decay results from an excess of water at the roots, keep the atmosphere much drier. Several hybrids of C. labiata are in bloom, including C. Fabia, C. Fabiata, C. Portia, C. Peetersii and Lælio-Cattleya Lucasiana. During the winter these plants need water at the roots only at long intervals, giving sufficient only to keep the pseudo-bulbs fairly plump. A slight shrivelling will do no harm, the object being to induce root action, and yet to keep growth dormant for as long a time as possible. Any necessary repotting may be done as soon as the new roots develop from the base of the current season's growth; but if the plants have passed that stage, repotting had better be postponed until the new growths are several inches high. C. Gaskelliana and its rare variety, alba, should receive similar attention. C. Percivaliana generally blooms during the early months of the year, and the plants having now completed their growth should be kept moderately dry at the root. Excessive dryness will often result in abortive or deformed flowers. Place the plants near to the roof-glass, especially from the time the flower spikes begin to push up from the base of the sheath. C. Bowringiana is also in bloom. This free-growing species is a desirable subject to grow for furnishing cut blooms, as are also its hybrids, C. Mantinii, C. Portia, C. Wendlandiana, C. Mrs. J. W. Whiteley, C. Browniæ and Lælio-Cattleya Tiresias. In a few weeks from the present time these plants may be repotted, as then numbers of new roots will be pushing from the base of the current season's growths. In collections where numbers of hybrid Cattleyas are cultivated, the plants are in their various stages of growth at different times, and a difficulty during the winter months is to keep those that are dormant from breaking into premature growth. It is advisable to place those that are resting at the cooler and those actively growing or sending up flower spikes at the warmer end of the house. Often, when Cattleyas or Lælias are producing flower spikes the grower becomes over-anxious to see the blooms, and with the object of producing them quickly, also to obtain larger flowers, he affords more water to the plants than is necessary. This surfeit of moisture may cause the roots to decay and the pseudo-bulbs to shrivel abnormally. In watering Cattleyas and Lælias during the winter months, the grower may be tempted on a fine sunny morning to afford the plants a thorough watering; but, more often than not, perhaps for a week afterwards there is no sunshine to dry the compost. Consequently the plants remain wet for too long a time and much injury ensues.

THE FLOWER GARDEN.

By EDWARD HARRISS, Gardener to Lady WANTAGE, Lockinge, Berkshire.

HELLEBORUS (CHRISTMAS ROSE).—The white Hellebore is a useful subject for decoration during the Christmas season. In order that the blooms may be in a good condition by that time, a frame should be placed over the plants now. This will not only keep the flowers pure in colour, but also increase the length of stem, making them much more valuable for decorative purposes. Before placing the frame in position remove any decayed foliage, and prick up the soil with a fork. The frames may be kept quite close till the flowers are fully expanded.

TROPÆOLUM SPECIOSUM.—It is a difficult matter to find a place in the pleasure garden to suit the requirements of this beautiful climbing plant. Indeed, in many gardens the cultivation of the Flame Nasturtium has been abandoned owing to persistent failure. Often the trouble results from planting the tuberous roots at the wrong time. In dealing with established plants with a view to increasing them, the tubers should be taken up and divided any time during the winter months when the weather is open. They should not, however, be replanted until late in the spring, when the young growths have started. In the meantime they may be set in boxes or pans and placed in a cold frame. The plant appears to grow best where the roots are shaded from the direct rays of the sun. When well established it grows rampantly amongst shrubs. I have seen large bushes smothered with its scarlet blossoms. Tropæolum speciosum requires a rich, deeply cultivated soil, and during the growing season, copious supplies of water. It is unwise to disturb established specimens, as the roots are impatient of removal.

SALVIA PITCHERI.—I do not remember seeing this beautiful Salvia flower so profusely outdoors as it has done this autumn. The plant needs to be grown in a warm, sheltered situation at the foot of a south wall or it will not flower soon enough to escape the early autumn frosts. The present season has been favourable for late-flowering plants, seeing that there has been no frost to do damage to plants of any kind. This Salvia will winter safely outdoors in a warm border. It is easily propagated by cuttings inserted in spring or by division of the roots. When the growths are very numerous it is advisable to remove the weak ones early in the season, or many of them will fail to flower.

BEDDING PLANTS IN FRAMES.—Cuttings of Calceolaria, Veronica, Pentstemon, Violas and Violets which were inserted in frames in September are well rooted, and the first consideration now is to get them thoroughly hardened. Give them an abundance of air during periods of mild weather, removing the lights altogether during the day. Examine them occasionally with a view to removing decayed foliage and stir the soil with a pointed stick. Should aphis infest the plants, spray lightly with an insecticide. Cuttings of Pelargoniums which have been rooted in boxes should not remain in cold frames after this date. They may be placed for the next two months on a shelf or stage in a vinery which has not been started. At the end of that time they may be potted and placed in a warm house.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

HUMEA ELEGANS.—These plants will retain their foliage best in a dry, cool atmosphere. They may be grown on a shelf in a greenhouse; the roots will need very careful watering in winter, and care must be taken not to damp the foliage. Do not allow the leading growths to touch the roof-glass, as they are harmed by the least frost.

BULBS.—Pots of bulbs plunged in ashes should be examined, and those starting into growth with plenty of roots removed to a cold frame or a cool house. If the soil is dry give the roots a good watering. In any case, water the plants overhead with a rose-can, to wash the ashes from the shoots. A forward batch of Roman Hyacinths should be placed in a warm house in which the night temperature is maintained at 60° to 65°, and fed as advised previously with a little fertiliser. An early batch of Tulip Proserpine may also be placed in a warm house either in a small frame or in boxes covered with glass, and kept dark with paper or other suitable shading. Let them be grown under close conditions for a few days at the start, to make the shoots grow as much as possible, and then admit a little air. As soon as the flower-buds appear, many will need releasing from the foliage, otherwise they may become deformed. Remove the shading and glass as soon as possible. Narcissus Golden Spur, Van Zion and Trumpet Major may, if well rooted, be forced gently in a house having a night temperature at first of from 50° to 55°. No good results are to be expected from hard forcing before the New Year.

EUPHORBIA PULCHERRIMA (POINSETTIA).—Plants that have their bracts developing should, if possible, be kept in a drier atmosphere than formerly, but should still be liberally supplied with water at the roots. Cease feeding plants of the earliest batches with concentrated fertilisers.

THE HARDY FRUIT GARDEN.

By B. GOODACRE, Gardener to Sir ERNEST CASSEL, Moulton Paddocks, Newmarket.

PRUNING.—Whilst the weather remains mild and open push forward the work of pruning and training fruit trees in the open. It will be an advantage if wall trees and pyramids are completed before Christmas, as severe weather may be expected after that time, and this may cause a delay until close on spring, when other work of all kinds needs attention. As wall trees are the more forward, their pruning should be undertaken first. Those trees on which the lateral growths were shortened to a few inches in the summer will need but little pruning now, but whether summer pruning was practised or not the growths should be shortened to two or three buds, and long, unsightly spurs, which can be replaced by fresh fruiting wood, removed altogether. Where space permits, the leading growths may be trained in their full length, except in the case of young trees the shoots of which need shortening to encourage the development of side branches. Trees that have been in bearing for some years past and have formed large bunches of spurs should have some of the latter removed, remembering that the best fruits are produced close to the wall, where they obtain warmth and shelter from the brickwork. In this case it is best to prune to a fruit bud rather than a wood bud. Neglected trees having branches clustered with long, undesirable spurs must be treated with great caution, but those in full vigour may have a goodly number of such spurs removed annually, cutting them back to within one or two inches of the branch. Lateral growths will develop from dormant buds, and, by judicious summer pruning, the former may be soon converted into fruiting spurs. Trees of unsuitable varieties may, if healthy, be grafted with a better sort next spring. In the

meantime, do not cut the tree hard back, but merely trim it, as the shortening for grafting must be done at the grafting season. Pyramid and bush trees that have attained their full size need pruning much in the same way as wall trees—that is, the leaders should be pruned close back and the lateral growths shortened to form spurs. It is an advantage to replace some of the older shoots at the bottom of the tree by young branches trained from the base. If from any cause one side of the tree has not made equal growth with the other, let the pruning be specially directed with a view to remedying it. Shoots that are growing the more vigorously should be severely shortened now, and the laterals that develop from them pinched next summer. An old-fashioned method was to shorten stunted branches and regraft them.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Late Vineries.—Ripe grapes still hanging in the vinery must receive careful attention to prevent them from damping. Maintain a little warmth from the hot-water pipes, so that the night temperature is not lower than 50°. Turn on the valves of the hot-water pipes each day for the purpose of drying the atmosphere, and take advantage of times of bright sunshine to admit air. Do not open the ventilators when the weather outside is very damp, as damping is the greatest danger. Cut out decayed berries as soon as detected, and gather daily any foliage that falls. The Grapes will keep better if they are allowed to remain for a little longer on the vines, but they should be cut from the middle to the end of December, with as much wood as possible, and placed in bottles in the fruit room. This must be done in order to give the vines a sufficiently long rest.

Pot Figs.—Fig trees that have been fruited early the previous season and repotted or top-dressed during the resting period are the best for early forcing. Specimens that have been properly attended to in the matter of pinching the shoots and that are properly ripened will require very little pruning beyond removing all weak growth. Medium-sized, well-ripened growths fruit the best. The branches should be tied to stakes to preserve a proper balance of the tree, but first wash the bark by means of a soft brush with Gishurst's Compound, to destroy any insect pests that may be present, taking care not to injure the embryo fruits. A small, low-pitched house with a south aspect is the best for forcing Figs early, and at about the end of the present month the trees may be brought indoors and stood on inverted pots. A temperature of from 45° to 50° is suitable at the commencement, as forcing should be very gentle at the start, with very little fire heat. As soon as the buds commence to break the pots may be packed round about with fresh leaves mixed with a little stable litter to form a mild hot-bed affording a bottom heat of 75°. The materials should be sufficient to cover the pots to the rims, and when the fruits begin to swell let the night temperature be raised to 60°, with a suitable increase by day, according to the condition of the weather. In the early stages the work of syringing must be done very carefully, for it will only be necessary to syringe on bright days, and even then only lightly. The degree of syringing may increase as the temperature rises until growth is at its most active stage. But even then take care not to practise syringing too liberally, especially in cold sunless weather, as an excess of moisture, either on the branches or at the roots, may cause the young fruits to turn yellow. On the contrary, a dry atmosphere and insufficient moisture at the roots will prove harmful. Therefore the careful cultivator will guard against extremes of drought and moisture until after the fruits have set.

Fig Trees in Succession Houses.—The plants should be got in readiness to allow forcing to be commenced at about the end of December. Take every precaution to have the trees thoroughly free from insect pests, dressing them with a mixture of soft soap and sulphur by means of a soft brush. Should either scale insect or mealy bug be present, a stronger insecticide than this should be used: paraffin water at a strength of one wineglassful of paraffin to each gallon of water is suitable. Soon after the paraffin has been employed syringe the trees with clear water.

Strawberries.—Where ripe Strawberries are required very early in the season, forcing should be commenced at about the end of the present month. A mild bottom heat is an advantage, and this may be provided by filling a light pit with fresh leaves mixed with a small quantity of stable litter, plunging the pots in the hot-bed. If the temperature at night is maintained at from 50° to 55°, according to the weather, with a suitable rise by sun-heat, it will be suitable. Air should be admitted daily, more or less according to the conditions, and a little ventilation may be permitted at night when the weather is mild, as a close, damp atmosphere is inimical to these plants. As the pots are plunged in moist leaves the soil will not dry readily. Therefore but little water will be required until the blossoms appear, when the plants may be removed to a glass house, where the night temperature is maintained at 60°, and grown on a shelf near to the roof-glass.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Forcing Sea Kale.—This work may be commenced as soon as the crowns are perfectly ripe, but any attempt to force this vegetable before the foliage has died down naturally is sure to end in disappointment. There are several methods by which a supply may be maintained, and the quantity required must determine the choice. If only a small supply is desired the crowns may be placed moderately close together in pots or boxes and grown in any dark chamber, provided there is sufficient heat to start the roots into growth. A Mushroom house answers the purpose well, but light must be excluded or the quality of the produce will not be satisfactory. The soil may consist of loam which has been removed from the Melon house, and should be packed moderately firm amongst the roots. One good watering should suffice until the crop is ready to cut. If a large supply is necessary daily, there is no better method than to make up beds of leaves, which are plentiful in most country places. If prepared properly leaves produce a mild, lasting bottom heat sufficient to force three or four batches of roots, providing the bed is turned after each lot of Kale has been cut. An ordinary brick pit with wooden shutters over the glass will suit the purpose well. The pit may be divided by brick or wood divisions to secure perfect darkness. At Frogmore we force about 20,000 crowns each season, and all on beds of leaves. When the beds have been made, 9 inches of good soil is placed over the surface and the roots arranged as closely together as possible in rows at 9 inches apart. The soil is cut out with a spade in the same manner as in planting box edgings, and when the roots have been placed in position the soil is taken from the next row and trodden tightly about them, and so on until the division is filled.

Forcing Rhubarb.—It is an easy matter to maintain a supply of forced Rhubarb in winter, provided a sufficient number of roots are available for the purpose. The best method of procuring roots for forcing is by making a plantation each season on ground which has been trenched and manured for the purpose. If the necessary number of crowns is planted each season and allowed to grow undisturbed for three years, they should be quite large enough for forcing, and will give better results than others twice their age. And there will be no need to interfere with plantations which are intended to furnish leaves in the ordinary way. If only an occasional dish of forced Rhubarb is required, a few roots may be placed in heat at intervals of three weeks in any structure with a temperature of 60°. This is an unsightly crop, and should be grown where it will not be an eyesore, for example, under a stage. At Frogmore we force a large quantity of Rhubarb throughout the winter in ordinary brick pits, which are occupied later with French Beans and other crops. The bottom heat is furnished by beds of leaves which are collected and placed together for fermentation some time before they are utilised for the purpose. When the hot-bed has been made, a 6-inch layer of fine, rich soil is spread over the surface, and the roots placed as closely together as possible, the space between them being filled with fine, rich soil. Water is afforded to settle the soil amongst the roots. It is important that the stools be lifted and exposed to the weather for ten days before being placed in heat. The temperature of the bed should not be higher than 70° or the roots may be "scalded." If the hot bed becomes too warm, the temperature may be regulated by making holes between the roots with a stout stick.

Broad Beans.—If Broad Beans are required very early in the season, make a small sowing at once in a sheltered part of the garden where the soil is well drained, for although this Bean delights in a heavy soil in summer, it would be unwise to sow in stiff land at this date. Germination is slow in winter, and many of the seeds might perish in very wet conditions. Sow in double rows, setting the seeds alternately in the rows, and allow 30 inches between the latter, so that a mulching of manure may be applied to protect the roots from severe frosts. Plants may also be raised in pots or boxes and planted out in the spring. If sown early in December and placed in a cold pit, they should be ready to put out in February if the weather is mild; but protection from wind may be necessary.

Lettuce Plants in cold pits should be freely aired to prevent damping. Stir the soil and give frequent light dustings of lime to keep slugs in check. Plants in the open border which are still growing may be carefully lifted and placed in cold frames, in which air should be freely admitted. The lights may be raised both at the top and bottom on bricks, so that a free circulation of air may be secured both night and day until sharp frosts occur. Young Lettuce plants in pits intended for making outdoor plantations early in spring should be kept free from weeds. The lights should be left off until the approach of frost, when they should be replaced until the weather changes. Endeavour to grow the plants as hardy as possible, in order to prepare them for planting out in February or March.

Endive.—Endive in cold pits should be left uncovered for as long as possible, only replacing the lights on the approach of rough weather. Plants in the open which have grown to their full size may be lifted and placed in cold pits for early winter use. These plants are easily blanched by covering the pit with mats or any other clean material which will ensure perfect darkness. Plants in the open may be blanched by tying the dry foliage together with some soft material.

Marjoram.—Plants under glass should be examined during damp weather; remove all decaying foliage and see that there is sufficient room between the plants for the light and air to enter freely, as damping is the greatest trouble with this herb in winter. A little fire heat may be used in damp or frosty weather, but the temperature need not be higher than 50° at any time.

THE "FRENCH" GARDEN.

By Paul Aquatias.

General Work.—The stock of mats should be overhauled and sorted into two lots, the best to be rolled and tied into bundles of five, for use on the hot and cold beds in the spring. They can also be used for the Lettuces in their nursery quarters, but only in case of heavy frost. The second lot should be mended where necessary, and will then prove a sufficient shelter for Lettuces and Cauliflowers during an ordinary winter. Attention should be given to packing-cases, the stock of which may need replenishing. Different kinds are used—French crates, flower-boxes and hampers. The flower-boxes are the best for all ordinary purposes, and are cheaper than crates. Hampers are necessary for sending Carrots, Turnips and Cauliflowers to market.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, NOVEMBER 24—
Nat. Chrys. Soc. Floral Com. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 41.4°.

ACTUAL TEMPERATURES:—
LONDON *Wednesday, November* 19 (6 p.m.): Max. 53°; Min. 40°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, November* 20 (10 a.m.): Bar., 30.1°; Temp., 53°.
Weather.—Fine.
PROVINCES.—*Wednesday, November* 19: Max. 51°, Valencia; Min. 45°, Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY, TUESDAY, WEDNESDAY, THURSDAY AND FRIDAY—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 10.30.

MONDAY, WEDNESDAY, AND THURSDAY—
Rose Trees, Bulbs, etc., at Stevens's Rooms, 38, King Street, Covent Garden, at 12.30.

MONDAY—
Fifth Annual Sale of Nursery Stock, at Nineham Nursery, Addison Road, Caterham, by Protheroe and Morris, at 12.
Fifth Annual Sale of Nursery Stock, at Nineham Nursery, Addison Road, Caterham, by Protheroe and Morris, at 12.

WEDNESDAY—
Annual Sale of Fruit Trees and other stock, at Platt Nurseries, Borough Green, near Wrotham, Kent, by Protheroe and Morris, at 11.30.
Palms, Plants, Azaleas, Bays, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 5.

THURSDAY—
Special Sale of Roses, at Protheroe and Morris' Rooms, at 1.

FRIDAY—
Sale of Mexican Lælias, and other established Orchids at Protheroe and Morris' Rooms, at 12.45.

Catalogue of Roses.*

A new edition of this little book, which is now revised and re-published every two years, has just been issued to the members of the National Rose Society, and forms in itself a tribute to the care and assiduity of the honorary secretary, Mr. E. Mawley, on whom the main burden of its preparation falls. How well his labours are appreciated by the public may be shown from the announcement he was able to make a few days since that the membership of the Society is now about 6,000, an increase of something like 1,000 since the last publication of the catalogue.

The principal novelty about the edition before us is the addition of an alphabetical list of what may be termed the surnames of Roses, Caroline Testout being, for example, indexed under Testout, Lady Roberts under Roberts, and Frau Karl Druschki under Druschki, a reference being given to the place where the Rose may be found in the descriptive part of the catalogue. This is by no means unlikely to prove useful, seeing how many Roses, especially those with long names, which have become popular are referred to in this manner. At the same time one could wish the tendency had been the other way, for it is surely more pleasing to hear a thing of beauty referred to as Caroline than as Testout, more especially having regard to the variety of pronunciation which the latter name receives from those who, through interest or occupation, concern themselves with the plants.

The object of the catalogue is not to give a complete list of all known Roses (though there is some suggestion of the publication of such a list ere long), but to confine it to a list of those which for some quality or another are thought worthy of being recommended for growing in the garden. The result is that while in each fresh edition many Roses considered as superseded, or no longer worth attention, are cut out, yet the constant succession of new seedlings and sports, of which only a selection is included, more than fills their place. Thus the present catalogue contains the name and description of 628 Roses, an increase, notwithstanding the removal of many old favourites, of some 50 varieties above the number described in the last edition.

The changes in the world of Roses, which we noticed in the previous edition, appear to be still in full career of further development. Thus we find the chief increases are in the ranks of the Hybrid Teas and Wichuraianas, and to a less extent in the Polyantha Pompons and Austrian Hybrids, while considerable removals have further thinned the ranks of the Hybrid Perpetuals and Teas. The list of Hybrid Perpetuals in the catalogue has received but three additions—Coronation, Geoffrey Henslow, and George Arends; while some 18 older varieties have been removed, including such sorts as Etienne Levet, François Michelon, and Mme. Gabriel Luizet, the last-named, doubtless from the few autumn flowers of any value that it produces. The total now stands at 43.

The Teas number 67, as against 83 in the 1912 edition, 6 varieties not found in the previous edition having been added and 22 removed which formerly appeared. The huge total of the Hybrid Teas is now 240, no fewer than 50 new names having been added, while the Wichuraianas stand at 52, an increase of 12.

The descriptions of the varieties introduced from 1910 to 1913 are again placed by themselves under the somewhat unsatisfactory heading "Newer Roses."

The remainder of the book consists of 21 selections or lists of varieties recommended as good for various purposes, such as for general garden cultivation, for bedding, for standards, and the like. These lists have been very thoroughly revised: considerable attention has been paid to them by the 50 Rosarians consulted in preparing the book, and all the different recommendations have been compared and carefully considered in amending and drawing up the selections.

Where soil, situation and atmospheric humidity vary so much as they do in this country uniform experience of the behaviour of particular varieties should not be expected, and it is quite possible that each of those consulted may fail to find the Roses in these selections precisely where he would have placed them. The gathering of experience from a wide area, however, ought to some extent to bring about an average result that perhaps may prove more generally useful than if the advisers had been taken from some confined area, such, for instance, as the London district. Should this prove to be the case we may rest assured that Mr. Mawley will not regret the great additional work that must have been thrown upon him in tabulating and comparing the numerous suggestions he has received.

The value of the book is now so well known to Rosarians that little need be said in that respect here. The members of the Society are already familiar with previous impressions of the work, and particularly at this period of the year it may take precedence in usefulness and suggestiveness over the other publications of the Society, not excepting the Pruning book.

* *The National Rose Society's Official Catalogue of Roses.* 1914 edition. Price 2s. 6d.

Coloured Supplement. — The subject of the Coloured Plate to be published in our next issue is Mutisia clematis.

DEDICATION TO THE KING.—We learn that Mr. REGINALD CORY has received the gracious permission of the KING to dedicate to HIS MAJESTY the volume, entitled *The Horticultural Record*, which is to be published next month by Messrs. J. and A. CHURCHILL. The work contains 117 coloured plates, reproduced from photographs taken at the Royal International Horticultural Exhibition, 1912, and 67 half-tone plates. Several well-known writers contribute articles on the progress of horticulture since the first International Exhibition in 1866. Mr. DARLINGTON discusses Roses, Mr. FARRER writes of Alpine gardens, Mr. WATSON of Stove plants, Mr. BEAN of Trees and Shrubs, other contributors dealing with separate sections. The book contains the official report of the 1912 Exhibition, including the papers contributed to the Science and Education Conference.

R.H.S. COMPETITIONS IN THE PACKING OF SOFT FRUIT, 1914.—We are asked to state that the schedules of the R.H.S. fortnightly meetings on June 16, July 14 and the fruit show on September 29 will contain the following class:—"Class 3: Soft fruit packed in an attractive manner and so as to travel unbruised either by rail or post. The package must be sent by parcels post from the exhibitor's nearest post office, or be handed in at his nearest or most generally used station, and delivered by the railway company or by post at Vincent Square either on the Monday before the

show or before 10.30 a.m. on the day itself. Under no circumstances may a competitor bring the package or send it by hand, or otherwise convey it further than his nearest or usual post office or railway station. If sent by rail a postcard addressed to the Secretary, R.H.S. Offices, Vincent Square, Westminster, must be sent at once, saying from what station and at what time the parcel was despatched. Separate packages, or punnets, may be used inside the parcel if desired, but the whole package must not exceed 18 inches in length, 10 inches in breadth and 5 inches in depth—all inside measurements. The packages may be of any material so long as they are sufficiently strong, but not too heavy." The Council's desire is to obtain a good and useful lesson in the packing of soft fruits, so as to enable them to be sent by post or by passenger train and arrive in a condition suitable for the dessert table. The Council will, on June 16 and July 14 and on September 29, give special awards in accordance with the above conditions. Market growers may compete as well as private gardeners. By "soft fruit" is intended such as Strawberries, Cherries, Figs, Peaches and Nectarines, and not such as Apples, Pears and Melons, or unripe Plums. Tomatos are excluded.

The Abnormal Season.—We have received from Mr. Reginald Prichard a box containing no fewer than one hundred and three hardy plants in flower, including species and varieties, gathered from the open in his nursery at West Moors, Dorsetshire. The blooms were gathered on November 10, and the great diversity of subjects proves how unusually mild the weather has been this autumn, for in normal seasons the majority of the flowers would now be destroyed by frost. The following is a selection of the more notable subjects: Potentilla Miss Willmott, with fine rose-coloured petals and a cluster of black stamens edged with gold; Silene Hookeri, the flesh-pink petals being deeply divided into three parts; Achillea tomentosa, with bright yellow blossoms; Linaria multipunctata, a curious Toadflax with purplish spur and orange-yellow pouch spotted with small, dark dots; L. alpina, of lavender blue colour with prominent orange-yellow front to the lip; Erigeron hybridus roseus, a pretty Composite with greenish-yellow disc surrounded by rose-pink florets; Silene laciniata, with scarlet blooms; Stachys coccinea; Polygonum vaccinæfolium, a pretty Knotweed with spikes of rosy flowers; Hypericum reptans, with five overlapping yellow petals tinged outside with red, of perfectly regular form; Myosotis azorica, bearing rich purple heads like a tiny Primula; Parochetus communis, with sky-blue petals, and Primula capitata. ——Messrs. Pennick and Co. send us from their Delgany Nurseries, Co. Wicklow, specimens of the following plants in bloom: Rhododendron Russelii, R. album, Eupatorium Weinnemannianum, Coronilla glauca, Salvia Grahamii, Sollya heterophylla, Veronica Autumn Glory, V. Gloriosa, Abelia chinensis, Spartium junceum, Genista racemosa, Ceanothus Geo. Simons, Indigo Buddleia auriculata, Calceolaria alba, Senecio Heritieri, Cheiranthus alpina, Prunus Miquelii, Veronica Andersonii, Cotoneaster Franchetia in fruit, Schizostylis coccinea, Olearia oleifolia, Desfontainea spinosa, Escallonia montevidensis, Dimorphanthus mandschuricus, and Myrtus Luma.

Edinburgh Royal Botanic Garden Guild.—The first annual dinner of the newly-formed Guild of past and present employees of the Edinburgh Royal Botanic Garden was held on the evening of Friday, the 14th inst., in the Royal British Hotel, under the chairmanship of Mr. W. W. Smith, assistant-keeper of the gardens. Professor Bayley Balfour is honorary president. Mr. J. W. McHattie was the guest of the evening. Dr. Borthwick proposed the toast of "Our Honorary President," Professor Balfour. Mr. McHattie proposed the toast of "The Guild," pointing out to the young men the great advantages they had in a course of education in the gardens, and the many opportunities for improvement during their residence in an educational city like Edinburgh. The toast was responded to by Mr. Harrow, the curator of the gardens. Among other toasts was "Our Guest, Mr. McHattie," proposed by Mr. Whytock.

Marriage of Shirley Hibberd's Daughter.—The *Daily Telegraph* records the following announcement:—On the 15th inst. at Kobe, Japan, Alexander Lithgow, eldest son of the late David L. Kennedy, M.B., and of Mrs. Kennedy, Donnybrook, Dublin, was married to Ellen S. Hibberd, only child of the late Shirley Hibberd.

Resumption of Land for Fruit-Growing.—What is described as the first case in which a landlord asks for the resumption of a small holding to develop it for fruit-growing came before the Scottish Land Court the other day. The land referred to is in Perthshire, and is at present used for agricultural purposes, and the landlords were prepared to compensate the tenant. The court delayed the case for consideration.

Veitch Memorial Trust.—A meeting of the Veitch Memorial trustees, including Mr. J. T. Bennett-Poe (in the chair), and Sir Harry Veitch, Mr. J. Hudson, Mr. Charles E. Shea, and Mr. R. Hooper Pearson, took place on the 4th inst., when the following awards were made: Gold Medal to Sir Trevor Lawrence, Bart., K.C.V.O., for many years president of the Royal Horticultural Society, in recognition of his long and distinguished services to horticulture, and Gold Medal to Leopold de Rothschild, Esq., C.V.O., in recognition of his encouragement and patronage of horticulture (to be presented on Mr. de Rothschild's birthday, November 22). In addition, an award was made of the Bronze Medal and £5, to be competed for at the summer show of the Cardiff and County Horticultural Society's exhibition, to be held on July 22 and 23, 1914, for the best group of miscellaneous plants arranged for effect and exhibited by an amateur.

Edinburgh Chrysanthemum Show Bazaar.—The bazaar held on the occasion of the Edinburgh Chrysanthemum Show, an account of which is given on p. 307, proved very successful. The bazaar realised £813, and the profits will be devoted to the Horticultural Institution Fund.

"The Botanical Magazine."—The issue for November contains illustrations and descriptions of the following plants:—

Alocasia Micholitziana, tab. 8522.—This new species, which was introduced into cultivation by Messrs. Sander and Sons, through their collector, Mr. Micholitz (who discovered specimens on the island of Luzon, in the Philippines), is nearly allied to Alocasia Sanderiana. The new species has smaller leaves, less deeply lobed at the margins, of a different shade of green, and with no silvery borders to the veins. The spathe is pale green, and nearly as long as the spadix, the upper portion of which is yellow. The plant is an evergreen, and will prove a useful addition to choice stove foliage plants.

Rhododendron setosum, tab. 8523.—This is a dwarf species, only about 1 foot high, and rather rare in cultivation. From its habit and slow growth it is best suited for the rock-garden, although it appears to be short-lived. The flowers are rosy-purple.

Senecio Kirkii, tab. 8524.—This is one of the numerous plants from New Zealand which have been introduced by Captain A. A. Dorrien-Smith. It is endemic in the North Island, growing sometimes at an elevation of 2,500 feet. The inflorescence is a large corymb of fine, white flowers, and the leaves being of ornamental shape, the species is described as one of the best of all the Senecios. The plant thrives well in Mr. T. A. Dorrien-Smith's garden at Tresco Abbey, Isles of Scilly, and this source furnished the material from which the plate was prepared.

Coriaria terminalis, tab. 8525 (see *Gardeners' Chronicle*, October 24, 1903, fig. 119).—This species differs from other members of the genus in its terminal inflorescence, which is often subtended by two axiliary shoots. The plant is very showy when in fruit, the spike of berries resembling that of Phytolacca, except that the colour is orange-yellow, not black. The plant is recommended as an under-shrub, and is particularly suitable for gardens of which the soil is chalky. C. terminalis is only suited to favoured districts, as the flowers are very susceptible to damage by spring frosts. C. terminalis thrives well in Canon Ellacombe's garden in Bitton. The plant may be propagated readily from seeds or cuttings.

Streptocarpus orientalis, tab. 8526.—A description of this new species was published in *Gard. Chron.*, April 5, 1913, p. 214. The flowers are purplish-mauve, with darker veinings. The inflorescence attains to a length of 10 or 12 inches, and continues to bear flowers in succession for two or three months.

The New U.S.A. Tariff and Nursery Stock.—According to *Gardening*, Chicago, the changes in the new tariff affecting nursery stock from the latest reports at hand are as follows: Stocks, cuttings and seedlings of Pear, Apple, Quince, and the St. Julien Plum, three years old or less, reduced from $2 per 1,000 to $1 per 1,000. Stocks, cuttings and seedlings of all fruit and ornamental trees, deciduous and evergreen trees, shrubs, plants and vines commonly known as nursery stock, reduced from 25 per cent. ad valorem to 15 per cent. ad valorem.

Worcester County Experimental Garden.—Mr. Udale's report of the work carried on in this garden is as usual full of interest. It contains the records of 13 years' yield of Apples produced by standard and bush trees from 1900-1912. Of standards, Bramley's Seedling leads with an average yearly weight of fruit (in pounds) of 88.7; Beauty of Kent comes next with 85lb.; and Rymer third with 83. Of bush-grown trees, Ecklinville Seedling No. 3 is first with 90—though two other bush trees of this variety yield only 75 and 45 respectively—Potts's Seedling is second with 86; and the afore-mentioned Ecklinville Seedling No. 2 with 75½. In the corresponding Pear trials Fertility in bush form on Pear stock has an average of 166.6lb., and is followed by Bergamot Esperen as a standard on Pear stock with 91½; third, Marie Louise d'Uccle, bush on Quince, with 85. Other parts of the report deal with Plums, which have suffered least at Droitwich from frost; with the most fruitful varieties, Pershore standing first. The report, which deals also with manurial trials in vegetables, concludes with an account done in the evening gardening classes. Eleven such classes were held, attended by 157 boys.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Sweet Peas in November.—I am sending some Sweet Peas for your table, cut from the open to-day. You will see that the blooms are still in an excellent condition, which is rather unusual for a Perthshire garden at this date. Sweet Peas do very well in these gardens, and the plants have bloomed continuously since the end of June. *John Dick, Taymouth Castle Gardens, Perthshire, November* 11. [A large box of fine flowers accompanied this note.—Eds.]

The Trade a Century Ago.—Your correspondent, Mr. S. B. Dicks, in his most interesting communication on p. 344 of your last issue, is, I think, in error in his reference to Messrs. William and George Nash. I knew Mr. William ("Beau Nash") and his brother

Mr. Daniel Nash very well, the latter being in his time an active member of the Fruit and Vegetable Committee of the Royal Horticultural Society, but I never heard of a George Nash in connection with the old Strand firm of Minier, Nash and Nash. Mr. Dicks' reference to Mr. Robert Cooper, of the old Fleet Street firm of Cooper and Bolton, recalls a kindly act done by him to the writer nearly half a century ago; and also the fact, which may not be generally known, that it was in the office of Messrs. W. and J. Noble, the predecessors of Messrs. Cooper and Bolton, that the Gardeners' Royal Benevolent Institution was founded in 1839. Mr. John Noble was one of the most active of the founders of the charity, and a generous supporter up to his death. The old Covent Garden firm of Charlwood and Cummins, which largely specialised in tree seeds, and whose seed shop stood on the site of the present French flower market, was also closely associated with the institution, inasmuch as that for some years the "office" of the institution consisted solely of a letter-box in their shop door. W.——I possess both the first edition of *Systema Horticulturae* (1677) and the one noted by Mr. Dicks with the nurserymen's lists, which are absent from the former. There is a catalogue of Furber's of date 1724, a short account of which will be found at p. 261, Vol. LII., of the *Gardeners' Chronicle*. Gray of Fulham's catalogue (1740) extends to forty-five pages. Switzer has a *Catalogue of Seeds, Fruits, Forest Trees, etc.*, appended to *A Dissertation on the True Cythisus*, of date 1731. In John Rea's *Flora* (1665) the names of several florists appear, among which that of Mr. Rickets of Hogsden is specially honoured, he being "the best and most faithful florist now about London." Earlier still one can gather from remarks in Gerard's *Herbal* that the nursery trade was an established one in tempo Elizabeth—at least, in the neighbourhood of London; and if we consider the vast quantity of plants required for the new gardens of Henry VIII., there must have been trade growers in his reign, too. In the *Baillie Household Books*, late 17th and early 18th centuries, there are entries for seeds, plants, etc., from local tradesmen in the south of Scotland, and also for goods from English nurserymen. The records of the Haddington Gardeners' Society, which extend to the 17th century, show that there was a trade for seeds from Holland, and Woolridge clearly states that fruit trees were imported into England thence also, while exotics found their way from Genoa. That there were distributing agencies in England it is only reasonable to suppose. Of course, still earlier we have Parkinson's statements about the large numbers of gilliflowers that were introduced, as some suppose, by the persecuted from various parts of the Continent. *R. P. Brotherston.*

MICHAELMAS DAISIES TRAINED TO SINGLE STEMS (see p. 338).—The useful article on the method of treating Michaelmas Daisies as single-stem plants may be supplemented by a few notes relative to other hardy herbaceous plants of a kindred habit. First, however, I should like to say that Aster vimineus, A. ericoides, A. asteroides, and A. Acris are examples of those which need not be grown from single shoots. Better effects are, in such instances, obtainable from small pieces. Nor is it essential that every plant shall be staked. A less laborious and equally satisfactory method consists in loosely binding several together by means of stout string, when they support each other. And yet another method of treating many kinds is to lay down the shoots, when a low-growing mass is produced. The ever-charming Climax, Acris and John Wood, are sorts that respond well to this treatment. Many other border plants, such as Linaria Pancicii, Gypsophila paniculata and Rokejeka, also do well laid down, and it is a satisfactory method of getting the most out of free-branching varieties of early-flowering Chrysanthemums. It is, of course, a serious undertaking to replant annually half an acre or more of herbaceous plants from single shoots, and in a year like the present, when the borders were still passably gay in mid-November, it becomes almost an impossibility. But such things as Heleniums and Composites generally should certainly be replanted from single growths every year. Aconitum may also be mentioned, and the very fine Senecio tanguticus. It is true that many species grow much stronger from single growths than if left to form clumps, and in the case of these the shoots should be pinched to keep them to the desired height. Others, of which Chrysanthemum maximum is an example, are considerably dwarfed when grown singly. All this presupposes close planting, and a border fully occupied—no bare spaces, and therefore no waiting two or three years for the border to attain maturity, as some people still think necessary. It also means a lot of work, but perhaps on the whole not more than is needed to maintain a clumped border in good order, and the results are better. *R. P. Brotherston.*

BIG BUD IN BLACK CURRANTS.—I was very much interested in the remarks of *A Southern Grower* on the Black Currant mite (p. 337), and a short note on a plan I adopted some years ago may be of interest to readers. The first year my bushes were badly infested with big bud. I cut down the affected plants in the early spring to within 3 inches of the ground, but the young wood, which grew freely, was covered with the pest, and I had to grub up and burn the stools. Next year I cut down several bushes as before, afterwards hoeing away the top soil from about the roots and digging it in. I then obtained a pailful of boiling lime, and with a whitewash brush thoroughly coated over the stumps, afterwards applying fresh soil and manure. The result was a luxuriant growth of clean, healthy wood, which fruited well the following year. Last year I was obliged to cut only one bush, and on the whole of the others I found not more than one handful of affected buds. I hoped I had overcome the enemy, but unfortunately this year every bush except the one cut last year is worse infested than ever. This means that every bush in the plantation must be cut down each year if traces of big bud are to be found on any of the many plants, even if only in a slight degree. Only one year's crop need be lost, nor need the ground between the bushes be left vacant; but when all this is done there is still the risk of infection from neighbouring crops infested with the same trouble. *W. Fraser, Market Gardener, Dundee.*

———*A Southern Grower* gives a very discouraging account of Black Currant cultivation owing to the increase of big bud. I planted Black Currant cuttings in this garden about seven years ago (the soil is clay, but it is an old garden and well worked). The cuttings I took myself from healthy bushes in a garden some miles away. They grew well, but big bud appeared, and I had very little fruit in consequence, when they came to the fruiting stage. I was then advised to sprinkle the bushes and the ground round them with flowers of sulphur and lime, in the proportion of two handfuls of sulphur to one of lime. I began this sprinkling about March 1, choosing a damp, still day to ensure the powder sticking well to the branches. I repeated the dressing twice more at intervals of a fortnight, taking care to leave plenty of the lime and sulphur under the trees as well as on them. I have done this for three years and big bud has quite disappeared, and this notwithstanding there are gardens on each side of ours badly infested with the mite. The bushes are manured freely and liquid stimulants are afforded as the fruit is ripening. After fruiting I cut out the old wood somewhat severely, to encourage the development of new growth. The variety is Boskoop Giant. The results are quite satisfactory. I have better Black Currants, both as to quality and quantity, than are grown in any of the neighbouring gardens; in fact, without boasting, I may say the size of mine excites some envy round here, which, of course, is gratifying to an amateur gardener like myself. I have just been comparing methods of culture with a friend of mine from the North of England. His plan is entirely opposed to mine, and he grows the Black Currant with equally good results. *E. F. Spencer Wigram, The Grange, Northaw, Potter's Bar.*

WHO IS TO BLAME?—More than two months ago the collection of Dahlias grown by Mr. Reginald Cory at Duffryn, Cardiff, was inspected officially by a joint deputation of the Royal Horticultural Society and the National Dahlia Society, and a number of awards made. These awards have never been made public. Why? It is now too late for some of the firms to embody the results in their catalogues. On Tuesday last I heard Mr. Cuthbertson say that Messrs. Dobbie's 1914 catalogue was already in the press and they could not therefore give that publicity to the awards they would like. Surely either the Secretary of the Royal Horticultural Society, the Secretary of the National Dahlia Society, or Mr. Cory has blundered. *Grower.*

THREE CROPS OF APPLES.—It may be interesting to record that a tree of Irish Peach Apple is fruiting for the second time this year, and several shoots are, at the time of writing, carrying trusses of bloom, which are on the point of setting a third crop this season. The tree is a three-year-old standard. The fruits are of very good size and are colouring nicely. *Humphrey and Gough, Swindon.*

CHRISTMAS ROSES.—In the weekly calendar on the cultivation of "Plants Under Glass," p. 323, Mr. Jennings deals with the forcing of Christmas Roses, and in reading his remarks I was reminded of a practice we had with these flowers when I was under Mr. Clayton at Grimston Park, Yorkshire. The method was to establish plants in tubs or pots and introduce them at this season of the year to the Mushroom House, which was heated. They soon developed remarkably clear, translucent flowers. By this treatment the length of the stem is increased, which is too short in blooms from the open for vase decorations. Plants intended for greenhouse decoration must be brought out of the Mushroom house before they are much drawn. With fair treatment as regards top-dressing the plants will succeed with this annual forcing. *Chas. F. Coates, Manor Park Gardens, Potton, Bedfordshire.*

ABSORPTION OF IRON BY PLANTS.—The leader on this subject (see p. 299) contains many interesting facts, and opens up a large field of inquiry. I should much like to know the manurial value of sulphate of iron in crystals. Certainly it must be considerable, since the result of the experiment I made on the Apple tree quoted by you is that the growth is vigorous and the leaves not unduly large, but of a thick leathery texture and dense green colour. The lateral growths springing from the branches as the result of unusually early summer pruning show the same manurial effects, and it would be very interesting to ascertain the value of treatment with sulphate of iron in crystal form. I think myself that it might well be more generally used in correcting the growth of fruit trees, especially those of a weakly nature, not those of naturally robust growth like Irish Peach, but trees of an ordinary variety which are found to be lagging behind. In certain soils Peach and Nectarine trees might also derive benefit from treatment with sulphate of iron. I have found the same substance (in a liquid state) of great utility in restoring lost chlorophyll to the leaves of Chrysanthemums. The soil here is naturally uncongenial to these plants, and during dry weather no water is obtainable but that from deep chalk wells. Until I began to use the sulphate of iron I found considerable difficulty in maintaining the plants in a healthy condition, but in a few days after the first application an alteration in the colour of the leaves could be perceived, beginning in the midrib and gradually spreading to the edges. Without the aid of this corrective I do not think I could possibly have succeeded so well as I did, compelled as I was to use water the entire supply of which was impregnated with chalk. *E. Molyneux, Swanmore Park Farm, Bishop's Waltham.*

THE LILY SEASON.—I have been much interested in the contributions of Mr. Grove (p. 285), and Mr. Williamson (p. 327), on "The Last of the Lilies." Mr. Williamson does not seem to have had the best of success with Lilium sulphureum outside, which is a pity, as it is one of the most beautiful of all Lilies. This year we have had some most beautiful blooms on spikes about 8 feet high. I planted in prepared ground among Rhododendrons 50 bulbs of L. sulphureum, and 50 of L. nepalense. They were set at the end of May,

out of pots, after starting them in a Peach house. They grew without a check, and did well. I strongly advise Mr. Williamson to try this plant, and I am sure if the bulbs are sound they will thoroughly repay him for his trouble. This year I intend leaving them in the ground all through the winter, as L. auratum, L. speciosum, and L. Hansonii do much better left in the ground than replanted. L. auratum flowered splendidly, and the tallest spike was 9 feet high. Romneya Coulteri, Meconopsis Wallichii, and many other tender plants do well with us without the least protection in the winter, also of the many thousands of Gladioli we grow here the best spikes are always from those bulbs which have not been moved, and where the spike has been cut immediately the flower is over. I hope to let Mr. Williamson know at the end of next Lily season what success we get from leaving L. sulphureum and L. nepalense in the ground. *A. T. Paskett, Burrs Wood Gardens, Groombridge, Kent.*

November Flowers.—Owing chiefly to the prevailing mildness of the season many plants of various descriptions and characteristics are still flowering in gardens in South-western Scotland. A number of my finest Roses are making heroic efforts to continue in bloom. Conspicuous among these is Alice de Rothschild, which, as one of its parents was the Maréchal Niel, might expressively be described (like Madame Alfred Carrière, the queen of white climbers) as a Hybrid Noisette. It is not quite so pendulous in habit as the famous Maréchal, has an equally fine colour, and an exquisite formation and perfume. My only plant of this variety has a number of faultlessly-formed flower buds, just preparing to expand. Two other notable Roses that are also admirable here in late autumn are Perle des Jardins, canary yellow, and Enchantress, a highly interesting hybrid, raised at Waltham Cross, between the prolific Chinas and the Teas. But perhaps the most reliable of all Roses at this late period of the year is the richly fragrant and grandly luxuriant Viscountess Folkestone, which, though somewhat lacking in central petals, I cannot but regard as perhaps the most precious Rose in my garden. I only wish that some of our modern "Gold Medal" introductions, which assuredly did not acquire that distinction through floral productiveness, were equally floriferous. Perhaps the very latest, and one of the most effective of all autumnal Roses, is Margaret Dickson, which sometimes reveals a quite unexpected bloom at an abnormal elevation in my garden, on the confines of the new year. Sweet Peas are still flowering marvellously in this peninsular parish, especially in the admirably cultivated gardens of the Central School, from which Mr. Davidson, the headmaster, who is one of the most earnest and successful horticulturists within the range of my acquaintance, brought me an exceedingly handsome bouquet this afternoon. *David R. Williamson, Manse of Kirkmaiden, Wigtonshire, November 9.*

NATIONAL CHRYSANTHEMUM.

November 17.—A meeting of the Executive Committee was held at Carr's Restaurant, Strand, on this date, when Mr. T. Bevan presided.

A proposal was made by one of the local affiliated societies that each winning society of the Challenge Shield at the November show should be awarded a Diploma certifying the fact, and the present Certificate will be modified to meet the case. An offer of £10 in cash prizes by Messrs. W. Wells and Co., of Merstham, for blooms of their new variety, to be shown at next year's exhibition, known as Daily Mail, was accepted. A report from the Publication Committee was submitted. It was resolved that the *Transactions* of the N.C.S. be again issued next spring.

The Secretary read the interim financial statement, showing a satisfactory balance to date; the amount awarded for prize money at the November show at the Crystal Palace was £167 15s. 9d. Subject to arrangements with the Crystal Palace authorities, the shows of the N.C.S. for 1914 will be held on October 7 and 8 and November 4, 5, and 6. It is also intended to hold a late show and a conference.

Eighteen new names were added to the roll of membership—six fellows and twelve ordinary members.

SOCIETIES.

ROYAL HORTICULTURAL.

November 18.—The Hall was well filled with exhibits on the occasion of the usual fortnightly meeting held on Tuesday last at Vincent Square, Westminster. The floral groups were comprised mainly of Chrysanthemums, Begonias, Carnations and Pelargoniums.

The Floral Committee recommended 1 First-class Certificate and 2 Awards of Merit. This body also awarded 22 Medals to groups.

The Orchid Committee recommended 6 Awards of Merit to novelties.

The only exhibit of importance before the Fruit and Vegetable Committee was a group of Apples, for which a Gold Medal was awarded.

Floral Committee.

Present: H. B. May, Esq. (in the chair), Messrs. Jas. Hudson, G. Reuthe, W. J. James, Chas. E. Pearson, Chas. T. Druery, C. Blick, J. F. McLeod, W. Bain, J. Dickson, Charles Dixon, H. J. Jones, Arthur Turner, F. Page-Roberts, C. E. Shea, W. Cuthbertson, W. G. Baker, George Paul, John Green, R. Hooper Pearson, J. W. Barr, W. J. Bean, W. A. Bilney, J. T. Bennett-Poë, R. C. Notcutt, Thos. Stevenson, W. Howe, John Jennings and George Gordon.

FIG. 131.—BEGONIA "APRICOT," SHOWN BY MESSRS. CLIBRAN AT THE R.H.S. MEETING ON TUESDAY LAST. COLOUR OF FLOWERS: PALE ROSE, SUFFUSED WITH ORANGE.

Messrs. James Veitch and Sons, Ltd., Chelsea, filled a table with Begonias of the winter-flowering type and put up a floor group of small pot plants of Chrysanthemums. The Begonias made a delightful exhibit, representing a broad bank of flowers. The foliage and pots were almost entirely hidden by the wealth of showy colours of the blossoms. His Majesty (deep orange) and Fascinator (pale orange) are novelties, but none was finer than Winter Cheer, rosy-carmine, although Elatior, rosy-pink, has almost equal claims to admiration. (Silver-gilt Flora Medal.)

Messrs. Clibrans, Altrincham, had one of the most important exhibits in their collection of winter-flowering Begonias, for which a Silver Flora Medal was awarded. The collection was rich in novelties, including many unnamed seedlings of promise. The finest plant was of the variety Clibran's Pink, a model of good culture. The great advance made in shades of scarlet and red was well exemplified in this fine collection, and there were some varieties approaching yellow. The following is a selection of the choicer sorts:—Scarlet Beauty, a remarkably free-blooming Begonia with relatively small foliage; Apricot (see fig. 131), orange on a pale-rose base; Altrincham Pink, a fine truss of Camellia-shaped blooms; Splendour, bright red; Sunrise, brilliant red-rose; Lady Cooper, salmon-pink; Miss Clibran, blush pink; and The Gem, rosy-scarlet.

Mr. L. R. Russell, Richmond, Surrey, exhibited berried shrubs in pots; various species and varieties of Eleagnus; Garrya elliptica, bearing its grey catkins; and numerous ornamental-leaved Ivies. The small plants of Aucuba vera and Pernettya mucronata, in berry, were very ornamental. Hedera Helix flavescens was still beautifully golden, but the rich yellow of angularis had turned a bronzy shade. (Silver Flora Medal.)

Messrs. H. B. May and Sons, The Nurseries, Upper Edmonton, showed Ferns, Begonias, Cyclamens and Hydrangeas. (Silver Banksian Medal.)

Messrs. W. Cutbush and Son, Highgate, were awarded a Silver Flora Medal for Begonias of the Gloire de Lorraine and the winter-flowering types, and Carnations.

Messrs. Allwood Bros., Wivelsfield Nurseries, Haywards Heath, showed choice Carnations of the perpetual-blooming type. They had the beautiful variety Mary Allwood in splendid condition; the colour is described as cherry-salmon. The new Cinderella (heliotrope and cerise) and Fairmount were also noticed. (Silver Banksian Medal.)

Mr. G. Engelmann, Saffron Walden, Essex, was awarded a Silver Banksian Medal for perpetual-flowering Carnations. Sunstar, yellow, Scarlet Carola, Pioneer, rose colour; Queen Alexandra, a pink sport of Scarlet Glow, with stout stalks and good habit; and Circe, mauve, are all novelties.

Messrs. Stuart Low and Co., Enfield, were also the exhibitors of Carnations, the many novelties of this firm being well displayed. (Bronze Flora Medal.)

Mr. John Prince, Oxford, was awarded a Silver Flora Medal for Roses from the open, a remarkably fine collection for a November show.

Mr. Bateson exhibited from the John Innes Institution, Merton, a number of double-flowered Tropæolums (Nasturtiums), the result of an interesting series of crosses. The first cross was made between a variegated bush-habited variety, the mother parent, and a tall, green, double-flowered sort, bearing only male organs, the pistils being abortive. The result was an ordinary scarlet Nasturtium, which, when selfed, gave diverse seedlings, mostly with double, sterile blooms.

Sir Corbet Woodall, Walden, Chislehurst (gr. Mr. Toms), showed large plants of Begonia Gloire de Lorraine, set off by the greenery of Ferns, Palms and Cyperus. (Silver Banksian Medal.)

Messrs. Rasmussen and Crone, Wanstead, contributed a large exhibit of Gloire de Lorraine Begonias. (Bronze Flora Medal.)

Varieties of Violets were well shown by Mr. J. J. Kettle, Corfe Mullen, Wimborne. (Bronze Flora Medal.)

Messrs. Piper and Sons, Bayswater, exhibited miniature gardens of quaint Japanese designs in porcelain trays; also several dwarfed trees from the same source.

Messrs. Wills and Segar, Onslow Crescent, South Kensington, showed Cyclamens, bulbs and Lily-of-the-Valley grown in bowls of fibre, and hybrids of Gerbera Jamesonii.

Mary Countess of Lovelace, Ockham Park, Ripley (gr. Mr. Towell), was awarded a Bronze Banksian Medal for a number of well-grown plants of the pretty scarlet Gesnera, with yellow throat dotted with crimson.

The Wargrave Plant Farm, Ltd., Twyford, Berkshire, exhibited a rockery, planted with varieties of incrusted Saxifragas, including the rare S. cochlearis minor; Mazus rugosus in bloom and dwarf Conifers.

Mr. Clarence Elliott, Stevenage, arranged a rockery with Alpines, principally choice Saxifragas, such as the true S. lingulata lantoscana, S. Boydii alba and the rare S. Aizoon baldensis.

Hardy flowers were also shown by Mr. James Box, Lindfield; Messrs. Wares, Ltd., Feltham; the Misses Hopkins, Shepperton; and Mr. G. Reuthe, Keston, Kent.

Messrs. W. Wells and Co., Ltd., Merstham, Surrey, filled a table with Chrysanthemums, large blooms of Japanese varieties being remarkably good. They showed three sterling white sorts in William Turner, Mrs. Gilbert Drabble and Queen Mary. Of the last-named there were numerous blooms arranged as a centre-piece set off on the one side by the large single, yellow variety Mrs. Mowbray and on the other by vases of Golden King and Golden Age, two pretty decorative varieties. H. E. Converse, a golden incurved Japanese Chrysanthemum; Mrs. R. Luxford, cinnamon-red; and Mrs. G. W. C. Drexel, pink, have all won many honours this season. (Silver-gilt Flora Medal.)

Messrs. H. J. Jones, Ltd., Lewisham, exhibited varieties of Chrysanthemums of the Japanese and single types. The exhibition blooms of the former were arranged in bold masses, and included two novelties, Maude Lousada, a pretty shade of rose on a white ground, and Mrs. H. J. Stratton, a flattish bloom of carmine-rose colour. The newer Bob Pulling, yellow; Mrs. H. J. Jones, yellow; Sir William Dunn, chestnut-red with golden reverse; Mrs. Gilbert Drabble, white; Mrs. J. G. Day, golden amber; and Mrs. W. I. Smith, a white, incurved Japanese variety, were all remarkably good. (Silver-gilt Banksian Medal.)

Mr. A. H. Cole, Swanley, showed new single Chrysanthemums, including Golden, a fine yellow seedling raised from Edith Pagram, and Excelsior, orange-buff. This nurseryman also exhibited bunches of zonal-leaved Pelargoniums; Mrs. J. Daniels, salmon-rose, and Crimson Paul Crampel are both new sorts. (Bronze Flora Medal.)

Messrs. H. Cannell and Sons, Eynsford, Kent, also showed bunches of zonal-leaved Pelargoniums. The collection included the new varieties, Crimson Paul Crampel, John Stares, orange, and Mrs. Lindsey Stares, pale pink and white. Amongst older sorts Sir Thomas Hanbury, crimson shaded scarlet, and Campania, pale salmon, were especially noticed. (Silver Banksian Medal.)

Messrs. John Peed and Son, West Norwood contributed the prettiest exhibit of Chrysanthemums. Single varieties only were employed, and the group owed much of its charm to the simplicity of its arrangement. The principal varieties employed were Mrs. W. Buckingham, pink; Stuart Smith, white (a very pretty sort); Phyllis, old rose; Joey Saunders, orange-bronze; and Daisy Greenfield. (Bronze Flora Medal.)

Miss Baird, West Malvern (gr. Mr. J. W. Irving), was awarded a Silver Banksian Medal for a floral group consisting of Chrysanthemums and Euphorbia pulcherrima (Poinsettia) arranged with autumn foliage.

The Marchioness of Ripon, Coombe Court, Kingston Hill (gr. Mr. F. Smith), showed Chrysanthemums in variety, for which a Silver Banksian Medal was awarded.

The Misses Price and Fyfe, Grove Park, Nursery, Lee, were awarded a Bronze Banksian Medal for Chrysanthemums and Carnations.

Chrysanthemums were also shown by Mr. C. J. Simpson, Chelmsford (Bronze Banksian Medal), and Messrs. Whitelegg and Page, Chislehurst.

AWARDS.

First-Class Certificate.

Columnea Verstediana.—This brilliant scarlet-flowered Gesneriad is a native of Costa Rica, and was described so long ago as 1861, when it was first discovered. The plant appears to have been lost to cultivation until about the year 1910, when it was flowered by Col. Beddome. It is a sub-shrubby epiphyte, with slender, woody stems, which are spreading or pendent. The leaves are ½ inch long, ovate, pointed, entire, inclined to be fleshy and coloured deep, glossy-green on the upper surface. From the axils of the lower leaves spring large, solitary, Salvia-like flowers. The corolla-tube is more slender than in C. magnifica, but the flower is 3 inches in length, and much more showy than in that species on account of the small, neat foliage. In the *Bot. Mag.*, where the species is figured in tab. 8,344, the flowers are described as pink, and are figured as erect, but in the plant shown they were scarlet and spreading nearly horizontally. Columnea Verstediana appears to thrive best under cool greenhouse treatment, and should make a fine subject for growing in hanging baskets. Some of the pendent shoots, 18 inches long, carried from eight to eleven flowers. Shown by Sir Trevor Lawrence (gr. Mr. W. Bain.)

Awards of Merit.

Chrysanthemum Mary Morris.—A pretty terra-cotta single. The disbudded blooms are 4 inches and those grown naturally about 3 inches across Seen at an angle the petals are prettily shot with crimson. The habit is wiry and good, and the height about 4 feet. Shown by E. Mocatta, Esq., Addlestone (gr. Mr. T. Stevenson).

Begonia Syros.—The habit of this new winter-flowering variety is dwarf, compact, and extremely floriferous. The flowers are single, not individually so large as in Fascination, Emita and some others, being from 2 to 3 inches across, but there is no tendency in the plant to grow leggy, and the soft colouring of the flowers shows beautifully over the rich bronze-green of the foliage, which takes strongly after the tuberous-rooted varieties, being ear-shaped, pointed and serrate. The colours are a soft apricot pink, paler towards the centre, and richer in the bud. In colour the variety approaches close to Optima, which is only a shade deeper, but it is a great improvement in habit. (Shown by Messrs. J. Veitch and Sons.)

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. secretary), De B. Crawshay, Gurney Wilson, F. Sander, R. G. Thwaites, F. J. Hanbury, T. Armstrong, A. McBean, C. H. Curtis, W. Cobb, J. Charlesworth, J. Cypher, W. H. Hatcher, J. E. Shill, W. P. Bound, A. Dye, W. H. White, S. W. Flory, W. Bolton, C. J. Lucas, R. Brooman-White and Sir Harry J. Veitch.

Messrs. Jas. Veitch and Sons, Royal Exotic Nursery, King's Road, Chelsea, staged a very effective group of hybrid Calanthes, Cypripediums, Odontoglossums, etc., for which a Silver Flora Medal was awarded. The centre was of the chaste white Calanthe Harrisii, with the bright pink C. Veitchii superba on either side, and several plants of the large-flowered C. vestita rubro-oculata gigantea, the ends being of Cypripedium Maudiæ, varieties of C. insigne, C. Leeanum and some showy hybrid Odontoglossums.

Messrs. Charlesworth and Co., Haywards Heath, were awarded a Silver Flora Medal for an excellent group of good things, for the best of which see Awards. A representative selection of Odontoglossums included fine forms of O. Jasper, O. eximium, O. Aireworth, O. illustrissimum, O. laudatum, O. crispum xanthotes, and others. Varieties of Cattleya Portia, C. Fabia, Lælio-Cattleya Bola, Miltonia Bleuana, Brasso-Cattleya Queen Alexandra, Oncidium Forbesii, Odontioda Brunette and the singular Catasetum Randii, with dark-spotted sepals and petals and spiny white lip were also included.

Messrs. Flory and Black, Orchid Nursery, Slough, were awarded a Silver Banksian Medal for an effective group, in the centre of which was their fine Dendrobium Leeanum Langley variety (see Awards). With it were a good selection of Cypripediums, including varieties of C. Leeanum, C. Thalia, 6 plants of the fine C. Idina, C. Germaine Opoix and several unnamed varieties. Two new Lælio-Cattleyas were L.-C. Osram (L.-C. Violetta × C. aurea), a good light-lilac flower with whitish veining and purple lip veined with gold colour; and L.-C. Taurus (L.-C. bletchleyensis × C. Bowringiana), larger than C. Portia, but similarly formed. The showy Cattleya lucida and Brasso-Lælio-Cattleya Morna were also staged.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Banksian Medal for a good group of Cypripediums, including forms of C. insigne and C. Leeanum, C.-L. Gratrixiæ being the best and most distinct; C. Thalia Mrs. F. Wellesley, C. Tityus superbum, C. Wottonii, C. Beechense superbum, C. Venus Boltonii, C. Sir Redvers Buller, C. Priam, some fine C. Maudiæ, and C. Actæus were also shown. Also good Cattleya labiata, Dendrobium Phalænopsis, Masdevallia tovarensis and various Odontoglossums.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, secured a Silver Banksian Medal for a group of Cattleya labiata, with several very good white forms, C. Fabia, C. aurea, Vanda cœrulea and Brasso-Cattleya Madame Fournier. Other noteworthy plants included a good specimen of Miltonia Phalænopsis, a plant of Sophronitis cernua with 9 clusters of red flowers, and Cymbidium erythrostylum.

Messrs. Hassall and Co., Southgate, staged an attractive group, for which a Silver Banksian Medal was awarded. Hybrid Cattleyas were well represented, and included were forms of C. Portia, C. Mantinii, C. Hassallii, C. Dowiana and the very dissimilar forms of the pretty and fragrant C. Sylvia. Also Brasso-Cattleya Madame Chas. Maron, Brasso-Lælia Mrs. Gratrix, Cypripedium Thalia Mrs. Francis Wellesley, C. insigne Harefield Hall and other Cypripediums.

Messrs. W. Baylor Hartland and Co., Cork, secured a Silver Banksian Medal for a good group of Cypripediums in which the favourite C. insigne Sanderæ, C. i. Harefield Hall, C. Armstrongiæ (of neat shape and good colour), C. Thalia, Mrs. F. Wellesley, C. triumphans, C. Fulshawense and others were noted. Also Lælio-Cattleya Parysatis, Cymbidium Maggie Fowler, Odontoglossum Groganæ and other Odontoglossums.

Messrs. Armstrong and Brown, Tunbridge Wells, showed the beautiful Miltonioda Harwoodii Shrubbery variety; the new Cypripedium Schröderi Kentore (for both see Awards). Also a massive form of Cypripedium Arthurianum Orchidhurst variety and a very handsome Odontoglossum between O. eximium and O. crispum Graireanum.

O. O. Wrigley, Esq., Bridge Hall, Bury, sent Vanda cœrulea Wrigleyi, white with a pink lip, and closely resembling the variety Rochfordiana.

Ernest Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. Stevenson), showed a small group of good things, the centre of which was an excellent Vanda Sanderiana with two spikes. With it were Odontoglossum azureum of a violet tint

margined with white, O. illustre var. Maud and O. Menier (gandavense × amabile), two excellent Odontoglossums.

Mrs. Norman Cookson, Oakwood, Wylam (gr. Mr. H. J. Chapman), sent Odontioda Hippolyta Cookson's variety, a distinct hybrid as large as O. crispum, the flowers being light orange-red with white margin and tips, with two very dissimilar forms from the same cross, O. Oakwoodiensis and the pretty Cypripedium Chapmaniæ superbum (Fairrieanum × Calypso).

Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), showed the pretty, new Lælio-Cattleya Lady Oliphant (L.-C. Norba × C. Souvenir de Queen Victoria), a well-formed, large flower of a charming tint, the broad sepals and petals being light lemon yellow, the frilled lip deep rose with cream white lines from the base. Mr. Wellesley also showed the true Cypripedium Royal George.

E. H. Davidson, Esq., Orchid Dene, Twyford, sent Sophro-Lælia Sunray (S.-L. Marriottiana × L. cinnabrosa), a novelty in colour, the stellate sepals and petals being yellow, striped with deep brownish red; the lip purple. Also Odontoglossum Gladys and some other very handsome Odontoglossums.

Sir Trevor Lawrence, Bart., K.C.V.O., Burford, showed Brasso-Lælio-Cattleya Triune (L.-G. Hyeana × B.-C. Digbyano-Schröderi), rose with pale yellow disc to the lip.

C. J. Lucas, Esq., Warnham Court, Horsham (gr. Mr. Duncan), sent Brasso - Cattleya Digbyano-Mendelii Warnham Court variety, one of the best pure white Brasso-Cattleyas.

Messrs. Sander and Sons, St. Albans, sent Lælio-Cattleya Mauretania magnifica (Canbamiana × Martinetii), a noble flower which has reverted in form to that of a fine Cattleya. Sepals and petals broad and of a light rose shade, the fine lip rosy-crimson. Also Cypripedium insigne Louis Sander, as large as Harefield Hall but with many dark blotches in the dorsal sepal; and C. Royal Monarch (Bingleyense × Leeanum Clinkaberryanum), a finely-formed flower with the broad white dorsal sepal tinged with rosy-lilac.

Mr. E. Bristow (gr. to Mrs. Temple, Leyswood, Groombridge), showed Cattleya Madame Charlier (C. Mantinii × C. labiata).

Lieut.-Col. Sir Geo. L. Holford, K.C.V.O. (gr. Mr. H. G. Alexander), showed the new Cypripedium Gulliver (Mrs. Mostyn × Sultan), a very dark flower, and two others (see Awards).

AWARDS.

Awards of Merit.

Cypripedium Cyclops (*Actæus* × *fulshawense*), from Lieut.-Col. Sir Geo. L. Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A noble flower, broad in all its parts, and with a very fine dorsal sepal, white on the upper half, the base greenish-yellow with purple lines.

Angræcum recurvum, from Messrs. Charlesworth and Co. A very beautiful and remarkable Angræcum from Madagascar. The growth is strong, like A. superbum, the many flowers produced from the old stem. Pedicels slender, 6 inches, each bearing a pure white fragrant flower of stellate form about 2 inches wide, the lip rather broader than the equal sepals and petals, and with long, slender spurs. (Illustrated in Aubert du Petit Thouar's *Oreh. Afri. Gen.*, plate 56.)

Laelio-Cattleya Feronia Charlesworth's var. (*C. Enid* × *L.-C. Haroldiana*), from Messrs Charlesworth and Co. A massive flower resembling the best L.-C. St. Gothard, and in shape adhering to Cattleya Enid. The spike bore five large flowers, the sepals and petals silver-white tinged and veined with rose-pink Lip mauve-purple with gold lines from the base.

Miltonioda Harwoodii Shrubbery var. (*M. vexillaria var.* × *C. Noezliana*), from Messrs. Armstrong and Brown, Tunbridge Wells. A very bright form, with large and well-formed flowers of a bright magenta red, the crest of the lip being yellow. The spike bore 9 flowers.

Cypripedium Schröderi Kentore (*Oënanthum superbum* × *Fairrieanum*), from Messrs. Armstrong and Brown. A very pretty Cypripedium and one of the most attractive Fairrieanum crosses. The white dorsal sepal bore many dotted lines of purple, the yellowish petals and lip being heavily marked with chocolate-red.

Dendrobium Leeanum Langley var., from Messrs. Flory and Black, Slough. The finest of this beautiful natural hybrid yet shown. The plant bore two spikes of bright rosy mauve flowers with large claret lip.

Cultural Commendation.

To Mr. H. G. Alexander, Orchid-grower to Lieut.-Col. Sir Geo. L. Holford, K.C.V.O., for a noble plant of Cattleya Portia Westonbirt variety, with 3 spikes of 7 flowers each.

Fruit and Vegetable Committee.

Present: Joseph Cheal, Esq. (in the chair), Messrs. W. Bates, J. Willard, George Kelf, A. R. Allan, Wm. Pope, H. Markham, A. Bullock, G. Reynolds, P. D. Tuckett, J. Jaques, John Harrison, C. G. A. Nix, A. Grubb, J. Davis and W. Crump.

Messrs. J. Cheal and Sons, Crawley, showed a collection of Apples comprising some 100 distinct varieties, all the fruits being splendidly coloured and without blemish. The most conspicuous dishes were those of such well-known sorts as Lane's Prince Albert, Newton Wonder, Bramley's Seedling, The Queen, Lord Derby and Chelmsford Wonder. Much prominence was given to the new variety, Crawley Beauty, a handsome late Apple. Amongst the dessert varieties there were excellent examples of such sterling sorts as Cornish Aromatic, Mannington Pippin, Duke of Devonshire, a fine late "russet," Buxted Favourite and Baxter's Pearmain. (Gold Medal.)

NEW RULES FOR ENTERING DAFFODILS FOR AWARDS.

At their meeting on the 4th inst., the President and Council adopted the following new rules submitted by the Narcissus and Tulip Committee of the society. The rules will take effect from January 1, 1914.

(1) It must be clearly stated on the entrance form of any variety which is submitted to the committee for an award under which of the following heads the sender wishes it to be judged: (a) as a show flower, or "show"; (b) as suitable for garden decoration, or "garden"; (c) for growing and flowering in pots, or "pots"; (d) for cutting or market purposes, or "cutting"; (e) as a plant for rockwork, or "rockery." N.B.—Any one variety may be entered under more than one head.

(2) The following conditions must be complied with in all cases: If submitted under (a) five stems with bloom are necessary for an Award of Merit, and 12 stems for a First-class Certificate; if submitted under (b) and (d) for either Award of Merit or First-class Certificate, 25 stems must be submitted in 2 vases—12 must be bunched and 13 be loose; if submitted under (c) and (e), 2 pots or pans must be shown, each containing *not less* than 3 bulbs, for an Award of Merit. Four pots or pans, each containing *not less* than 3 bulbs, for a First-class Certificate.

(3) Official entrance forms will be provided, and may be obtained from the R.H.S. offices. One of these forms must be properly filled up by the exhibitor for each variety before it can be placed before the committee.

(4). The words "show," "garden," "pots," "cutting," or "rockery" will in future be added to the usual A.M. or F.C.C.

BRITISH GARDENERS'.

November 8.—A meeting of local horticulturists was held at the Crown Hotel, Leamington, on the 8th inst., for the purpose of inaugurating a Midland Counties branch of the B.G.A. with Leamington as its centre. Mr. R. Greenfield presided. There was also present Mr. J. T. Hayes (Parks and Gardens Superintendent to the municipality). It was submitted that the formation of a mid-England association was necessary. The need for the protection of qualified gardeners was recognised and a unanimous vote was given for the inauguration of a local branch. Mr. J. T. Hayes, Parks Superintendent, Leamington, was elected chairman. A committee was formed and a public meeting will take place early in December. Mr. E. M. Pollock, the borough Member of Parliament, will be asked to preside. The project is looked upon with much favour by many interested in the welfare of the qualified gardener, and the Mayor of Leamington (Councillor W. W. Donold) has consented to become a patron.

SCOTTISH HORTICULTURAL.

November 13, 14, and 15.—The 28th annual Chrysanthemum exhibition of the above Association was held in the Waverley Market, Edinburgh, on these dates. Although the entries were not much in excess of last season, the show was one of the best which have been seen for several years, and favoured by fine, mild weather, there was a most satisfactory attendance of the public, the receipts for admission being £129 above those of 1912. A bazaar in aid of the Association's Horticultural Institution Fund was held in conjunction with the show, and it realised a sum of over £800. The show and bazaar were formally opened by the Hon. Mrs. Stirling, of Keir.

Cut Flowers.

When the prize list for this show was drawn up by the committee a departure was made from what had obtained for many years as regards the contents of the leading class for cut flowers—the City of Edinburgh Queen Victoria Memorial prizes, presented by the Lord Provost, magistrates and Town Council—and instead of being offered, as was formerly the case, for fifteen vases of Japanese Chrysanthemums, in fifteen varieties, three blooms in each vase, the prizes in this class were now offered for a display of single and double Chrysanthemums, on a table 10 feet by 8 feet, decorated with Ferns, foliage plants, or cut foliage, or any combination of these, and so arranged as to be seen from any side. There were five entrants for these prizes, and the 1st prize, the City of Edinburgh Cup (to be won three times) and £12 was awarded to the Right Hon. Lord Elphinstone, Carberry Tower, Musselburgh (gr. Mr. D. Kidd), the 2nd (£8) to A. Sinclair Henderson, Esq., Seathwood, Dundee (gr. Mr. Geo. Scott), the 3rd (£5) to the Hon. Mrs. Askew Robertson, Ladykirk, Norham-on-Tweed (gr. Mr. G. Little), and the 4th (£3) to Mrs. Simson, Bonaly Tower, Colinton (gr. Mr. James Fraser). There was a good deal of sameness about the arrangements of the exhibits, but from the purely spectacular point of view there can be no doubt that the change is a step in the right direction.

The Scottish Challenge Cup class, which was formerly restricted to gardeners and amateurs, was, like the above class, made open to all, the number of vases being increased from eight to ten Chrysanthemum blooms, in as many varieties, three blooms in each vase. It thus became the leading class for large blooms, and there were five exhibits. The 1st prize—the Cup and £8—was won by Sir James Sivewright, Tulliallan Castle, Kincardine-on-Forth (gr. Mr. Geo. Stewart), the 2nd by John Graeme Thompson, Esq., Norwood, Alloa (gr. Mr. James Small), the 3rd by J. E. B. Baillie, Esq., of Dochfour, Inverness (gr. Mr. R. Mackenzie), and the 4th by the Right Hon. R. C. Munro Ferguson, M.P., Raith House, Kirkcaldy (gr. Mr. D. McLean). The varieties shown by Sir James Sivewright and the points awarded to them were as follows:—

Variety shown.	Maximum No. of Points.	Points Awarded.
Fred Green	12	10½
D. B. Crane	12	9½
Queenie Chandler	12	9½
Eclipse	12	9½
Edith Jameson	12	9½
Lady Conyers	12	9
Fred Chandler	12	11
Wm. Turner	12	11
Frances Jolliffe	12	10
Reginald Vallis	12	9½
Total No. of points ...	120	99

John Graeme Thompson, Esq., was awarded 89½ points; J. E. B. Baillie, Esq., 84½ points; and R. C. Munro Ferguson, Esq., 78½ points.

In the class for six vases of Japanese Chrysanthemums, in six varieties, three blooms in each vase, W. T. McLellan, Esq., Auchenault, Helensburgh (gr. Mr. H. MacSkimming), was awarded the 1st prize; 2nd, W. H. Dobbie, Esq.,

Dollarbeg (gr. Mr. J. Waldie); 3rd, James Mann, Esq., Castlecraig, Dolphinton (gr. Mr. Jas. Moir).

For twelve blooms of Japanese Chrysanthemums, in twelve varieties, shown on boards, Mr. Alex. S. Watt, Whiting Bay, Arran, was placed 1st; John Graeme Thompson, Esq., 2nd; and W. T. McLellan, Esq., 3rd.

Sir James Sivewright excelled in the class for two vases of Japanese Chrysanthemums, one variety, three blooms in each vase; John Graeme Thompson for four vases of Japanese Chrysanthemums in twelve varieties, three blooms in each vase; and Mr. David Bowie, Kincardine-on-Forth, was placed 1st for four vases of Japanese Chrysanthemums, four varieties, three blooms in each vase, and for two vases of Japanese Chrysanthemums, six varieties, three blooms of each.

The Hon. Mrs. Askew Robertson, Ladykirk, Norham-on-Tweed (gr. Mr. G. Little), was awarded the Silver Medal offered for the best bloom in the show with a fine flower of Purity.

In the classes for decorative Chrysanthemums the Earl of Wemyss, Gosford, Longniddry (gr. Mr. W. Galloway), excelled for three vases, in three varieties, not more than twelve sprays in a vase, for quality and decorative effect; Colonel More Nisbet, The Drum, Midlothian (gr. Mr. R. Whannell), for one vase, disbudded, and arranged for effect; Mr. James Bruce, Davidson's Mains, for six vases, singles, in six varieties, not more than eighteen disbudded blooms in each vase, and all flowers facing one way (for which Messrs. Wells and Co. offered a Silver Cup and Medals); Mrs. Hunter, Thurston, East Lothian (gr. Mr. Wm. Aitchison), for three vases of singles, in three varieties, not more than twelve sprays in each vase; and the Earl of Wemyss for three vases of singles, in three varieties, not more than twelve sprays in each vase, for quality and decorative effect.

For six vases of Chrysanthemums, as grown for market, six vases, in six varieties, three single and three double, and not more than eighteen sprays or eighteen disbudded blooms of singles and not more than twelve sprays or twelve disbudded blooms of doubles, Mr. James Bruce, Davidson's Mains, was placed 1st, and Messrs. Todd and Co., Musselburgh, 2nd.

The Association's Silver Medal, offered for the best new Chrysanthemum, was secured by Messrs. Wells and Co., Merstham, with Mrs. Tresham Gilbey, and the Bronze Medal by Mr. A. S. Watt, Whiting Bay, with Mrs. A. S. Watt.

Sir John Gilmour, Bart., Montrave, Leven (gr. Mr. Jas. Wilson), excelled for one vase of perpetual-flowering Carnations in at least six varieties (for which Messrs. Young and Co. offered a Challenge Cup, to be won three times in succession, or four times in all, in addition to the 1st prize); and P. Anderson, Esq., The Manor House, Dunbar (gr. Mr. Wm. Hart), for one vase of perpetual-flowering Carnations, containing twelve flowers.

Plants.

Jas. Chisholm, Esq., Boroughfield, Edinburgh (gr. Mr. W. Michie), excelled in the classes for six Chrysanthemums (single and Pompon excluded), four Japanese Chrysanthemums, and one single Chrysanthemum; while George Cowan, Esq., Tornaveen, Edinburgh (gr. Mr. Thos. D. Hodge), excelled in the classes for two Chrysanthemums, one large-flowered Chrysanthemum, and six Chrysanthemums in 7-inch pots.

Mrs. Rose, Richmond House, Dowanhill, Glasgow (gr. Mr. J. Templeton), excelled for six Palms, two specimen Palms, and four decorative foliage plants; while the Earl of Home, Douglas Castle, Lanark (gr. Mr. A. McMillan), showed best in the classes for three specimen Palms, one specimen Palm, eight decorative foliage plants, four winter-flowering Begonias, six Ferns for table, and six pots of Roman Hyacinths. Wm. Baird, Esq., Elie House, Fife (gr. Mr. A. H. Law), was placed 1st for six Dracænas and six table plants (Ferns excluded); the Right Hon. A. J. Balfour, M.P., Whittingehame, East Lothian (gr. Mr. Geo. Anderson), was 1st for six Primula sinensis and six Cyclamens; the Right Hon. R. C. Munro Ferguson for six Primula obconica; Miss Balfour, Melville, Pilrig, Edinburgh (gr. Mr. W. Robertson), for six dwarf hardy Ferns; Lord Strathedeen and Campbell, Hartrigge, Jedburgh (gr. Mr. A. Williams), for six Salvia splendens; and Col. More Nisbet, The Drum, Midlothian, for three pans of Lily-of-the-Valley. Major Thorburn, Craigerne, Peebles (gr. Mr. J. McNeill), was awarded the 1st prize for six specimen Ferns, and W. H. Coats, Esq., Woodside, Paisley (gr. Mr. P. McMarrie), won the 1st prize for Begonia Gloire de Lorraine or its varieties.

Fruit.

For the collection of eight dishes of fruit, eight distinct kinds, the entrants were the Earl of Wemyss (gr. Mr. W. Galloway), Lord Elphinstone (gr. Mr. D. Kidd), and W. Mackay, Esq. (gr. Mr. D. Halliday), and they were awarded the 1st, 2nd and 3rd prizes respectively.

In the Grape classes, W. Mackay, Esq., excelled for four bunches (distinct), two bunches (one black and one white variety), two bunches of Black Alicante, and one bunch of Appley Towers; the Earl of Wemyss, for two bunches of Muscat of Alexandria; W. H. Dobie, Esq. (gr. Mr. J. Waldie), for two bunches of Gros Colmar; T. A. Nelson, Esq., St. Leonards, Edinburgh (gr. Mr. G. Chaplin), for two bunches of Lady Downes; and C. W. Cowan, Esq., Dalhousie Castle, Midlothian (gr. Mr. W. G. Pirie), for one bunch of Lady Hutt.

Colonel Gordon, Threave House, Castle Douglas (gr. Mr. J. Duff), was placed 1st for eighteen dishes of Apples in not fewer than twelve varieties, grown in Scotland; Lieut.-Col. Borton, Cheveney, Hunton, Kent (gr. Mr. I. Whittle), for eighteen varieties of Apples, six varieties of Culinary Apples, and six varieties of dessert Apples; the Duke of Richmond and Gordon, Gordon Castle, Fochabers (gr. Mr. Chas. Webster), for six varieties of Pears, grown in Scotland; and the Rev. G. H. Davenport, Foxley Hall, Henford (gr. Mr. R. Currie), for six varieties of Pears.

Mr. R. G. Sinclair, Congalton, East Lothian, excelled for three baskets of dessert Apples in three varieties, 12lb. in each basket, as grown for market; and Mr. John McKenzie, Lochend, Dunbar, in the similar class for Culinary Apples.

Vegetables.

For the collection of vegetables, nine distinct kinds, selected from a list published in the schedule, the 1st prize of £3 3s. was awarded to Viscount Maitland, Thirlestane Castle, Lauder (gr. Mr. R. Stuart); 2nd, the Earl of Home, Bothwell Castle, Lanark (gr. Mr. W. P. Bell); 3rd, A. Ackland Allan, Esq., Tulliebelton, Perthshire (gr. Mr. Wm. Harper). In the single-dish classes there was good competition. The Earl of Home excelled in the classes for Leeks, Curled Greens and Parsley; Wm. Baird, Esq., Elie House, Fife (gr. Mr. A. H. Law), for Cucumbers; Mr. R. Mason, Lanark, for Tomatos; Mr. P. McLaren, Ballencrieff, East Lothian, for Cauliflower; the Earl of Wemyss for Brussels Sprouts; Sir Duncan E. Hay, Bart., Kerfield, Peebles (gr. S. Murray), for Cabbages; Mr. J. W. Scarlett, Musselburgh, for Savoys; Stephen Mitchell, Esq., Boquhan, Kippen (gr. Mr. Chas. Shaw), for Celery, Carrots and Cranston's Excelsior Onions; Lady Sinclair, Stevenson House, Haddington (gr. Mr. James Borrowman), for Beet; Mr. R. Staward, Hertford, for Onions; Mr. Chas. Davidson, Pencaitland, for Parsnips; W. H. Dobie, Esq., Dollarbeg (gr. Mr. J. Waldie), for Turnips; Miss Watt, Spott, Dunbar (gr. Mr. J. Cossar), for Jerusalem Artichokes; Sir H. Maxwell, Bart., Monreith (gr. Mr. S. Gordon), for Potatos; and Mr. W. Craig, Duns, for a dish of any other vegetable.

In the classes for market garden produce, confined to Edinburgh market growers, Mr. G. M. Service, Gilmerton, was 1st for twelve bunches of Leeks, and for the best collection of vegetables; Mr. D. Lowe, Musselburgh, for Savoys and Brussels Sprouts; Mr. Mackenzie Brown, Portobello, for Beet; Mr. P. McLaren, Ballencrieff, for Cauliflower; and Mr. J. W. Scarlett, Musselburgh, for Celery.

Non-Competitive Exhibits.

Messrs. W. Wells and Co., Merstham, Surrey, were awarded a Gold Medal for Chrysanthemums; Messrs. Dobbie and Co., Edinburgh, a Gold Medal for Potatos; and the Government of the Province of British Columbia a Gold Medal for Apples. Silver-Gilt Medals were awarded to Messrs. Storrie and Storrie, Glencarse, Perthshire, for Fruit Trees, and Mr. D. W. Thompson, Edinburgh, for Conifers, and also for winter-flowering Begonias; and Silver Medals were awarded to Messrs. Dobbie and Co., Edinburgh, for Chrysanthemums; to Messrs. W. Cutbush and Son, London, for Carnations; and to Mr. D. McLeod, Chorlton-cum-Hardy, for Cypripediums. Messrs. Young and Co., Cheltenham, and John Forbes (Hawick), Ltd., received Bronze Medals for Carnations.

Awards.

First-class Certificate to perpetual-flowering Carnation Champion, exhibited by Messrs. Wells and Co.

Certificate of Merit to perpetual-flowering Carnation Peerless, exhibited by Messrs. Wells and Co.

Certificate of Merit to incurved Japanese Chrysanthemum Mrs. Ker, exhibited by Messrs. J. Ker and Sons, Ltd., Penrith.

LIVERPOOL HORTICULTURAL.

November 12 and 13.—The thirty-fourth autumn show of this Society was held, as usual, in the local Corn Exchange, and, from the evidence of the show, interest in the Association is more than sustained, the hall being filled to its utmost. Chrysanthemums in pots were shown in largely increased numbers, and their quality was exceptionally good; trained plants were magnificent, whether judged from the point of quality of flower or form.

Cut Blooms.—In the class for 36 blooms, 18 Japanese and 18 incurved varieties, there were four competitors, and last year's winner, Sir Gilbert Greenall, Bart. (gr. Mr. C. Goves), was again successful, thus winning outright the handsome trophy offered. His blooms were very large. The incurved variety G. F. Evans was awarded the N.C.S. Certificate offered for the finest bloom of its section in the show; Pantia Ralli, Godfrey's Eclipse, Marjorie Shields, Emblème Poitevine and Mrs. P. Wiseman were other good incurveds, whilst of Japanese varieties, W. Turner (which won the N.C.S. Certificate offered for the best Japanese bloom in the show), F. S. Vallis, W. Mease, Frances Jolliffe, Alice Lemon, Bob Pulling, Mrs. G. Drabble, Fred Green and Miss A. E. Roope were all splendid; 2nd, Sir W. H. Tate, Bart. (gr. Mr. G. Haigh), whose blooms were brighter in colour but lacked the large size of the premier collection; 3rd, Thomas Woodsend, Esq. (gr. Mr. H. Osborne); 4th, Thomas Henshaw, Esq. (gr. Mr. J. George).

For 24 blooms, 12 Japanese and 12 incurved varieties, Sir Gilbert Greenall was again placed 1st, Messrs. J. George, G. Haigh and J. Stoner following as named.

For 12 incurved blooms, W. E. Willink, Esq. (gr. Mr. J. Young), was successful, whilst for 6 incurved blooms, H. Belk, Esq. (gr. Mr. J. Copple), excelled. Mr. J. Copple had the best exhibit of 12 and 6 Japanese blooms respectively.

The finest exhibit of 6 vases of single Chrysanthemums was staged by G. Nicholson, Esq. (gr. Mr. P. Caunce), the varieties being Miss K. Wells, Mrs. William Street, Miss Annie Street, Ruby, Mrs. H. Herbert and Edith Pagram; Mr. Loo Thomson followed closely.

For a display of cut flowers in a space 4 feet square, J. Findlay, Esq. (gr. Mr. E. Wharton), led with a pleasingly-arranged exhibit. Mr. J. Williams showed the best decorated basket, whilst Miss Newsham arranged the best decorated table.

For a group of plants occupying 60 square feet, Drs. Tisdall and Ingoll (gr. Mr. G. Osborne) won the 1st prize; 2nd, Mr. F. Atkin. Mr. E. Wharton showed the best Begonias in a strong competition; J. W. Hughes, Esq. (gr. Mr. J. McColl), the best Ferns; L. C. Pilkington, Esq. (gr. Mr. Hurd), the best three Orchids; Mr. F. Atkin the best two Palms or Cycads; and Mr. W. Holland the best Cyclamens.

Fruit.—The entries in the fruit classes were slightly below the average, and the Grapes were not so well coloured as usual. For a collection of 6 dishes, W. E. Gladstone, Esq. (gr. Mr. T. Elsworthy), won the 1st prize.

For 4 bunches of Grapes, E. Lord, Esq. (gr.

Mr. J. Wright), was to the fore with the varieties Muscat of Alexandria and Black Alicante. The finest exhibit of two bunches of Black Alicante Grapes was shown by Mr. W. Wilson, and the best two bunches of any other black Grape by A. P. Eccles, Esq. (gr. Mr. W. H. Faulkner). The finest white Grapes were shown by Mr. Wilson, whose bunches of Muscat of Alexandria were well coloured.

The following awards were made to non-competitive exhibits :—

Gold Medals to Messrs. Mansell and Hatcher, Leeds, for Orchids; Messrs. Stuart Low and Co., Enfield, for Carnations and Orchids; Messrs. Fishlock Bros., Liverpool, for a floral display.

Silver Medals to Messrs. Young and Co., Cheltenham, for Carnations; R. le Doux, Esq. (gr. Mr. J. W. Fletcher), for Orchids; the Liverpool Orchid Co., for Orchids; Messrs. R. P. Ker and Sons, Aigburth, for Cyclamens; Messrs. W. Wells and Co., Merstham, for Chrysanthemums; and Messrs. Dicksons, Chester, for Chrysanthemums.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

November 10.—The monthly committee meeting of the above society was held at the R.H.S. Hall on the 10th inst., Mr. Chas. H. Curtis in the chair. Four new members were elected. The sum of £9 10s. 10d. was passed for payment to the nominee of a deceased member, and one member was allowed to withdraw double the amount of his interest. Important items regarding the State Section of the society were dealt with. Gardeners may transfer from insurance in the Post Office to the society. The Secretary will be pleased to forward a form for this purpose to any who desire to do so.

WATFORD HORTICULTURAL.

October 29.—The occasion of the fourth annual show held at the Clarendon Hall, Watford, brought forth a display of flowers, fruit and vegetables of a high-class character. A fine group of pink and white Begonia Gloire de Lorraine was exhibited by R. H. Comyns, Esq. (gr. Mr. W. Waterton), Heath Farm House, Watford. Messrs. Gleeson had a good exhibit of wreaths and other floral designs. C. H. Waterlow, Esq., The Kennels, Stanmore (gr. W. R. Phillips), won the 1st prize for a group of Chrysanthemums in pots. The same exhibitor carried off the award for a miscellaneous group with very fine plants of Dracæna Sanderiana, Salvia splendens, Crotons, and other species, the groundwork being of Cattleya labiata. Mr. Waterlow was again successful in the competition for a table of Chrysanthemums. In the cut bloom classes, E. Taylor, Esq., Colney Park, St. Albans (gr. Mr. J. Graham), won the principal prizes for incurved and single varieties, with fine blooms. H. W. Henderson, Esq. (gr. Mr. Pike), Serge Hill, Bedmond, did well in the fruit and vegetable classes, winning the Gleeson silver challenge cup for a collection of vegetables, and also the 1st prizes for Grapes and dessert and culinary Apples. C. H. Waterlow, Esq., came 2nd in the culinary class. A. Harris, Esq., secured the 1st prize for six Orchids in flower, C. H. Waterlow being 2nd. The premier Begonia prize went to E. Taylor, Esq., other prize winners being Messrs. W. E. Catesby, A. Harris, C. H. Tritton, and Sir C. H. Haddon. For a fine specimen of Dracæna Sanderiana between 8 feet and 9 feet in height Mr. Waterlow received a first-class Certificate of Merit. Mr. A. E. Hayes won the prize for the garden plan, in which class there were only three entries. Non-competitive exhibits helped to add to the effectiveness of the show. The Earl of Clarendon, The Grove, Watford (gr. C. Harris), showed a fine lot of Apples. H. Lane and Son, Berkhamsted, also had a good exhibit of hardy fruit. Messrs. A. and H. Scrivener, Watford, staged some good specimens of flower designs. Messrs. H. Newman and Son, Watford, brought a large collection of outdoor flowering Chrysanthemums, and Messrs. W. Cutbush and Son, Barnet, showed Chrysanthemums and Dahlias.

ULSTER HORTICULTURAL.

November 11 and 12.—The annual exhibition of Chrysanthemums held by this society was opened by the Duchess of Abercorn. The show took place in the St. George's covered market at Belfast, where a fine display of fruit and flowers was arranged. The weather was not very good, especially on the first day, but the attendance was both large and representative. One of the most attractive exhibits was that of Mr. James Davies, superintendent of parks. It consisted of a fairy dell, a tiny fountain in the centre being surrounded with beautiful flowers, the whole arrangement showing the utmost taste and skill. Among exhibitors of Chrysanthemums Mr. John Jameson was the most successful, securing the 1st prize in several classes and also a number of 2nd prizes. Other prize winners were Capt. Roger Hall, who was 1st in the class for 10 vases of Japanese blooms, and Mr. J. Milne Barbour, whose specimens were of the first order of merit. There were several classes in which the exhibits were judged on their merits as artistic displays, notably for decorated dinner tables and for baskets of Chrysanthemums.

Mrs. R. Draper, of Dunmurry, was awarded the 1st prize for her dinner-table, and Miss Pauline Ewing, of Belmont Park, gained the 1st place for a very pretty basket. The season having been somewhat unpropitious, fruit was not quite up to the usual standard, though the hothouse Grapes were on the whole well-coloured and of a good quality.

Non-competitive groups by nurserymen made a splendid display, foremost among which was that of Messrs. Alexander Dickson and Sons, Newtownards. They showed a large variety of beautiful floral designs of Chrysanthemums and other flowers besides two special exhibits, one of hardy fruits and one of American Carnations. Messrs. Hugh Dickson, Belmont, showed a large collection of choice plants, including a number of their famous dwarf bedding Roses. Messrs. W. Wells and Co., Merstham, showed a very attractive group, their specimens of Queen Mary being especially noteworthy. Messrs. Frank E. Smith and Co.'s exhibits consisted of ingenious and attractive floral designs.

CHELTENHAM ROOT, FRUIT AND CHRYSANTHEMUM.

November 12 and 13.—The thirty-third annual show of this society was held in the Town Hall on the above dates, the opening ceremony being performed by the Mayor (Alderman Skillicorne). The entries were somewhat fewer on this occasion, the total of 525 comparing with 556 last year. Chrysanthemums were the great feature of the floral display.

The Corporation Cup offered for the finest collection of 6 varieties of Japanese Chrysanthemums was won by Lady Dick Cunyngham, and the Mayor's prize for the best specimen Chrysanthemum plant in the show by Mr. C. J. Mayo, with the variety Leon Truelli. There were two half-circular groups of Chrysanthemums (10 feet by 5 feet), and four groups of Chrysanthemums (9 feet by 3 feet). Mr. F. May was placed 1st in the former, and Mr. Hugh Andrews, of Toddington Manor, secured the premier award in the latter class, Mr. Horlick, of Cowley Manor, being 2nd, and Mr. E. Adlard, Portlip, 3rd.

Other winners in the Chrysanthemum section were Mrs. St. Clair Ford, Mr. G. W. Restall, Mr. Gordon Canning, Mrs. Robinson, Colonel Moore, Mr. W. J. Gresson, Colonel Fairfax Rhodes, Mr. H. O. Lord, Mrs. Greaves, Mr. Harding, Mr. W. T. Spencer, Messrs. Young and Son, Messrs. Barrett and Sons, and Mrs. Rudge. Mr. Harding won the 1st prize offered for a decorated dinner-table, arranged with flowers and foliage. Mr. Horlick and Colonel Faipfax Rhodes won the chief prizes for Carnations, and Mr. Gordon Canning (Hartpury) excelled with Cyclamen. Mrs. Ratcliff's Begonias were adjudged the best, as also were her Primulas.

In the fruit section, Mr. A. H. Taylor won Mr. Simmons' Silver Cup offered for the best dish of dessert Apples with King of the Pippins; Mr. W. S. R. Cox (Ross) was to the fore for culinary Apples; and other winners in the Apple classes, which were remarkably well filled with choice specimens, included Mr. W. T. Spencer, Mr. W. J. Gresson, Mr. H. Newman, and Sir Percy Cunynghame, Bart., of Badgeworth. For Pears, the 1st prize-winners in the three classes were Mr. W. T. Spencer, J. Hitch and Son, and Mr. W. J. Gresson. Mr. H. Andrews won the three 1st prizes for Grapes, and Mrs. Ratcliff and Colonel Fairfax Rhodes were winners of 2nd prizes in the Grape classes.

NEWPORT, MONMOUTH, AND DISTRICT CHRYSANTHEMUM.

November 13.—This society held its 25th annual show in the Gymnasium, Newport. The exhibits generally were of a high standard of merit, though on some previous occasions we have noticed better specimen blooms at Newport. The classes generally were well contested.

Blooms.—There was a good contest in the class for eight vases of Japanese Chrysanthemums, three blooms in each vase. Amongst three competitors, H. A. Tipping, Esq. (gr. Mr. Spencer), was placed 1st with fine blooms of Mrs. G. C. Kelly, Mrs. H. Stevens, F. S. Vallis, H. E. Converse, Lady Talbot, Mrs. G. Drabble and Splendour. W. F. Dawson, Esq. (gr. Mr. R. Long), showed an exhibit inferior by one point only. 3rd, Mr. Daniels. Four competed in a class for four vases, Mr. Grinter being placed 1st with capital blooms of W. Turner, W. Mease, F. S. Vallis and Lady Talbot. Mr. W. H. Hollingdale followed closely. 3rd, Mr. S. Rumney.

For six vases of single varieties J. E. Webb, Esq. (gr. Mr. Sharratt), led with fine examples of Snowflake, Coronation, Metta, Altrincham Yellow, Mrs. H. S. Bernis and Mrs. Hartley Bells. 2nd, Mr. Long. In a class for four vases Mr. J. Matthews was placed 1st, staging in capital condition Kitty Bourne, Metta, Mensa, and Mrs. Buckingham. 2nd, Mr. Fry. Mr. Long was awarded the 1st prize in the class for three vases with the varieties Kitty Bourne, Metta and Crown Jewel.

In the classes for blooms shown on boards the best exhibit of 24 Japanese blooms was shown by Manor House Nurseries, Ltd., Cardiff. Prominent varieties were W. Turner, Master James, Lady Talbot, Mrs. G. Drabble, A. Robertson, John Howe, Mrs. R. Luxford, G. C. Kelly, Fred Green, Miss A. Nicoll and Rose Pockett. Mr. F. S. Daniels was a close 2nd, having good blooms of Mrs. E. Tickell, W. Turner, Miss A. Roope, His Majesty and Mrs. Knox. The class for twelve Japanese blooms brought seven exhibitors, and Mr. Long led with a good collection comprising the varieties Bessie Godfrey, W. Turner, Fred Chandler, F. S. Vallis and Lady Talbot. 2nd, Manor House Nurseries, Ltd. For twelve Japanese blooms in not fewer than four varieties, the 1st prize was awarded to Mr. G. T. Collings, whose best blooms were Lady Talbot, Hon. Mrs. Lopes, F. S. Vallis and Bessie Godfrey. 2nd, Mr. A. J. Owen. Mr. Kerby led for six blooms of Japanese; his blooms of W. Turner won the National Chrysanthemum Society's Medal, offered for the best bloom in the show.

Groups.—There was only one group of Chrysanthemums in a space of 40 square feet, but it was very meritorious, there being many large, well-coloured blooms. The exhibitor was Mr. Long. There was also a smaller class for a group of Chrysanthemums (50 square feet), and this again attracted only one exhibitor, H. Oakley, Esq. (gr. Mr. W. Pearce). Mr. W. Pearce was placed 1st in the class for single Chrysanthemums arranged in a group occupying 30 square feet, but the plants were somewhat crowded. 2nd, G. H. Ingham, Esq. (gr. Mr. Rumney), whose group also lost effect from crowding. For a group of Chrysanthemums occupying 20 square feet Mr. J. H. Broom was placed 1st. 2nd, Mr. F. J. Richards.

Dr. Brooke Gratte showed the better of two groups of Orchids, and Mr. J. Masie was placed 1st for three Orchids.

Fruit.—Mr. Daniels was placed 1st for White Grapes with Muscat of Alexandria, and Mr. George for Black Grapes with Black Alicante.

Mr. GRIFFITHS showed the best collection of fruit. 2nd, COL. WALLIS (gr. Mr. Hutchins). Mr. HOBBS was 1st for two dishes of Apples, and Mr. GRIFFITHS for two dishes of Pears.

WINCHESTER CHRYSANTHEMUM.

NOVEMBER 12 AND 13.—This annual autumn show was held in the local Guildhall and was a success. Cut blooms were not numerous, but their quality was good, especially those in the decorative classes. Exhibits of plants were numerous and praiseworthy, whilst fruit and vegetables were strong features of the show.

PLANTS.—Four competed in the class for a group of Chrysanthemums arranged for effect in a semi-circle. The Lady BRANDRETH, Heathfield, Winchester (gr. Mr. W. Paice), won the premier prize with dwarf plants carrying good foliage and large blooms, pleasingly edged with single-flowered varieties and Ferns; 2nd, H. E. JOHNSON, Esq., Northgate Place, Winchester (gr. Mr. W. Pearce). In the class for plants in 9½-inch pots suitable for conservatory decoration, the specimens were more remarkable for the quality of the blooms than the number on each plant. For 9 plants in not fewer than 6 varieties, J. A. FORT, Esq., the College, Winchester (gr. Mr. G. Cousins), won the 1st prize easily with desirable plants of F. S. Vallis, Frances Jolliffe, Mrs. Gilbert Drabble and W. Mease; 2nd, Mrs. MOORSOM, Holyrood, Winchester (gr. Mr. H. Gigg). For 9 plants of white and yellow varieties Mr. FORT again secured the leading place with excellent blooms on dwarf plants, the most suitable type for decorations; the variety F. S. Vallis was especially fine. In another class for 6 plants, which required not fewer than 8 blooms on each, the Rev. A. G. BATHER, Sunnyside, Winchester (gr. Mr. T. W. Stone), won the 1st prize easily with good plants. Single varieties were well shown. For 6 plants Mr. FORT won easily, Mrs. W. Buckingham standing out prominently among many other good varieties. A plant of W. Mease with handsome blooms, exhibited by Mr. FORT was adjudged the finest single Chrysanthemum. Captain H. BULL, St. Phillip's, Winchester (gr. Mr. J. Hayes), arranged the best group of miscellaneous plants for effect.

CUT BLOOMS.—The leading class was for Japanese and incurved varieties, 18 blooms of each type. Two only competed, showing with what little favour these dual classes are regarded. Mr. C. MOORE, Frensham Place, Farnham, won the premier award with handsome Japanese blooms and fairly good incurved flowers. Of the former type, Frances Jolliffe, W. Turner, Francis Rowe, Alice Lemon, Miss J. Stratton, Bob Pulling, Master James and Mrs. Gilbert Drabble were all good, whilst of incurveds, Emblème Poitevine, Ialéne, Mrs. G. Denyer, Romance and Marjorie Shield were the most prominent sorts. W. GARTON, Esq., Sarisbury Court, Southampton (gr. Mr. Edwards), was placed 2nd. Better competition was seen in the class for 12 Japanese blooms, distinct. The Rt. Hon. Lord NORTHCLIFFE, Sutton Place, Guildford (gr. Mr. Goatley), showed best among five, having handsome blooms of H. E. Converse, His Majesty, Mrs. G. Drabble, Mrs. H. Stevens, F. S. Vallis and Joan Stratton; 2nd, MORTIMER GALE, Esq., Warley, Twyford (gr. Mr. W. H. Cole). For 6 Japanese varieties, 3 blooms of each sort arranged in vases, Lord NORTHCLIFFE won the principal award with handsome examples of Queen Mary, Fred Green, Mrs. G. Drabble, H. E. Converse and F. S. Vallis. Mr. MOORE followed closely. Mr. GARTON won in the class for twelve incurved blooms, with medium-sized neat flowers of popular sorts. New classes were provided to display decorative varieties to the best advantage, but owing to the large number of entries the exhibits were crowded. In the class for one vase of Japanese varieties arranged for effect with any foliage, 9 competed. Lord NORTHCLIFFE was easily 1st with bronze and yellow blooms, associated with yellow and bronze Beech foliage. The 2nd prize was awarded for the variety F. S. Vallis, relieved with red autumn foliage, shown by Mr. J. LIDDELL, Sherfield Manor, Basingstoke (gr. Mr. Learmouth). For a vase of varieties grown naturally, arranged for effect with any foliage, there were 12 entrants. The COUNTESS OF NORTHBROOK, Stratton Park, Hampshire (gr. Mr. L. Carsley), excelled with a most effective combination of single-flowered varieties blended with autumn foliage, including beautifully-coloured sprays of Berberis. 2nd, Mr. LIDDELL. Exhibits of single varieties were numerous and good. For 6 bunches distinct, not disbudded, 9 staged. The premier award was made in favour of W. H. MYERS, Esq., Swanmore House, Bishop's Waltham (gr. Mr. G. Ellwood). 2nd, LADY NORTHBROOK. For half-a-dozen bunches of any Chrysanthemums except singles, not disbudded, A. H. EVANS, Esq., Horris Hill, Newbury (gr. Mr. C. Smith), was awarded the 1st prize. Lord ASHBURTON, The Grange, Alresford (gr. Mr. W. Hunt), followed closely.

FRUIT.—Mr. MYERS showed the best Black Grapes with Mrs. Pince. ELLEN LADY SWAYTHLING, South Stoneham, Southampton (gr. Mr. T. Hall), secured the 1st prize for any White Grape with Muscat of Alexandria. The Rev. J. MCMERDI, Woburn Park, Weybridge (gr. Mr. A. Basile), had (1) the best 4 dishes of dessert Apples; (2) 4 dishes of culinary Apples; and (3) Pears.

VEGETABLES.—Mr. MYERS won the 1st prizes in Messrs. Sutton and Sons' and Messrs. Toogood and Sons' classes.

NON-COMPETITIVE EXHIBITS.—Messrs. SUTTON AND SONS, Reading, arranged a collection of vegetables. Messrs. E. HILLIER AND SON, Winchester, showed Apples and Carnations. Mr. W. H. MYERS sent three dozen dishes of fine Apples. Mr. WOOTTEN, Fair Oak, exhibited Carnations.

CHESTER PAXTON.

NOVEMBER 18 AND 19.—This society's show was held in the local Town Hall, the exhibits of fruit, plants, and non-competitive collections in the large hall and adjoining rooms, the cut flowers and decorated tables in the Council Chamber. J. R. SAMUEL, Esq. (gr. Mr. F. Berry), was successful in the class for a group of single Chrysanthemums; 2nd, Mr. J. MARTIN. For a group of Chrysanthemums containing Japanese incurved and single varieties, T. GIBBONS FROST, Esq. (gr. Mr. T. Gilbert), was the only exhibitor. He staged a semi-circular group of bright, well-grown plants, and was awarded the 1st prize. Six pots of single varieties were best shown by H. POTTS, Esq. (gr. Mr. J. Fleet), who had an excellent exhibit.

In the class for six table plants, Mr. W. MAY excelled with Codiæums (Crotons).

CUT BLOOMS.—For eighteen Japanese varieties, staged in six vases, R. BROCKLEBANK, Esq. (gr. Mr. T. Winkworth) was awarded the 1st prize, his best blooms being those of Lady Talbot, F. S. Vallis and W. Turner; 2nd, J. E. GORDON, Esq. (gr. Mr. E. Bennett); and 3rd, E. PETER JONES, Esq (gr. Mr. W. Dodd).

Mr. WINKWORTH was also successful for twelve blooms of Japanese varieties in two vases. For five blooms of Japanese varieties in one vase, and for three Japanese blooms in one vase, Mr. J. FLEET was awarded the 1st prize. For five blooms of incurved varieties Mr. T. WINKWORTH was again successful, his varieties Clara Wells and C. H. Curtis being excellent. In the class for twelve Japanese blooms, staged on boards, W. DROUSFIELD, Esq. (gr. Mr. W. May), showed best; 2nd, J. E. GORDON, Esq. (gr. Mr. E. Bennett). In the class for six vases of naturally-grown blooms, single varieties excluded, Captain W. G. TOWNSEND (gr. Mr. T. Sanders), was awarded the 1st prize with large, handsome bunches, whilst for six vases of singles A. D. PETCAIRN CAMPBELL, Esq., won the 1st prize.

In the fruit section J. AMPLETT, Esq. (gr. Mr. R. Jones), won the 1st prize for two bunches of black Grapes with Black Alicante variety.

For two bunches of white Grapes Sir G. MERRICK, Bart. (gr. Mr. W. Pilgrim), received the 1st award for well-coloured bunches of Muscat of Alexandria.

Dessert Apples were best shown by Mr. SHAW, whilst HUBERT POTTS, Esq. (gr. Mr. J. Fleet), secured the 1st award for twelve varieties of kitchen Apples.

For twenty-four dishes of Apples, 12 culinary and 6 dessert sorts, and six dessert Pears, Mr. W. PILGRIM staged the winning collection, the 2nd and 3rd prizes being awarded to Mr. G. BRIDGEWATER and Mr. T. GILBERT respectively.

Mr. H. BRAYFIELD won the 1st prize in the competition for Apples packed in boxes, with the variety King of the Pippins.

NON-COMPETITIVE EXHIBITS.—Gold Medals were awarded to A. HAMNER, Esq. (gr. Mr. G. Porter), for Orchids, and to the GOVERNMENT OF BRITISH COLUMBIA. A Silver Medal was awarded W. RICHARDSON MOSS, Esq. (gr. Mr. W. E. Sharp), for Orchids.

Messrs. DICKSONS staged an extensive display of Chrysanthemums, Liliums and Begonias, and Messrs. MCHATTIE showed Chrysanthemums and Carnations.

RAYLEIGH AND DISTRICT HORTICULTURAL AND CHRYSANTHEMUM.

NOVEMBER 14 AND 15.—This society held its twelfth annual exhibition of Chrysanthemums, fruits and vegetables on these dates. The number and quality of the exhibits was quite up to the average for these shows. Vegetables were shown fairly well considering the season, and more especially in the cottagers' classes, in which Messrs. NASH and WARD were the most successful exhibitors, Mr. BOYES being successful in the amateur classes. The chief features of the exhibition were the exhibits of Apples and Pears, and the 1st prize group of Chrysanthemums in pots staged was shown by Mr. SAMUEL TAYLOR, Alpha Nursery, Rayleigh. The plants, mostly with single stems, ranged from 15 inches to 3 feet in height, and were furnished with luxuriant foliage and choice blooms; the flowers on the outside row of dwarf plants, growing in 6-inch pots, were 6 inches in diameter. In the classes for collection of six dishes of dessert Apples and a like number of cooking varieties, Mr. TAYLOR was placed 2nd in each class. Mr. TAYLOR excelled for six dishes of Pears, showing fine fruits of Pitmaston Duchess, Duchesse d'Angoulême, Beurré Hardy, Doyenné du Comice, Beurré Diel and Rivers' Red October. Mr. W. A. Voss, Eastwood Road, Rayleigh, was successful in the class for one dish each of dessert Pears and dessert Apples.

NON-COMPETITIVE EXHIBITS.—Several well-filled vases of perpetual-flowering Carnations were shown by Mr. Jenner, Lynwood Nurseries, Rayleigh. Twelve dishes of large, even-sized and finely-coloured Apples were shown by Mr. T. NEWMAN, Rayleigh. Mr. R. BRETT, Rayleigh, showed a group of decorative Ferns.

READING AND DISTRICT GARDENERS'.

NOVEMBER 12.—The fifth annual exhibition of flowers and fruit promoted by the Reading and District Gardeners' Association was held in the Corn Exchange on the 12th inst. The show was non-competitive, and the proceeds will be given to the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. One of the prettiest floral exhibits was contributed by Messrs. SUTTON AND SONS, who showed two exceedingly fine groups of Chrysanthemums, raised from seeds sown last February. From the garden of the LORD CHIEF JUSTICE at Fox Hill was sent a group of large-flowering Chrysanthemums, Primula obconica, Begonias and Dracænas. Mr. J. WALTER staged about 40 vases of Chrysanthemums, whilst Mr. S. B. JOEL showed Gloire de Lorraine Begonias, and Mr. LEONARD SUTTON a fine collection of Primula obconica, edged with Adiantum Ferns. Reading University College contributed a group of Cypripediums and Ferns and fruit in boxes, illustrating the best methods of sending choice fruit to market. Mr. LEONARD SUTTON showed Chrysanthemums raised this year from seed, including singles and semi-doubles, and Mr. M. H. F. SUTTON also exhibited seedling Chrysanthemums. Others who exhibited collections of Chrysanthemums were Miss CRIPPS and Mr. W. HOWARD PALMER, while Mr. W. LEES exhibited Fuchsias, Mr. S. GRIFFITH a group of flowers, and CAPTAIN MILLER brightly-coloured zonal Pelargoniums.

The President of the Association (Mr. F. B. PARFITT) showed 50 dishes of fruit.

The finest vegetables were shown by Mr. P. KEEVIL and Mrs. COLLINS.

MARKETS.

COVENT GARDEN, November 19.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s. d.	s. d.
Arums, per doz. ..	2 0-	3 0
Azalea, White, per doz. bunches ..	4 0-	5 0
Camellias, per doz.	1 6-	2 0
Carnations, per dozen blooms, best American varieties ..	1 6-	2 6
— smaller, per doz. bunches ..	9 0-	12 0
— Carola (crimson), extra large	3 0-	4 0
— Malmaison, per doz. blooms:		
— — pink ..	6 0-	9 0
Chrysanthemum:		
— White and coloured, large specimen blooms	4 0-	5 0
— Special blooms	2 0-	2 6
— Medium blooms	1 3-	1 9
— Bunch, white, per doz. ..	4 0-	6 0
— — coloured, per doz. ..	3 6-	5 0
Eucharis, per doz.	2 6-	3 0
Gardenias, per box of 15 and 18 blooms.. ..	2 6-	3 6
Lapageria alba, per doz. blooms ..	2 0-	2 6
Lilium auratum, per bunch ..	2 0-	2 6
— longiflorum, per doz., long..	1 9-	2 0
— — short ..	1 6-	1 9
— lancifolium album, long ..	1 3-	2 0
— — short ..	1 3-	1 6
— rubrum, per doz., long ..	1 3-	1 6
— — short ..	0 9-	1 0
Lily-of-the-Valley, per dozen bunches:		
— extra special ..	15 0-	18 0
— special	12 0-	14 0
— ordinary ..	9 0-	10 0
Orchids, per doz.:		
— Cattleya ..	10 0-	12 0
— Cypripedium ..	2 0-	3 0
— Dendrobium Phalænopsis ..	1 6-	2 0
— Odontoglossum crispum ..	3 0-	4 0
Pelargoniums, per doz. bunches, white	3 0-	4 0
— double scarlet	4 0-	6 0
Roman Hyacinth, per doz. spikes	0 0-	1 0
Roses: per dozen blooms, Bridesmaid	1 6-	2 0
— Kaiserin Augusta Victoria	1 6-	3 0
— Lady Hillingdon	1 6-	2 0
— Liberty ..	2 0-	3 6
— Mme. Carnot..	2 6-	3 0
— Madame A. Chateney ..	2 0-	3 6
— Melody ..	1 6-	3 0
— Niphetos ..	1 6-	1 9
— Prince de Bulgaria ..	2 6-	3 6
— Richmond ..	2 0-	3 6
— Sunburst ..	1 6-	3 0
— Sunrise ..	1 3-	2 0
Spiræa, per doz. bunches ..	6 0-	8 0
Stephanotis, per spray of 72 ..	2 6-	3 0
Tuberoses, per gross	4 0-	5 0
Violets, English, per dozen bunches	1 0-	1 6
— Princess of Wales per doz. bunches	2 6-	3 0

French Flowers.

	s. d.	s. d.
Lilac white, per bunch	4 0-	4 6
— mauve, p. bnch.	6 0-	6 6
Marguerites, yellow, per dozen bunches ..	1 6-	1 9
Mimosa (acacia), per pad	5 0-	6 0
— — per bunch	0 9-	1 0
Narcissus, Paper White, per pad	5 0-	6 0
— — — per doz. bunches ..	1 6-	1 9
Narcissus, *Continued:*		
— Sol d'Or, per pad	6 0-	7 0
— — per dozen bunches ..	1 6-	2 0
Roses, Safrona, per packet (24) ..	1 6-	1 9
Violets, single, per pad	4 0-	5 0
— — per dozen bunches ..	1 3-	1 6
— Parmas, large bunch	1 6-	2 0

Cut Foliage, &c.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum Fern (Maidenhair), best, per doz. bunches ..	4 0-	5 0
Agrostis (Fairy Grass), per doz. bunches ..	2 0-	4 0
Asparagus plumosus, long trails, per half-dozen	1 6-	2 0
— medium, doz. bunches ..	12 0-	18 0
— Sprengeri ..	6 0-	12 0
Carnation foliage, doz. bunches ..	—	
Croton foliage, vrs., doz. bunc.	12 0-	15 0
Cycas leaves, artificial, per doz.	3 0-	12 0
Eulalia japonica, per bunch ..	1 0-	1 6
Honesty, per doz. bunches ..	10 0-	12 0
Moss, gross bunches ..	6 0	—
Myrtle, doz. bnchs. English, small-leaved ..	6 0	—
— French.. ..	1 0	—
Smilax, per bunch of 6 trails ..	1 0-	1 3

REMARKS.—Owing to the exceptionally mild weather and very large supplies trade remains slow and prices show no improvement on those of last week, except for a few best blooms of Roses and Carnations. Chrysanthemums and Violets are the chief items in the English flower market. Of the latter flowers the variety Princess of Wales is arriving in large quantities, and, as the French Violets arrive in a practically unsaleable condition large quantities are sold daily, but for only moderate prices. Prices for Lilium at the close of the market this morning appeared to be a little firmer. There are large quantities of Roman Hyacinth on sale, and salesmen find it a difficult matter to clear their stocks. Lily-of-the-Valley is more plentiful and the quality is good. Chrysanthemums will soon show a decrease in quantity; one or two varieties which are usually grown for the Christmas and New Year trade are already on the market. The chief varieties are Mrs. Roots, Cannell's White, Niveus, Romance, Yellow Poitevine, David Ingamells, Hortus Toulousanus, Anona and Balfour. French flowers are arriving in larger numbers, and excepting Violets the quality is better, but prices are low. Nothing but colder weather will influence trade for the better.

Plants in Pots, &c.: Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldii, dozen	6 0-	7 0
Araucaria excelsa per dozen ..	18 0-	21 0
Asparagus plumosus nanus, per dozen	10 0-	12 0
— Sprengeri ..	6 0-	8 0
Aspidistra, per doz., green	18 0-	30 0
— variegated ..	30 0-	60 0
Begonia Gloire de Lorraine, 48's, per dozen ..	9 0-	12 0
Cacti, various, per tray of 15's ..	4 0	—
tray of 12's ..	5 0	—
Cocos Weddeliana, per dozen, 60's	6 0-	12 0
— larger, each ..	2 6-	10 6
Croton, per dozen	18 0-	30 0
Cyclamen, 48's, per dozen	10 0-	12 0
Cyperus alternifolius, per doz.	5 0-	6 0
— laxus, per doz.	4 0-	5 0
Chrysanthemums:— 48's, per doz. ..	6 0-	10 0
Dracæna, green, per dozen ..	10 0-	12 0
Erica gracilis, per dozen	9 0-	12 0
— hyhnalis ..	10 0-	15 0
— nivalis, per doz.	10 0-	15 0
— small, in thumbs, per dozen ..	4 0-	6 0
Ferns, in thumbs, per 100.. ..	8 0-	12 0
Ferns, in small and large 60's ..	12 0-	20 0
— in 48's, per dozen	5 0-	6 0
— choicer sorts, per dozen ..	8 0-	12 0
— in 32's, per doz.	10 0-	18 0
Geonoma gracilis 60's per dozen..	6 0-	8 0
— larger, each ..	2 6-	7 6
Kentia Belmoreana, per dozen	5 0-	8 0
— Fosteriana, 60's, per dozen ..	4 0-	8 0
— — larger, per dozen	18 0-	36 0
Latania borbonica, per dozen ..	12 0-	30 0
Lilium lancifolium rubrum, per dz.	12 0-	18 0
— lancifolium album	15 0-	18 0
— longiflorum, per dozen ..	12 0-	18 0
Lily-of-the-Valley	18 0-	21 0
— 48's, per dozen	21 0-	30 0
Marguerites, in 48's, per doz., white	6 0-	7 0
Pandanus Veitchii, per dozen ..	36 0-	48 0
Phœnix rupicola, each	2 0-	21 0
Roman Hyacinths, per doz. ..	1 6-	1 9
Solanums, 48's per dozen	6 0-	10 0
Spiræa japonica, per dozen pots	6 0-	8 0
— pink	10 0-	12 0

REMARKS.—Erica hyemalis, Solanums, Begonias, Poinsettias and pink and white Spiræas are the leading subjects on sale. Trade is very quiet generally.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English Dessert, ½ bushel..	3 0-	7 0
— cooking, per bushel	3 0-	6 0
— American, brls.	18 0-	26 0
— Californian Newtown Pippin, case	10 6-	11 6
— Cox's Orange Pippin, per doz.	2 0-	3 0
— — ½ bushel ..	5 0-	7 0
— Nova Scotian, barrel	17 6-	26 0
— Oregon, Newtowns, case ..	13 6-	15 0
— Wenatchee, case	10 6-	11 6
Bananas, bunch:		
— Double Ex. ..	11 0-	12 0
— Extra	12 0-	13 0
— Extra medium	10 0-	12 0
— Giant	14 0-	16 0
— Medium ..	8 0-	9 6
— Red, per ton ..	£25 -	£28
— Jamaica, p. ton	£11 -	£12
Cranberries, Cape Cod, per case ..	8 6-	13 0
Dates, dozen boxes	4 0-	4 6
— per cwt. case..	20 0	—
Figs, Italian, box..	1 0-	1 6
Grapes, Almeria, barrel	16 6-	18 6
— Black Alicante	0 4-	1 6
— Canon Hall Muscat ..	1 6-	4 0
— Muscat of Alexandria, per lb.	1 0-	4 0
— Belgian, Black Alicante ..	0 4-	1 0
—Belgian Gros Colmar	0 10-	1 3
— Dutch, Gros Colmar.. ..	0 8-	0 10
— English Gros Colmar.. ..	0 8-	2 0
Grape Fruit, case: — 96's .. — 80's .. — 64's .. — 54's ..	12 6-	18 6
Lemons, Messina, per case ..	13 6-	26 0
— Malaga ..	21 0	—
— Murcia, p. case	16 0-	22 0
— Naples, per case	26 0-	30 0
Limes, per case ..	4 6-	5 6
Lychees, box ..	1 6	—
Medlars, ½ bushel..	4 6-	5 0
Melons, Spanish case	13 0-	14 0
— English ..	1 0-	2 0
Nuts:		
— Almonds, cwt.	60 0	—
— Barcelona, cwt.	48 0	—
— Brazils, cwt.	95 0-	100 0
— Chestnuts, Naples, per bag ..	20 0-	—
— Cobnuts, English, per lb. ..	1 3	—
— Grenobles, bag	7 6-	8 6
— Walnuts, Double English, per lb.	0 10	—
— — French, bag	8 0-	9 0
Oranges, Jamaica..	13 0-	14 0
— Denia, per case	18 0-	22 0
— Mandarines, box	1 6-	4 6
— Mercia, p. case	9 6-	10 6
Pears, Californian, box	8 6-	17 6
— Stewing, ½ bus.	3 0-	4 0
— American, barrel	18 0-	19 0
Persimmons, p. box	1 6	—
Pineapples, St. Michael ..	3 0-	3 6
Plums, Californian, per case ..	10 6-	12 0
Pomegranates, per case	3 0-	10 6
Quinces, ½ bushel..	10 0	—

REMARKS.—Apples from all sources continue plentiful. Of Pears the following varieties are obtainable:—Keiffer (Canadian), Glou Morçeau, Easter Beurré, Beurré d'Anjou, Beurré Clairgeau and Doyenné du Comice (Californian). Supplies of Grapes have increased daily during the past week. Cobnuts are becoming scarcer and their prices have advanced to 1s. 3d. per lb. English Walnuts are finished for the season, and imported Walnuts are not so plentiful as usual. Chestnuts, both Spanish and Redon, are plentiful and exceptionally good. Home-grown Tomatos are shortening, but Tomatos from Teneriffe are arriving in larger quantities. The following forced vegetables are available:—Mushrooms, Beans, Peas, Cucumber, Seakale, Potatos and Asparagus. Owing to the mild weather all outdoor vegetables are very plentiful.—*Edgar H. Rides, Covent Garden, November 20, 1913.*

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Artichokes (Globe), per dozen ..	2 0-	2 6
Asparagus, Paris green	3 6-	4 0
— Cavillion ...	2 6-	2 9
— Sprue	0 8-	0 9
Aubergines, dozen	2 0-	2 6
Beans, Guernsey, lb.	0 4-	0 8
— Madeira, per basket	2 0-	4 0
— French canes..	4 6-	5 0
Beetroot, per bushel	2 6	—
Cabbages, per tally	3 0-	5 0
Carrots, (English), bags	3 0-	4 0
Cauliflowers, per dozen	1 6-	2 0
Celeriac, French, per dozen ..	2 0-	2 6
Celery, per doz. ..	6 0-	8 0
Chicory, per lb. ..	0 4½	
Corn (Maize) per dozen	0 9-	1 6
Cucumbers, per flat	7 6-	9 0
Endive, French, per dozen	2 0	—
Garlic, per strike..	3 0-	4 0
Horseradish, 12 bundles ..	9 0-	10 0
Leeks, per dozen ..	2 0-	2 6
Lettuce, English, Cos, per score	0 9-	1 3
Lettuce, *Continued:* — English, round, per score ..	0 4-	0 9
— French crates	2 6	—
Mushrooms, cultivated, per lb...	1 0-	1 6
— Broilers ..	0 8-	1 0
Mustard and Cress, per dozen punnets	1 0-	1 3
Onions, picklers, per ½ bushel ..	1 3-	1 6
— Dutch, bags ..	3 6-	4 6
— English, bags..	5 0-	5 6
— Spanish, cases	6 0-	7 0
Parsley, per dozen bunches ..	1 6-	2 0
Peas, Guernsey, lb.	1 6-	2 0
Sage, per dozen ..	2 0	—
Savoys, per tally ..	4 6-	6 0
Sprouts, ½ bushel..	1 3-	1 6
Stachys tuberosa, lb.	0 4-	—
Tomatos, English, per dozen lbs.	4 0-	5 0
— seconds, per dozen lbs. ..	2 0-	2 6
— Canary, bundle	10 0-	14 0
— Guernsey, per dozen lbs. ..	3 6-	4 6
Thyme, per dozen bunches ..	2 0-	6 0
Turnips (English), per bag ..	2 0-	3 0
Watercress, per doz.	0 4-	0 6

Potatos.

	s. d.	s. d.
Bedford, per cwt.	3 6-	3 9
Blacklands	2 6-	3 0
British Queen ..	3 6-	4 0
Dunbars	4 6-	5 0
Evergood	3 0-	3 3
Kent, per cwt. ..	3 0-	3 6
King Edward ..	3 3-	3 9
Up-to-date	3 6-	4 0

REMARKS.—Trade remains very steady. Stocks received are slightly heavier. Prices keep fairly firm for sound tubers.—*Edward J. Newborn, Covent Garden and St. Paneras November 19, 1913.*

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending Nov. 19, 1913.

The Ninth Unseasonably Warm Week in Succession.—This was not only the ninth warm week in succession, but also, with one exception, the most unseasonably warm one of the series. On the warmest day the highest reading in the thermometer screen was 58°, and on the warmest night the exposed thermometer did not fall below 48°—the highest minimum reading registered by that thermometer in November for thirteen years. The ground was yesterday 3° warmer at 2 feet deep, and 5° warmer at 1 foot deep than is seasonable. Rain fell on five days, and to the total depth of 1¼ inch. Since the beginning of the month the total measurement is 2½ inches or about the average quantity for the whole of November. During the same 18 days 11 gallons of rainwater came through the bare soil gauge, and 9 gallons through that on which short grass is growing. The sun shone on an average for 1 hour 56 minutes a day, which is seven minutes a day longer than the average for the same period in November. The wind has been as a rule rather high—indeed, taking the week as a whole, higher than in any week since the early part of June, or for over five months, and yet in no hour did the mean velocity exceed fifteen miles. The direction has been almost exclusively some point between south and west. There was about a seasonable amount of moisture in the air at 3 p.m. *E. M., Berkhamsted, November 19, 1913.*

GARDENING APPOINTMENTS.

[*Correspondents are requested to* **write the names of persons and places as legibly as possible.** *No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. A. Bird, for the past 11½ years in the employ of the late F. NETTLEFOLD, Esq., Streatham Grove, Norwood, as Gardener to Mrs. BLACKWELL, The Cedars, Harrow Weald, Middlesex.

Mr. J. Smith, for 2½ years Gardener to M. WINGFIELD STRATFORD, Esq., Ozleworth Park, Wotton-under-Edge, as Gardener to the Right Hon. the Earl of GAINSBOROUGH, at Exton Park, Oakham, Rutland.

Mr. A. Annand, for the past 7 years Gardener at Braymead, Bray, Berkshire, as Gardener to J. MONTAGUE C. ROBB, Esq., Chittley Place, Liphook, Hampshire.

Mr. H. Matthews, until recently Gardener to H. AVREY TIPPING, Esq., Brasted Place, Kent, as Gardener to Mrs. REGINALD GORDON, Zeals House, Mere, Wiltshire.

Mr. W. Dymond, Foreman at Pains Hill Park, Cobham, Surrey, and previously at Grass Park House, Finchley, and Rood Ashton Park, Wiltshire, as Gardener to A. C. COLE, Esq., Woodhay House, Newbury, Berkshire.

Mr. Chas. Oakford, for 3½ years Gardener to JAMES JOICEY, Esq., Poulton Priory, Fairford, Gloucestershire, and for the past 9 months to LADY ROLLESTON, Glen Parva Grange, Leicester, as Gardener to GILBERT T. BATES, Esq., Mells Park, Frome, Somerset.

ENQUIRIES AND REPLIES.

Chrysanthemum Trevenna.—I have two plants of a Chrysanthemum named Trevenna. Both are sporting. In one the main branch bears pale yellow flowers and the chief lateral has pinkish flowers. In the other the flowers are mostly yellow, but some are pinkish. I shall be obliged if any of your readers can tell me whether—as I suspect—pale yellow is the normal colour of this variety. *K.*

Answers to Correspondents

Bean.—*H. R. Twickel.* Purple-podded Runner Kidney Bean, a variety of Phascolus vulgaris.

Beetroot: *A. Reader.* The beet scab can be checked by dressing the land with superphosphate, 2 cwt. to the acre, and deficiency of colour remedied by adding sulphate of potash to the superphosphate.

Begonias Failing: *J. M.* Begonia mite is present, and this pest may have been introduced with the new stock. Sponge the plants with a solution of Quassia.

Begonia Leaves Turning Yellow: *R. and Co.* The plants are injured by thrips. Sponge them with Quassia water.

Chrysanthemums: *S. M.* There is no disease in the plants, and their unsatisfactory condition must be looked for in another direction; the trouble is most probably due to some wrong cultural treatment.

Chrysanthemums for Exhibition: *F. G. B.* You ask our opinion with regard to an exhibit of Chrysanthemums, in which the flowers were disqualified as not complying with the condition of being single varieties. All exhibitors have sooner or later undergone an experience similar to your own, and though you may be quite a keen and discriminating judge yourself, it may sometimes occur that you do not see eye to eye with the judges who are appointed on any particular occasion to make the awards. The singles you sent (Mensa, Mrs. F. C. Hunter, Snowflake, J. B. Lowe, Elsie Neville, and Mrs. Tresham Gilbey) were good; but we cannot venture an opinion as to the relative merits of yours and your fellow-competitors' exhibits, not having seen them. With regard to some of the varieties you name, it is possible that if they were disbudded very hard the blooms would tend to become coarse, and would probably need more dressing than they should receive. If the judges perceived signs of such a condition they were quite right to take cognisance of it. Elsie Neville, Snowflake, and J. B. Lowe are not by any means ideal "singles," and we should advise you to try another time to show more blooms of the type of Mensa, Mrs. A. Middleton, and Mrs. Loo Thomson. The craze for size in singles has gone quite far enough and we are not surprised to hear of judges discountenancing extra large blooms. The judge was evidently piqued at his judgment being questioned. He might have been a little more courteous, but knowing the persistency of some exhibitors we are rather inclined to sympathise with him. Most schedules contain a clause to the effect that the decision of the judges is final, and judges should not enter into discussions with the exhibitors, except through the committee, with whom all protests should be lodged. Your record as an exhibitor of singles is evidently a good one, and if you choose a few of the more refined varieties you will, no doubt, continue to be successful.

Climbing Roses for Furnishing a High Wall Under Glass. *A. J. Long.* The following varieties are suitable for your purpose: Climbing Mrs. Grant, Climbing Richmond, and W. A. Richardson. Climbing Lady Ashtown and Rêve d'Or are also to be recommended, and Climbing Liberty. The Lilacs would be in bloom in about six weeks from the commencement of forcing.

Management of Peach Trees Under Glass: *H. J. G.* After the trees have shed their leaves they must be pruned. Cut out a sufficient number of last year's growths to make room for new shoots, the points of which should be cut back a little, if considered necessary, to a strong wood-bud. Next wash the woodwork and glass with soft-soapy water, and the brick and plaster work with hot liquid lime. This done, wash the trees with a solution consisting of ½lb. soft soap, dissolved in one gallon of hot water, adding a wine-glassful of paraffin, keeping the mixture well stirred during the process of washing. Train the individual trees to the trellis or wall, allowing a space of 4 inches between the young shoots, these radiating at the same angle from the centre on either side of the tree. Next remove the surface soil from the border and replenish with compost consistang of the best loam available and old lime rubble in the proportion of five-parts of the former to one of the latter. Finish with a surface-dressing three inches in thickness of horse or other short stable manure, and then give the roots a good watering. Close the house the first or third week in December, according to the time you wish to have ripe fruit ready for table (April or May), starting with a minimum night temperature of from 40° to 45°, according as the weather is cold or mild, and 50° to 55° in the daytime with fire heat, rising 10° to 15° with sun heat. Syringing and damping must be regulated in accordance with the temperature. The higher the temperature the more necessity is there for a liberal and frequent distribution of tepid water to promote atmospheric moisture. Syringe the trees with clean, tepid water at morning, noon, and afternoon on bright days, until the trees come into flower, when a somewhat drier and more airy atmosphere should be maintained until the fruit is set. After that stage, the syringing of the trees and of the house generally should be resumed and continued up to the time the fruit begins to colour. To fertilise the blossoms on early forced trees a rabbit's tail tied on the end of a stick answers admirably. Pass this soft substance lightly over the expanded flowers each day as they open about mid-day until a good crop of fruit is set. Trees started later in the season in more favourable weather conditions will set fruit freely if the expanded flowers are syringed with a fine spray of clean, tepid water about noon on bright days. Tapping the trees with the hand or a light stick on dull days will disperse the pollen and thus assist the flowers to set.

Names of Fruits: *J. W.* 1, Beurré Diel; 2, Decayed; 3, Gansel's Bergamot; 4, Soldat Laboureur; 5, Triomphe de Jodoigne; 6, Washington; 7, Wormsley Pippin.—*Mona. Cellini.*—*Chuncut.* 1, Small's Admirable; 2, King of the Pippins.—*A. H.* 7, Lord Derby; 8, Not recognised; 9, Minchull Crab; 10, Reinette du Caux; 11, Hubbard's Pearmain; 12, Northern Spy.—*G. U.* 1, Gravenstein; 2, White Nonpareil; 3, Charles Ross; 4, Allington Pippin.—*J. J.* Large fruit, Stirling Castle: a very fine specimen; Adams's Pearmain.—*E. W. D. M.* 1, Warner's King; 2, Lady Henniker; 3, Prince Albert; 4, Prince Bismarck.—*J. W.* 1, Norfolk Bearer; 2, Domino.—*Caysh.* Scarlet Pearmain.—*Goodwin.* Large green, Warner's King; next largest, Golden Noble; Pear Catillac.—*A. Moore.* 1, Mannington's Pearmain; 2, Allington Pippin; 3, Peasgood's Nonesuch.—*Orchard.* 1, New Bess Pool; 2, Blenheim Pippin; 3, Ross Nonpareil; 4, Mère de Ménage.—*G. H. H.* 1, Flanders Pippin; 2, Chelmsford Wonder.—*W. K. H. T.* 1, Mother Apple; 2, Blenheim Pippin; 3, Winter Hawthornden; 4, Knight's Monarch; 5, Decayed.—*W. K.* 1, Pile's Russet; 2, Sandringham; 3, Tower of Glamis; 4, Striped Beefin.—*W. H. D.*; also *E. W.* Place in moderately damp and warm position. The mistake is frequently made in gathering too early. The weather having been so mild, ours are still on the trees. We find birds very troublesome.—*D. M.* 1, Witherington Fillbasket; 2, Augustus Pearmain.—*P. G.* 2, Reinette du Caux; 4, French Crab; 6, Yorkshire Beauty; 1, 3, and 5, Too small to name with accuracy.

Names of Plants: *W. H. A.* 1, 2, 3, Cupressus Lawsoniana var.; 4, C. macrocarpa; 5, Abies Nordmanniana; 6, A. grandis; 7, Thuya dolabrata; 8, T. d. var. lætevirens; 9, Cryptomeria japonica; 10, C. j. var. elegans; 11, Cupressus obtusa var. squarrosa; 12, C. pisifera var. filifera.—*E. C.* 1, Veronica macrocarpa; 2, V. La Séduisante; 3, V. speciosa var.; 4, Helichrysum antennarium; 5, Atriplex Halimus.—*Palmengarten - Gesellschaft.* 1, Lissochilus virens; 2, Dorstenia arifolia; 3, D. villosa; 4, D. Ceratosanthes; 5, D. sp.; 6, D. Contrajerva.—*Tychurst.* 1, A garden form of Lantana Sellowiana; 2, Helxine Soleirolii; 3, Peperomia resedæflora; 4, Nepeta Glechoma variegata.—*Hortus.* 1, Oncidium flexuosum; 2, Oncidium oblongatum; 3, Oncidium sphacelatum; 4, Masdevallia infracta.—*E. Vines.*—Boussingaultia baselloides, hardy outdoors in favourable situations.—*W. T.* Pteris longifolia.—*J. R., Newmarket.* Abelia rupestris.—*A. F.* 1, Euonymus grandiflorus; 2, Choisya ternata; 3, Veronica, garden variety of V. Andersonii; 4, Abelia rupestris; 5, Myrtus microphyllus; 6, Berberis Wallichiana.

Orobanche (Broomrape) Attacking Sweet Peas: *W. B., Malta.* You state that your Sweet Peas were attacked last year by a species of Orobanche, and that in consequence all the plants were destroyed. A knowledge of the habits of this root parasite should enable you to cope successfully with the pest. The first point to be borne in mind is that the Orobanches, if allowed to flower, produce enormous numbers of very minute seeds, which scatter themselves broadcast over the ground. Therefore the stems of the plants, which may be recognised by their brown colour, should be cut or pinched off before they reach the flowering stage. To this end the ground should be gone over at frequent intervals during the summer. The second point to bear in mind is that so far as is known the seeds of Orobanche only germinate when they are in contact with the young roots of a suitable host plant. Hence the risk of infection will be reduced considerably if the Sweet Peas are raised in pots from clean seed in sterilised soil, and are planted out after they have made a good root system. Further, it would be worth while to test, at first in a few plants, the effect of placing a little fine sulphur round the roots when the plants are being pricked out.

Peach Trees: *J. M., Yoxford.* We are afraid that publication of your letter would not elicit much information. If diseased shoots are sent again in the spring, we may be able to help you.

Plants for Growing Under a Stage: *Tychurst.* The conditions you describe are not favourable to the majority of plants, but the following species should suit your purpose: Tradescantia zebrina, Helxine Solierolii, Nepeta Glechoma variegata, or Selaginella Kraussiana. Either of these four will do for a groundwork, whilst for dot plants we recommend a few easily-grown ferns, such as Pteris tremula, P. serrulata, P. cretica, Nephrodium cicutarium, N. canum, N. molle, Asplenium bulbiferum, N. falcatum, and Aspidium falcatum. If fresh soil is afforded at the start the plants should thrive well in the conditions you describe.

Tomato Plants: *W. B.* The plant is affected with the fungus which causes Tomato leaf-rust. Spray all the plants, diseased and otherwise, with liver of sulphur, 1 oz. in four gallons of water. If the Bordeaux Mixture is used for other purposes that will do equally well, provided it be not used at full strength.

Communications Received.—A. B., Italy—G. G., Italy—P., Manchester—G. H. B.—A. C. H.—W. M., Naples—F. C.—T. and Co.—H. S. T.—A. C. C.—E. G. L.—R. W. C.—C. E. T.—C. T.—M. R., Dresden—W. G. T.—D. E. H.—H. R.—R. P.—A. S.—T. S. N.—T. D.—C. H., Dorset.

Flower Borders at Huntercombe Manor, Maidenhead, the residence of the Hon. Mrs. Boyle.

THE
Gardeners' Chronicle

No. 1,405.—SATURDAY, NOVEMBER 29, 1913.

CONTENTS.

ILLUSTRATIONS.

THE PARIS FOREST CONGRESS AND BRITISH FORESTRY.

THE International Forest Congress, held at Paris in June, was under the auspices of that enterprising body the Touring Club of France and of the French Forest Administration. The Touring Club has long been an active supporter of Forestry. One sees its notices, enlisting the sympathies of the public against forest fires, posted throughout the forests of Compiègne, Fontainebleau, and others of the neighbourhood of Paris. The Congress was opened by the Minister of Agriculture in an eloquent address, one of the features of which was the warm welcome to the foreign visitors at the Congress. These foreign visitors included a large number of English and English-speaking foresters. The Minister further made the welcome announcement that future French forest budgets would include a credit of 1,000,000 francs yearly for acquiring land for afforestation or redeeming actual forest.

The proceedings, of course, were in French, and some of the discussions, with the Englishman's varying knowledge of colloquial French, were not always easy to follow. But to a great extent this was remedied by the fine set of printed papers which we found awaiting us when the Congress opened. The papers were liberally distributed, each member being allowed to take away what he wanted, so that no one got any subject he was not interested in; and duplicates and even triplicates were allowed of those papers in which one was particularly interested. Thus certain of the papers had a direct bearing on extra-tropical forestry, and of these I was allowed an extra set for transmission to South Africa. France has this advantage over other European countries where the forests are scientifically managed, that while the various climates of temperate Europe are well represented it has also, along the Mediterranean, a strip of the extra-tropical climate of South Africa, of the southern half of Australia, of California and of South America. There were altogether fifty-two papers, mostly of some twelve pages, well printed in convenient pamphlet size. The papers, of course, were of unequal merit; indeed, it may be said that they varied in merit as much as in length, ranging from one page long to twenty pages.

Among the more important papers were:—"Production Forestière dans les divers pays du globe," by Madelin. This brings up to date many of the forest statistics given by Mélard in 1909. "L'Insuffisance de la production des bois d'œuvre dans le monde." Most students of forestry will find this paper wanting in some particulars, but will be glad to have it at their elbow for reference.

There are six other papers of varying interest and merit which can be grouped under "Forest Economy and Statistics."

Under "Forest Utilisation" may be grouped fourteen papers, all of much interest. Thus we learn that France has to-day some 8,000,000 electric-wire poles to maintain, and will soon have 10,000,000; renewals averaging 8 per cent. Every ton of coal mined requires about one franc's worth of timber in mining poles.

The rapid-tanned leather of to-day costs to the consumer as much as the slow-tanned Oak-bark leather of thirty years ago, and is not nearly such a good leather! But the average wearer of boots and shoes does not know, and cannot know (as things now are) the difference. The remedy proposed is (1) that Government contracts should be for Oak-tanned leather; (2) that the Oak-tanned leather still made should be protected by Government inspection and marking. Then the man who buys a pair of boots can be certain of what he is getting! This seems a feasible idea. It is like our English brand on foreign goods, "Made in Germany."

"Arboriculture," six papers. "The Distribution of Timber-trees in France" (by Guinier), and three papers on (1) "Robinia," (2) "Chestnut," (3) "Walnut," call for particular attention.

Robinia coppice with Douglas standards is recommended as an economical way of eventually forming a pure Douglas timber plantation. A Robinia hybrid is mentioned as a tree with a better stem than the ordinary Robinia Pseudacacia.

Chestnut. During the last twenty years some 150,000 acres (more than double the area of the New Forest in Hampshire) have disappeared from France and some 3,500 acres are going yearly! This terribly sad state of things is due to the fact that Chestnut is mostly a private-owned tree, and it pays to cut it down for tan extract. In twenty departments the Chestnut has been replaced by more profitable cultivations, but in ten the cutting down has been disastrous. It is here that they have what Foresters call "La crise du châtaignier." The matter is complicated by a nasty malady among the Chestnuts, the so-called "ink sickness."

The Walnut, Juglans regia, is also going largely out of cultivation in France.

"Beauty of Trees and Forests." Six papers on roadside and waterside trees, national parks, and the beauty side of forests. "Working Plans and Forest Management," five papers. "Planting of Dunes, Marshes and Mountains," four papers. "Forest Meteorology," two papers. Also single papers on "Grazing," "Forest Instruction," "Forest Manures," "Acquiring Land for Re-foresting," "Forest Roads," and on "Proposed Legislation for Preventing the Cutting of Private Protective Forests."

British Forestry.

The recently-issued report of the Advisory Committee on English Forestry recounts the advice given by the committee on three points:—(1) Forest surveys; (2) Forest demonstration areas; (3) Instruction for woodmen.

Of these the first is the most important. It is very properly considered under two aspects: (a) a preliminary enquiry or flying survey dealing with the location, in a broad way, of the land which is likely to prove suitable for afforestation purposes, i.e., which it would be more profitable to use for growing timber than to continue in its present condition or use; (b) a minute enquiry or detailed survey to examine in detail any such suitable land. The object of the preliminary survey is to ascertain whether a *prima-facie* case exists for afforestation in a district, while the object of the detailed survey is to provide for . . . . definite schemes of afforestation. Useful and interesting as these surveys will be it is to be hoped that they may proceed *pari passu* with practical Forestry. Those familiar with the ways of British Forestry during the last forty years will scent a danger of delay with the mere mention of surveys. They are estimated to cost £35,000, and to take eleven years to complete. The first step to practical Forestry is to acquire by purchase suitable land at no great distance from towns or centres of consumption. The acquisition of such areas depends on the land coming into the market, and is more a matter of quiet and diplomatic enquiry amongst land agents. The recommendation that experimental forest areas should be not less than 5,000 acres seems an unnecessarily high limit. The fine Savernake forest in Wiltshire is not above 4,000 acres. One can imagine a State Forest doing excellent work and yet being considerably less than eight square miles in area.

It is recommended that the preliminary forest surveys should be restricted in the first instance to the following seven districts:—

1. South Wales.
2. North Wales.
3. Westmorland, Cumberland and Northumberland.
4. Kent, Surrey and Sussex.
5. Berks, Hants, Wilts, and Dorset.
6. Derby, Lancashire and the West Riding.
7. Lincoln, Norfolk, Suffolk and Essex.

In this connection it should be noted that one quarter of the present wooded area of England is in the counties of Kent, Surrey, Sussex and Hampshire, and that Kent resembles most closely the Continental climate, where the modern cultivated forest has achieved such remarkable results. But from the list of counties for re-foresting, Kent and Sussex are excluded, and it is stated that "the scope for afforestation in England is limited practically to the western and northern counties and to Wales." This is an erroneous conclusion.

To the report of the Advisory Committee is appended a useful memorandum on the development of Forestry submitted by the Board of Agriculture and Fisheries to the Development Commission over two years ago. It bears the date February, 1911. This memorandum contains a mass of technical information of much interest to foresters; it summarises the experience of what is practically the English Forest Department, especially if read with Appendix 3, which is a note on research and experiments prepared by Mr. R. L. Robinson.

At the present moment the interest in British Forestry centres in the Development Fund. Now is a critical time for the greatest of our undeveloped rural industries—State Forestry.

The Development Fund.

Professor Fernow, the author of the classical *History of Forestry*, writing in 1911 from a Canadian University, says:—"It is a remarkable fact that the nation that can boast of the most extensive forest department (in India) has at home not yet been able to come to an intelligent conception even . . . of forest economy.

"Politically, the Englishman is an individualist, jealous of his private interests and unwilling to submit to Government interference for the public welfare. Hence State Forestry, which is finally the only solution of the Forestry problem, appears objectionable."

An English forest authority, writing in 1900, says:—"With so much land of poor quality

lying uncultivated in many parts of the British Isles the apathy shown towards Forestry in Britain is one of the things that it is impossible to understand."

A national scheme of Forestry was indicated as one of the chief objects for the Development Fund. The Act prescribes two things to be done :—(1) The conducting of inquiries, experiments and research for the purpose of promoting Forestry, and the teaching of methods of afforestation; (2) *The purchase and planting of land found after inquiry to be suitable for afforestation.*

The Development Commission is carrying out (1), and has estimated that a total sum of £350,000 will be required for this purpose till its present funds come to an end in 1916. But under (2) very little has been done; in fact, nothing in England, Scotland or Wales. A small scheme for planting ten square miles in Ireland has been authorised, and that is the total of practical State forestry in the British Isles after the Development Fund has been running for over three years! We do not grudge Ireland its ten square miles (though why preferential treatment should be given to Ireland is not clear), but comment is naturally excited that no sign has yet been made of practical work being begun in England, Scotland and Wales!

Scotland so far has not fared so well as Ireland, or even England : and a bitter feeling has been aroused in consequence. Said Mr. Munro Ferguson, in a recent note to the Royal Scott. Arbor. Soc. :—"While the administration gropes its way in the dark and the paramount national interest of silviculture is neglected . . . 3,000 emigrants leave the Clyde weekly!" (*Trans.*, July, 1913.) After the varied and extensive planting operations of the Earls of Seafield at Strathspey, of the Duke of Atholl at Dunkeld, and of other large Scotch and English landowners, it is not very evident what is to be gained (except delay) by the not very promising "demonstration area"—Inverliever in Argyleshire—that has been purchased. It may show some results in a quarter of a century, and more definite results in half a century! (It takes 300 years for the finest Oaks to mature in the cultivated Forest of Spessart in Germany!) It is quite true that the private planting in these islands is a better object-lesson in Arboriculture than in Forestry; but foresters know just where it fails, and are able to interpret its lessons accordingly. Blue-books lately have had much to say about forest demonstration areas. With any general scheme of State Forestry the utility of special demonstration areas becomes doubtful. Every State Forest should be a demonstration area in itself.

Two years ago, the Royal Scottish Arboricultural Society circulated a carefully considered "working-plan" by Lord Lovat and Captain Stirling of Keir (now its President) for an area—Glen Mor—of 60,300 acres specially well adapted to afforestation, and situated on the Caledonian Canal. In size this area is nearly double that of Compiègne (34,632 acres), one of the model State forests of France. The working-plan has had the advantage of criticism by foresters in these islands and abroad. It was carefully considered, and is the most complete of its kind that British Forestry has yet seen All that seems necessary now is for Government to create the "Forest Authority," to acquire the land, and put down the money for bringing the scheme into operation.

It is, of course, impossible to say, at any moment, where land can most advantageously be acquired (that depends on how it comes into the market), and there may be difficulties in acquiring the land at Glen Mor; but after the trouble and expense of making this careful forest survey it seems unfortunate that there should be so much delay in coming to a decision. The Royal Scottish Arboricultural Society, by no means a wealthy association, spent £320 on this survey.

The present position of the Forestry part of the Development Fund seems singularly unfortunate. The grants from the fund have the appearance of taking the line of least resistance. It is easy to make grants for educational purposes. Education is represented by various powerful corporations in these islands. Educational grants are popular. Indeed, no one looking at what is done abroad would dispute the need of more forest education in this country. But care should be taken to render the forest education more general. It should begin in the village schools, permeate the public schools, and be crowned by the higher education at the Universities. This is what was done in Japan after their laborious study of Western civilisation. In themselves the grants for higher forest training at Oxford, Cambridge and Edinburgh are unimpeachable, and there have been useful small grants to some of the minor forest schools, while the five Forest Advisors for England and the Forest Department promised for Scotland may do excellent work. But there is this unfortunate feature about the one-sided forest educational grants. To train a body of highly-educated foresters now seems like putting the cart before the horse. Where will they find employment? Our £30,000,000 worth of forest produce is still, alas, grown abroad! We have very few private, corporate, or State forests of sufficient extent to give employment to University-trained foresters.

D. E. Hutchins. Cobham, Kent.

(*To be continued.*)

ORCHID NOTES AND GLEANINGS.

NOTES FROM THE SOUTHGATE NURSERIES.

THE penalty of success in the raising of hybrid Orchids is that additional house-room has to be provided from time to time for the accommodation of the plants as they mature.

This season, at the Southgate Nursery of Messrs. Hassall and Co., the difficulty has been met by pulling down the long range of lofty, span-roofed houses and building on the site two compact ranges of low spans similar in character to most of the other twelve houses of the block. Already one of the new houses is filled with sturdy plants of Lælio-Cattleyas, Brasso-Cattleyas, and hybrids of Sophronitis grandiflora. But a glance at the closely-packed seedlings of the first year in the seeding-house, three thousand of which have been placed in their first single pots during the last few months, and at the many thousands more that are only waiting the turn of the year to be so handled, shows that the relief can only be temporary, especially when we consider how rapidly these plants grow when properly managed. An instance of several of a batch flowering within two years and eight months from the sowing of the seed in this nursery is of significance on this point, and probably the other remaining lofty span-roofed house will have to be replaced by the more useful pattern. At present this roomy span

FIG. 132.—ANGRÆCUM RECURVUM : FLOWERS WHITE.

(R.H.S. Award of Merit, November 18, 1913. See description on page 367, *ante*.)

is heated as a Mexican house, and in it some useful lessons on the culture of plants which like a cool, rather dry air may be gleaned. For example, the beautiful Cymbidium insigne (Sanderi), of which there is a good batch here under the conditions named, blooms very freely, many of the plants sending up from one to three stout spikes. In some collections this species is grown much warmer and in a moister atmosphere, and the specimens do not flower at all freely. Maxillaria Sanderiana, M. venusta, M. grandiflora, and a good batch of Oncidium tigrinum in spike thrive well in this house.

Several of the houses are filled with species of Cattleyas, including large batches of C. Schröderæ, C. Mendelii, C. Mossiæ, C. Dowiana and its variety aurea, the C. Schröderæ and C. Mendelii being specially fine, their stout pseudobulbs in many of the plants in quite small pots bearing from two to four flower sheaths. In bloom are a large number of Cattleya labiata of excellent quality, and with them plants of the best white-petalled forms, including alba, Victoria Regina, Duchess of York (of a delicate lilac shade) and other white petalled varieties with coloured labellums.

Several of the houses have good displays of hybrid Cattleyas, among those well represented being a lot of C. Portia, one of the plants bearing a spike of ten flowers; C. Mantinii, of a very bright type, the pretty C. Clarkiæ, C. Lord Rothschild, C. Dusseldorfei Undine, C. Suavior, C. Adula, C. Hassallii, one of the finest in colour and of good shape; C. Miss Williams, C. Thurgoodiana, C. Fabia, both light and dark varieties; and other hybrid Cattleyas, one of the prettiest and most fragrant being C. Sylvia (Fabia alba × aurea), which was represented by a good batch in bloom, the large flowers varying much in colour, some of them resembling C. aurea with broad yellowish sepals and petals tinged with rose, while others show more of C. Fabia.

Glancing at the occupants of the remaining houses we find a range filled with Lælio-Cattleyas two or three years old and in fine health. At one end is the new and brightly-coloured L.-C. Moira (Fabia × Mantinii), in bloom. At the end of the next division is a stout lot of Cœlogyne pandurata with Phalænopsis Rimestediana and other warm-house species.

Then follow several ranges of hybrids graded up to those of flowering size, some of which plants are in bloom, part of a side in one of the houses being occupied by a good batch of White Cattleya Mossiæ. Suspended overhead are several of the rare and handsome Cattleya Luddemanniana Stanleyi, which originated at this nursery, thrives well here, and is propagated satisfactorily.

In a house of Lælio-Cattleyas some very dark-coloured L.-C. Rubens, L.-C. Bella, L.-C. G. S. Ball, and others are in bloom, and a new cross between L.-C. luminosa and C. Trianæ is well advanced in bud. Batches of Brasso-Cattleyas were observed, including the beautiful B.-C. Menda (C. labiata virginale × B.-C. Queen Alexandra), some of which have already proved their excellence: some Brasso-Lælias with B.-L. Helen and B.-L. Mrs. Gratrix in bloom and other good Orchids were also noted.

The Odontoglossum houses are divided equally between species and hybrids, and although practically in the London area the plants are in great vigour and well furnished with spikes, the best type of O. crispum predominating. The hybrids, either in bud or bloom, provide a very attractive display, and include forms of O. Vuylstekeanum, O. ardentissimum, and variety xanthotes; O. Rolfeæ, O. amabile, O. Ossulstonii, O. crispo-Harryanum, O. Lambeauanum, and O. Lawrenceanum. An interesting plant with a well-advanced spike is the result of crossing Odontoglossum Edwardii and Oncidium macranthum. Overhead the scarlet flowers of Sophronitis grandiflora above a batch of white Masdevallia tovarensis are effective. Lælia Jongheana, Oncidium varicosum, O. crispum, O. Marshallianum, and others of the class thrive well in this cool house, one side of which has a good show of Odontiodas. Other good batches noted were Angræcum sesquipedale, Renanthera Imschootiana, Oncidium flexuosum, the pretty white Trichopilia Backhousiana, Dendrobium Phalænopsis and its ally D. Statteriannm well furnished with sprays of rose-tinted flowers; D. formosum giganteum; a good batch of white Lælia anceps; another of Miltonia vexillaria and its hybrids.

Cypripediums are well represented, the ranges devoted to them having a good display of flowers on the varieties of C. insigne, C. i. Harefield Hall being specially fine; C. Thalia Mrs. Francis Wellesley, C. Alcibiades illustre, one of the finest of Cypripediums, varieties of C. Leeanum, and C. Spiceriannm.

It will interest many orchidists to know that Mr. John Cowan (jun.), the manager here, has quite recovered from the illness, which resulted in the amputation of a leg, and that he is again actively engaged in the business of the nursery.

HYBRID ORCHIDS.

In continuation of the list of Hybrid Orchids published on p. 358 we give the following that have been noted recently in flower:

Hybrid.	Parentage.	Exhibitor.
Brasso-Cattleya Vanessa	B.-C. Digbyano-Warneri × C. Trianæ	W. H. St. Quintin, Esq.
Brasso-Lælio-Cattleya Triune	L.-C. Hyeana splendens × B.C. Digbyano-Schröderæ	Sir Trevor Lawrence, Bart., K.C.V.O.
Cattleya Madame Charlier	Mantinii × labiata	Mrs. Temple.
Cattleya Mrs. Percy Bigland	Harrisoniana × chocoensis alba	F. J. Hanbury, Esq.
Cypripedium Chapmaniæ	Fairrieanum × Calypso	Mrs. Norman Cookson.
Cypripedium Cyclops	Actæus × fulshawense	Lieut.-Col. Sir Geo. L. Holford, K.C.V.O.
Cypripedium Gulliver	Mrs. Wm. Mostyn × Sultan	Lieut.-Col. Sir Geo. L. Holford, K.C.V.O.
Cypripedium Royal Monarch	Bingleyense × Leeanum Clinkaberryanum	Sander and Sons.
Cypripedium Schröderi Kentore	Œnanthum superbum × Fairrieanum	Armstrong and Brown.
Lælio-Cattleya Faustina (Taurus)	L.-C. bletchleyensis × C. Bowringiana	W. H. St. Quintin, Esq., and Flory and Black.
Lælio-Cattleya Florentia	L.-C. La France × C. labiata	W. H. St. Quintin, Esq.
Lælio-Cattleya Lady Oliphant	L.-C. Norba × C. Souv. de Queen Victoria	Francis Wellesley, Esq.
Lælio-Cattleya Mauritania	Canhamiana × Martinetii	Sander and Sons.
Odontioda Hippolyta Cookson's variety	Oda. Bradshawiæ × Odm. amabile	Mrs. N. Cookson.
Odontioda Oakwoodiensis	Oda. Bradshawiæ × Odm. percultum	Mrs. N. Cookson.
Odontoglossum Menier	gandavense × amabile	Ernest G. Mocatta, Esq.
Sopnro-Lælia Sunray	S.-L. Marriottiana × L. cinnabrosa	E. H. Davidson, Esq.

CATTLEYA MRS. PERCY BIGLAND.

Cattleya chocoensis (C. candida Lehmann, *Gardeners' Chronicle*, October 26, 1895, p. 486) has been regarded by some as a form of C. Trianæ, but it exhibits important floral differences, especially in the very broad petals, which are a constant characteristic of the plant. It has also been suggested that it is identical with C. quadricolor Lindl., but the evidence in support of this view is very slight. In the new hybrid named above, raised by Frederick J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews), from C. Harrisoniana × C. chocoensis, the effect of this peculiarity is seen in the flower of the hybrid, which is much finer than most other C. Harrisoniana crosses. The sepals and petals are well displayed, broad, and of very firm substance, white, with the faintest tinge of pink. The broad crimped lip is white, with an orange disc fading to sulphur yellow towards the margin. It is equal in beauty to C. Schröderæ, which in general appearance it resembles.

AUSTRALASIA.

WINTER-FLOWERING SWEET PEAS.

Having read the article on "Winter-flowering Sweet Peas" in your issue of February 22, 1913, it has occurred to us that your readers may be interested to hear what we are doing in Australia in breeding a strain of winter-flowering or early-flowering Sweet Peas.

For many years Sweet Peas were looked upon as amongst the most difficult plants to grow successfully in the warmer districts of this country. The older varieties bloomed in our late spring, when we are liable to sudden bursts of hot weather and drying winds that shortened their flowering season to a few weeks only, and occasionally they failed to bloom.

The introduction of early-flowering varieties, such as Earliest of All, Blanch Ferry, and Mont Blanc, was a great boon, and the still later Télemly and American winter-flowering varieties have revolutionised Sweet Pea culture in the Commonwealth. These varieties flower in the winter and early spring in our warmer districts, and give us for several months a supply of flowers when there is very little else available. This was a very great advance, and Sweet Peas soon became one of the most popular flowers.

However, the quality of the winter-flowering varieties was so much below the standard of the modern Spencers that Australian gardeners were not satisfied, and efforts have been made, with considerable success, by a few enthusiasts to raise, by selection and cross-fertilising, superior types of winter-flowering varieties of the Grandiflora section.

About five years ago, in the garden of a Mr. James Young, of Sydney, there appeared amongst a batch of Novelty Spencer Sweet Peas one plant of true Spencer type quite distinct from the others. It was different in its vigorous habit and upright growth, earliness and colour; in fact, it was in full bloom when the others were only a few inches high, and had gone to seed before the normal type had commenced to show flower-buds. The seed of this plant was sown the following autumn, when it came quite true to the parent, and instead of remaining more or less dormant all the winter, as the ordinary Spencers do, it commenced to bloom in the late autumn, and continued to flower right through the winter, going to seed in the early spring, as the Télemly and American winter-flowering varieties do in Sydney, the winters here being comparatively mild, with only light frosts. This early Spencer is, however, quite distinct in habit from any of the previous early-flowering varieties; it is an extremely vigorous grower, and with good cultivation will top a 10-feet trellis when the Télemly varieties alongside only grow half the height. The stems and foliage are wonderfully vigorous and broad; it has a very upright habit, not branching so much as the other winter-flowering or the summer-flowering Spencer, and the flowers are borne on long stems, and have the size, substance and form of the later-flowering Spencer varieties. The colour of the flower is bright rose standard, with lighter wings on a creamy ground.

We secured four years ago the whole stock of this variety, and have since distributed it under the name of Yarrawa Spencer. It is now the most popular Sweet Pea in Australian gardens. It is only a question of time when it will be generally grown in all countries where mild winters are experienced. It is certainly quite as important an advance for Australian conditions as the original Countess Spencer was for English gardens. It is the first of a race of winter-flowering Spencers which will be just as popular

here and as easily grown as the ordinary Sweet Peas are in England.

Four years ago we commenced to cross flowers of all the best of the older winter-flowering Grandiflora varieties with the pollen of this new Yarrawa Spencer. The result was a remarkably vigorous race, much stronger in growth than either of the parents, and growing with us in well-prepared soil up to 14 feet high. The quality of earliness was maintained, and the flowers were a great improvement in size, substance and length of stem on the old type of winter-flowering. We have since recrossed these hybrids on to the Yarrawa Spencer again, and have now upwards of thirty distinct colours, all of the best Spencer form, and with long stems and large flowers. Some of these colours are already fixed, but the great majority of them will take a considerable amount of selection before we can depend upon them coming true from seed. Still, it is only a matter of time to obtain as many colours and of as good quality in the early or winter-flowering Spencers as there are now in the summer-flowering.

It will be asked what use these early-flowering Spencer Sweet Peas will be to English gardeners. If planted in the late summer and grown in an airy, cool greenhouse, they will flower during the winter and early spring, and if planted in the open ground they will bloom six or eight weeks earlier than the varieties now grown. For warmer countries they will, however, absolutely supersede all other varieties of Sweet Peas; they bloom with us in two or three months from sowing the seed, and by planting them in succession a supply of bloom can be had during the greater portion of the year. The vigour of these new winter-flowering Spencers is little short of wonderful.

We have tested all the early-flowering Sweet Peas so far introduced, but none of them compares in form, size, substance and vigour of growth with these new Australian winter-flowering Spencers. *Arthur Yates and Co., Ltd., per Arthur Yates, Sydney.*

BANKSIAS.

Of the many good garden plants introduced from Australia early in the 19th century, the Banksias and allied Proteas were the most interesting. For a time they were popular with cultivators and nurserymen, particularly Messrs. Low and Co., Clapton, and Mr. Knight, Chelsea. Both employed their own collectors to send home seeds and plants of these and other Australian novelties, and they purchased collections from such men as Allan Cunningham, William Morrison and others, who made it their business to collect in Australia. A large house, afterwards known as the "Botany Bay House," was erected at Kew in 1788 for these Australian plants, and much later than this (1842) the house now known as the Conservatory (No. 4) was built specially for their accommodation. At Edinburgh and Glasnevin "New Holland" plants were a special feature. Even forty years ago some of our nurserymen specialised in them, for example, Messrs. Rollison, of Tooting, and Low and Co., of Clapton.

Who bothers about Banksias now? The reply is, no doubt, a Scotch one—who wants to? They are not brilliant; they have none of those make-haste, quick-change qualities possessed by the most popular of present-day garden plants. Their great time was when Australia was an almost unknown country, whose plants as well as animals were objects of extraordinary interest. The student of form rather than colour would find the Proteas of Australia good material to-day, but he is not a cultivator, and therefore his influence is not seen in the choice of plants for the garden.

There are good Banksias at Kew still, quite a good collection of them. The enormous specimens recorded by John Smith in 1863 have all gone, such as B. australis, 24 feet by 12 feet; B. integrifolia, 22 feet by 12 feet; B. compar, 23 feet by 7 feet; B. Solandri, 20 feet by 10 feet; and about a dozen others, all big plants. They are said to have died through being turned out of pots and planted in the borders of the large Temperate House when the Australian plants were removed to it, nearly 50 years ago. These old plants had been grown in pots in flue-heated houses, and they resented the change to a more modern structure with up-to-date conditions as regards soil and heating arrangements.

Banksia is peculiar to Australia. About 50 species are known, and whilst some of them grow to good sized trees, others are spreading and shrub-like. They vary a great deal in the size and form of their leaves, much more so, in fact, than in their flowers, which are arranged in dense conical heads resembling bottle-brushes. B. integrifolia, represented in fig. 133, is one

Fig. 133.—Banksia integrifolia: flowers sulphur-yellow. [*Photograph by E. J. Wallis.*

of the commonest in Australia, where it sometimes attains a considerable size, the wood being hard and durable and beautifully marked. The leaves vary in size and length; they are green above and silvery-white below; they also vary in the serratures or lobes. The flower heads are about 3 inches long, sulphur-yellow, and they are very durable. When fresh they secrete a good deal of honey. This and several other species are to be seen flourishing in the open air in the South of France, where they flower freely. The most attractive species are B. coccinea, B. grandis and B. speciosa.

In gardens the Banksias are sometimes confused with the Hakeas and Dryandras, both Australian genera, but they are distinct enough in their flowers. The most gorgeous of all the Proteas of Australia is the Waratah, Telopea speciosissima, which forms a shrub about 6 feet high with elongated Oak-like leaves on stout, erect branches, terminated by a conical head 6 inches by 4 inches, of rich crimson flowers and bracts. There is a good figure of it in the *Botanical Magazine*, t. 1128 (1803), where it is called Embothrium speciosissimum. We were pleased to learn that both this and T. oreades are thriving amazingly in the open air in Mr. Boscawen's garden in Cornwall. *W. W.*

IRIS SOFARANA.

Iris sofarana (see fig. 134) was first described in *Gardeners' Chronicle*, November 25, 1899, p. 389, by the late Prof. Michael Foster, from specimens collected at Lebanon, near Ain, Sofar, at a considerable elevation. The nearly elliptical fall is dark purple, almost black, the colouring being due to the thick-set, reticulate, blotched veins of very dark purple on a creamy-white ground, very little of which is visible. The almost orbicular standard is white marked with thin, dark purple veins, interspersed all over with dark purple dots. The large styles, which are horizontal, are also dark purple, almost black, the crests being blotched with purple veining on a yellow ground. Dykes, in *The Genus Iris*, states that the plant is a local colour-form that cannot be distinguished from I. Bismarckiana or I. Susiana by anything but the colour. The specimen illustrated in fig. 134 shows how well the plant grows and flowers in the Royal Botanic Garden, Kew.

[Photograph by C. P. Raffill.

Fig. 134.—Iris sofarana: falls dark purple on a cream-white ground.

THE ROSARY.

NEW ROSES.

(*Continued from page* 356.)

Mrs. Amy Hammond (H.T., McGredy, 1911).—This variety is a good grower of slightly spreading habit, bearing cream-coloured flowers with an amber or pale apricot centre. The flowers are fairly large and well shaped with a pointed centre. Some of my friends, who have grown it longer than I have, consider it a very good Rose for the garden, and it will often give a flower good enough for exhibition. The only objection that can be urged against it is the want of decided colour in the flower.

Mrs. Arthur E. Coxhead (H.T., McGredy, 1910).—Here, on the contrary, we have a flower of very decided colour, but it is harsh and unpleasing, and associates badly with other Roses. Still, it is a good grower, and seeing that it nearly always produces finely-formed, high-centred flowers, it is likely to be grown by exhibitors for some time. The colour is usually given as claret-red shot with vermilion, but this does not convey to my mind the appearance of the flower, which I prefer to call a bright, satiny, rosy carmine. It is very sweetly scented.

Mrs. C. E. Allan (H.T., Hugh Dickson, 1911) can also be recommended as a good grower; the flowers are a soft orange-buff colour, and are often pleasing.

Mrs. Charles Hunter (H.T., Wm. Paul, 1912) is a tall, vigorous, upright plant, with rose-pink flowers of good outline, and having a curious little white stripe in the crinkly edges of the petals. The colour is not unlike that of Lady Battersea, but the flower is much fuller.

Mrs. Cornwallis West (H.T., A. Dickson, 1911) is another Rose of undecided colour. This is cream with a pinkish centre, but it is a full flower and stands well, so will be useful for exhibition. The plant is a good grower.

Mrs. E. Alford (H.T., Lowe and Shawyer, 1912).—This Rose is a pretty soft pink, and the flower sometimes well formed. From my single plant I am unable to speak of its merits in the garden.

Mrs. Edward Powell (H.T., Bernaix, 1911).—This is a really good bedding Rose of vigorous habit and scarlet crimson colour. When it first comes out the colour is very bright, though the flowers take a purplish tinge as they fade. The flowers have firm petals and are fairly well formed, though form is not its strong point. Nevertheless it is very useful as a decorative Rose, and a good vase of it is bright and attractive. The foliage is dark and strong, and has a purple tinge. The flowers are fragrant, but, contrary to what one would expect in a Rose of this colour, the scent is that of the Tea rather than the Damask. It is very free flowering, and though there are breaks in its blooming the bed is seldom without a flower. Its special use in the garden is as a bedding Rose, and for this purpose it is among the three or four best of the crimson Roses.

Mrs. Foley Hobbs (Tea, A. Dickson, 1910).—This is one of the best exhibition Roses of recent years. In a ballot of new Roses of the past five years, recently taken among members of the Council of the N.R.S., Mrs. Foley Hobbs headed the list of exhibition Roses. It is a fine strong grower of moderately branching habit. The colour is creamy-white, sometimes with a tinge

of pink in the centre, and is most beautiful in form, while the petals are of good substance. It is very free flowering right into autumn, though the late flowers are smaller than those of early summer. Its chief defect seems to lie in the tendency of many of the early flowers to come with hard green centres just as those of Mrs. Myles Kennedy are apt to do. I noticed this more often on dwarfs than on standards. This will be serious if it occurs often, but a perfect flower is so beautiful that we may pardon a few bad ones.

MRS. FRANK WORKMAN (H.T., Hugh Dickson, 1911) is a free-flowering, gay little plant with flowers of bright rose-pink colour; rather too cup-shaped in form, and I should think seldom large enough for exhibition. The plant is a fairly good grower.

MRS. FRED STRAKER (H.T., A. Dickson, 1910) is purely a decorative Rose with moderate-sized, well-shaped flowers of salmon-pink colour with a yellow base to the petals. I have had about a dozen plants for two seasons, and the early flowers are very pleasing, but later, though freely produced, they become less interesting.

MRS. GEORGE SHAWYER (H.T., Lowe and Shawyer, 1911).—Last year I thought this Rose likely to be chiefly useful for pots, but this year I have revised my opinion, and have found it almost equally good out-of-doors. The explanation may be that it wants a fine year. Under glass the colour is a bright, deep Rose, while the outdoor flowers are a soft pale Rose. The difference in colour is so marked that one might almost think one was dealing with different varieties. The flowers are a fine shape with a long bud and high-pointed centre, and will occasionally be good enough for exhibition. The plant has a nice bushy habit and is a good grower.

MRS. HERBERT HAWKSWORTH (Tea, A. Dickson, 1912).—This Rose is a good grower, rather tall, and quite free flowering. The flowers are a milky-white, of globular form in shape, rather reminding one of Souvenir de S. A. Prince. It seems a promising new Tea.

MRS. HERBERT STEVENS (Tea, McGredy, 1910).—This is a most beautiful decorative Rose for cutting and putting in vases or for wearing. The flowers are very pointed and the buds long, nearly pure white. It is too thin for exhibition except in the decorative classes, though now and again a large flower may be had from a maiden plant. The chief beauty of the flower lies in its form and outline. For decoration of the garden it is not first class. The foliage is sparse and the growth rather thin and spindly, while the flowers are pendulous. It suffers badly from mildew, and, in spite of the statement to the contrary in the N.R.S. catalogue, my own experience is that it is somewhat tender, and my plants in front of a south wall have done better than those in the open garden, while perhaps those on short standards have been more satisfactory than the dwarfs. Nevertheless, the flower is so lovely that space should be found for it somewhere, though not in a place where a great effect from the foliage and flowers in the bed is desired.

MRS. J. H. WELCH (H.T., McGredy, 1911).—The flower is of good form, rose-pink in colour, and it has already attained a good position among the exhibition Roses. Black spot must be kept away from this plant.

MRS. MAYNARD SINTON (H.T., McGredy, 1910).—This is another exhibition Rose, of what is technically called the robust type; that is, the flowers, which are very large, of a pale silvery pink, are carried bolt upright at the top of a short, thick stem. This is a stiff and ugly habit for garden decoration, for which purpose it should not be used.

MRS. W. T. MASSEY (H.T., Bide, 1911) is a single-flowered Rose of the Irish Elegance type, but orange-yellow in colour. *White Rose.*

(To be continued.)

FLORISTS' FLOWERS.

CHOICE SINGLE CHRYSANTHEMUMS.

THE following list includes new and desirable varieties of Single Chrysanthemums:—Yellow Pagram, Bronze Pagram and White Pagram, all of which have blooms 6 inches in diameter; Caledonia, which furnishes rich pink flowers up to 7 inches in diameter; Sandown Radiance, rich chestnut-crimson; Mensa, one of the finest of the white-flowered varieties; Mrs. Loo Thompson, a primrose-coloured sport of the last-named; Golden Mensa; Mabel, a flower of excellent shape, with even, broad florets recurving at the tips, colour deep rose-red on rosy amaranth, with a narrow white zone around the disc; T. Barnes, coloured bright ruby, with a narrow white zone around the yellow disc; Jessica, a very desirable variety, with blooms quite 6 inches in diameter, yet not coarse; the colour is a rich shade of bright chestnut, each floret being tipped with yellow and having a narrow golden zone in the centre; Max, having large blooms on stiff stems, accompanied by good foliage; the colour is golden-bronze, with a yellow zone and tips; Orlando, a rich canary-yellow variety, having medium-sized, closely arranged florets, the blooms borne on stiff stems; White Beauty, remarkable for the number of flowers rather than for their individual size; Ideality, a pure white free-flowering variety, a cross between Mary Anderson and Mensa, having the full, rounded form of both parents, with dwarf, compact habit of growth; Mrs. Tresham Gilbey, a rich yellow variety, with a bold disc and three rows of florets; Phyllis Bryant, soft yellow; Bronze McNiece, crushed strawberry; Florrie King, with pointed, deep lilac-coloured florets; Connie Ingram, rich crimson-red, with a narrow zone of yellow around the disc (the flowers are 5 inches across, and borne on stiff stems); Miss Doris Hilder, a rosy-magenta variety suitable for supplying blooms in quantity; Calgary, Indian-red, striped with yellow, which, with the golden zone around the disc, renders the variety attractive; Gladys Duckham, a large, white-flowered variety somewhat in the style of Mensa, but with a smaller eye; Mrs. Harry Wood, a medium-sized flower of rich crimson claret colour, with a white band or zone around the disc; and Portia, having florets with curled tips, somewhat like those of a Cactus Dahlia, and coloured bright, rich red. *E. M.*

CHRYSANTHEMUM CUTTINGS.

IT is important to insert cuttings of Chrysanthemums early, especially for the production of large blooms, as the plants are then assured of a long season of steady, uninterrupted growth. The Chrysanthemum is hardy, and resents coddling in heat to make up for lost time. In all stages of growth the Chrysanthemum needs an abundance of air, free exposure to light, and ample space.

The end of November is a good time to insert the earliest cuttings, continuing at intervals as the several varieties throw up sucker growths from the base. Cut the old plants down to within a few inches of the soil, and stand the pots in a cool Peach house or vinery where ample light and air is assured. Afford water sparingly, as an excess of moisture at this stage often results in yellow, sickly foliage, due to a check. Unhealthy plants should be kept on the dry side for a few weeks.

Where the young shoots develop so thickly at the base of the old stool as to cause crowding the weakly growths should be removed, as stiff, matured shoots make the best cuttings and superior plants.

Although Chrysanthemum shoots strike readily inserted several together in boxes or in prepared beds of soil in a cold frame, the best method is to place the cuttings singly in small pots, say 2½ inches in diameter. Plants raised in this way grow more sturdily and are more easily transferred to larger pots without the risk of a check, as the roots of those grown together are often entangled. A sandy compost, consisting of half leaf-mould and loam, together with plenty of sharp silver sand, is the most suitable medium for striking the cuttings, placing a pinch of sand on the top of the soil. This top sand is carried down with the dibber when inserting the cuttings, and roots form more quickly in sand than in soil. The cuttings should be about 3 inches long. Remove the lower leaves, cut square through the stem below a joint, insert the cuttings firmly in the pots, and afford water to settle the soil firmly about the shoots. Stand the pots on a bed of ashes in a small propagating frame on the stage of a cool house or under hand lights. Shade them from bright sunshine, and remove the lights every morning for an hour to allow condensed moisture to evaporate. Very little water will be required for the first three weeks, but the cuttings must not suffer from drought. The shading material should not be of a dense character. *E. M.*

SCOTLAND.

NEW GARDEN VILLAGE.

ON October 30 H.R.H. Princess Louise, Duchess of Argyll, cut the first sod and planted the first tree on the new garden village of Argyll Park, at Alexandria, Dumbartonshire, which is being built by the Vale of Leven Tenants, Ltd., a company promoted by the workers in the motor works of Argylls, Limited. That company has given 23 acres of land on specially favourable terms, and the garden village will occupy a very beautiful and suitable position near the motor works.

HORTICULTURAL LECTURES IN DUMFRIES.

IN pursuance of the forward policy of the Glasgow and West of Scotland College of Agriculture and under the auspices of the Dumfriesshire Secondary Education Committee, a course of 21 lectures on horticulture is to be given in Dumfries Academy every Saturday evening during the winter months. Mr. William Good, lecturer to the College, gave the first lecture on November 1, on "Horticultural Education," the lecturer being introduced by Mr. S. Arnott.

ALEXANDRA ROSE DAY IN EDINBURGH.

ALEXANDRA DAY in Edinburgh realised a total of £1,404 7s. 8d. The expenditure, including items for "Roses, boxes, trays, etc.," amounted to £246 0s. 9d., and "carriage on Roses, cost of distributing, etc.," £35 1s. 4d., came to £485 18s. 11d. The amount given for charitable purposes was £918 8s. 9d.

FOREIGN CORRESPONDENCE.

PRESERVING CYCAS LEAVES.

WE desire to state that the method of preserving Cycas revoluta leaves referred to by your correspondent in the issue for September 27, p. 228, is unknown in Japan, and the leaves are exported in the natural dried condition mostly to Germany. The process, we believe, was originally patented by the late Mr. J. C. Schmidt, of Erfurt, but now it is known pretty widely in Germany. I have seen the leaves dyed by Mr. A. Hermann of New York, who used to import the foliage from Japan. *S. Jida, Manager of the Yokohama Nursery Co., Ltd., Japan.*

NATIONAL DAHLIA SOCIETY.—The annual general meeting of the National Dahlia Society will be held on Monday, December 1, at 4 p.m., at the Hotel Windsor, Westminster.

NOTICES OF BOOKS.

The Land of the Blue Poppy.*

No serious contribution to the Flora of Western China had been made when the Congrégation des Missions Etrangères began missionary work in Yunnan, and though nigh on forty years have elapsed since then, it is only within the last decade that Franchet's classification of the Chinese specimens in the Jardin des Plantes has revealed the extraordinary variety and extent of the botanical collections made by some of the pioneers of the Roman Catholic missionary movement, and especially by David, Delavay and Farges. The botanical work so ably begun by these men was carried on by other missionaries, as well as by Pratt and Henry, but so far as gardens are concerned the practical result of all the botanising that had been done in Yunnan up to about the beginning of the present century was insignificant, for the earlier collectors gave no thought to the commercial possibilities of their discoveries. Now and again a pinch of seed of some new Chinese plant or shrub would reach the sympathetic hands of M. Maurice de Vilmorin or the late Max Leichtlin, the resulting produce being distributed in due course, and among other things that come to mind as having "arrived" in this fashion is Davidia involucrata, a tree that has still to justify its reputation so far as this country is concerned. At Kew, too, there is ample evidence of the splendid work done by Henry.

During the past decade or so matters have progressed and the collection of plants in Western China has passed very largely, but not entirely, from the hands of botanists and missionary fathers into those of the emissaries of trading firms, and the volume before us is the result of a collecting expedition undertaken by the author.

Sad though it is to have to say so, it must be confessed that the book belies its title, for the reader may search in vain for more than a passing mention of the Blue Poppy (Meconopsis speciosa), or, for the matter of that, of others of the many fine plants the author came across in his wanderings.

Over and over again the appetite is whetted by a brief reference to the glories of that floral paradise the Mekong-Salwen divide, but botanically we get "no forrader," and in the end the ardent flower-lover is left groping in the dark about the hundred and one points on which he burns for enlightenment and information; nor will he reap assistance from the illustrations, for, of the many which will delight his eye, there is but one of flowers.

No one seems as yet to have found an entirely satisfying answer to the question many of us must have asked at one time or another, as to the causes of the marvellous floral wealth with which the Chino-Thibetan border is endowed. Mr. Ward helps us to a better understanding of the geological, geographical and climatic conditions of the district, but leaves us still pondering on the inscrutable ways of Nature in broadcasting her floral treasures on this wild highland corner of the earth with so much more lavish a hand than on other places seemingly quite as congenial to plant growth.

The "Land of Deep Corrosions" is certainly volcanic—"hot springs are to be found issuing from the base of every range"—but one need not journey all the way to Yunnan to realise the possibilities of volcanic detritus where plant life is concerned. The deep valleys sweat with tropic summer mists, as in the Himalayas, yet at 18,000 feet "the blue Poppy, Primulas and Saxifrages abound"; perhaps the combination of rich soil, extravagant summer rains and a kindly mantle of snow for eight months of the twelve, provides something of a solution of the vexed question.

When Mr. Ward crossed the Mekong-Salwen divide in early June, the snow had still to melt, yet it was falling again when he returned in October, so that, in common with parts of the Rockies, the vegetative season is brief, and plants have to get all the active business of life done in four short months. One wonders how they do it, and still more how they contrive to carry on existence at all in our English climate, nearly drowned, maybe, in November, coaxed into premature activity at Christmas and frozen before January is out, with perhaps an eight weeks' summer drought on the top of it all. No kindly mantle of snow to keep them snug for more than half the year, nor monsoon to slake their thirsty roots.

Although, comparatively speaking, so close together that the passes can be crossed in three weeks, the climatic differences between the divides of the Mekong-Salwen valleys on the one hand and the Mekong-Yangtse on the other, are well illustrated; in the author's words:—"The Mekong-Salwen watershed itself, on account of the overwhelming height of the dominating mountain K'a-gur-pu, still receives a very large rainfall for some distance north of the rain-screen, but by the time the winds have crossed this great range they have been robbed of nearly all their moisture, and the Mekong-Yangtse divide, instead of being clothed with dense forests and waving meadows of Alpine flowers, presents vast stretches of barren scree, towering pillars of naked limestone, grimy rocky ridges and an aspect so drear and bleak that the scenery appals one." Notwithstanding this, Mr. Ward considers the Yangtse ridges quite as rich in floral species as the other.

The photographs with which the volume is unusually well provided bring home to one in striking fashion the appalling grandeur of the mountains by which the roof of the world is supported. The maps, too, are much to the point, and help the reader to grasp the geographical features, to say nothing of the vastness of this extraordinary country.

At the end of the volume is a list of the plants collected by the author. No fewer than 20 are new species, and as many of these are being cultivated in this country gardeners may look forward to the enjoyment of fresh treasures.

The Land of the Blue Poppy is really a traveller's tale concerning a little-known country in which many botanical and horticultural folk are just now keenly interested. Much of the book is of absorbing interest, and it is to be hoped Mr. Ward may follow this first volume with another in which the botanical side of the country is more fully dealt with. He must bestir himself, for there are rivals in the field.

Mutations in Œnothera.*

In the interval which has elapsed since the publication of De Vries's epoch-making work, *Die Mutationstheorie* (1901-03), the investigations of the genus Œnothera which furnished the concrete basis for many of the author's views, have become more and more intense. Every feature of this group, including the hereditary behaviour, cytology, systematics, history and distribution, has been critically studied by various investigators, so that the amount of data now available regarding the behaviour of these Evening Primroses far surpasses that concerning any other group of similar size.

In the meantime the genus Œnothera has been the battleground for many questions concerning mutation and heredity. Mendelians have attempted to show that the mutation behaviour is nothing more exciting than recombinations of unit characters, while the actual experimenters with Œnothera have for the most part held other views more in accord with those of De Vries. But it will probably now be conceded by all that germinal changes which are not due either to loss or recombination of characters actually do occur. The chromosome behaviour has furnished crucial evidence on this point.

In the present work, De Vries contributes the results of a prodigious mass of breeding experiments with Œnothera, and discusses lucidly their bearing on the further development of his theory of mutations. The volume is divided into five sections, as follow:—

I.—The origin of species through mutation.

II.—Reciprocal and double reciprocal hybrids.

III.—Twin hybrids.

IV.—The pangenetic investigation of new species (mutants).

V.—The causes of mutations.

De Vries' views regarding mutations arise out of his theory of intracellular pangenesis. According to this theory, the pangens inhabit the nucleus and each pangen is the bearer of a special character.

Growing out of these conceptions, three kinds of variability are postulated:—

(1) Fluctuations, depending upon the extent to which the pangens find expression in a varying environment.

(2) Mutations, by the change of a pangen from an active to an inactive condition; or vice versa.

(3) Phyletic or progressive variability, or mutations in which an increase in the number of pangens takes place. Pangens may be in one of three conditions: (a) active, (b) inactive, (c) labile; and labile pangens are considered to be the cause of a condition of mutability. Whether or not one considers necessary the whole of this elaborate machinery of explanation, one cannot but admire the masterly way in which these conceptions are applied in detail to the explanation of the breeding experiments; nor can it be said that the hypothesis is more elaborate than that of Weismannism, or even of Mendelism in its present condition.

In the crossing experiments themselves the results are for the most part not Mendelian. The reciprocal crosses between Œnothera species are frequently unlike. This shows that the pollen grains and egg cells are carrying different characters, and is probably one of the most important recent advances in our knowledge of heredity. De Vries classifies species into *isogamous* and *heterogamous* on this basis, heterogamous species carrying different characters, while isogamous species carry the same characters in their male and female germ cells.

By means of numerous crosses with other species, De Vries shows that—e.g., in O. biennis—the pollen carries characters which are almost identical with the visible features of the species, while the egg cells carry quite a different set of characters. The process of determining by crossing the nature of these various characters is called *gamolysis*, and this method has been applied by De Vries with great success, not only to the analysis of the constitution of many wild species, but to O. Lamarckiana and its mutants as well. Curiously enough, though O. biennis and various other species are heterogamous, O. Lamarckiana is found to be isogamous, so that the mutation phenomena are not a result of a condition of heterogamy.

Another interesting feature of the Œnotheras is the large number of species crossed which yield uniform and constant hybrids, and De Vries emphasises the importance of this fact in connection with the formation of many species in nature, especially in polymorphic groups.

As an organised analytical attempt to explain all the complicated hereditary phenomena of a single genus, this book is unique; and as an interpretation of the mutation phenomena in harmony with all hereditary phenomena, it will find a useful and necessary place in the library of every student of genetics. *R. Ruggles Gates.*

* *The Land of the Blue Poppy.* By F. Kingdon Ward. Cambridge University Press.) Price 12s. net.

* *Gruppenweise Artbildung.* By Hugo de Vries. With 121 figures and 22 coloured plates. Gebrüder Borntraeger. Berlin. 1913.

FERTILISERS FOR APPLE ORCHARDS.

THE 44th Annual Report (1912) of the Fruit Growers' Association of Ontario contains an exhaustive summary of experiments in manuring Apple trees carried out by Dr. J. P. Stewart.

In discussing his results Dr. Stewart points out that Apples take far more mineral salts from the soil than does Wheat. In illustration he gives the following figures in pounds per acre :—

	Wheat. lbs.	Apples. lbs.
Nitrogen	43	53
Phosphoric acid (P_2O_5)	15.8	15
Potash (K_2O)	26.8	64
Lime (CaO)	8	61
Magnesia (MgO)	6.1	16.7
Iron	—	2.8

From these figures the noteworthy fact emerges that the Apple makes far more demands in nitrogen, potash, lime, magnesia and iron than does Wheat. On the other hand, the leaves of the former return no inconsiderable quantities of mineral substance to the soil. Dealing with these minerals seriatim, Dr. Stewart is able to show that the conclusions which might be drawn from a study of the above figures are in large measure fallacious. Thus, though liming sometimes improves growth, it does not generally increase the yield of Apples; the truth being that but little lime occurs in the fruit, and that most of it is stored up in the wood.

Again, the large amount of potash taken out of the soil by the Apple might suggest that the soil would soon become poor in that substance, and hence that potash manures would have a markedly beneficial effect. It has to be remembered, however, that the root system of Apple trees has a wide run in the soil. In point of fact, Dr. Stewart concludes from his experiments that in most soils Apples are well able to look after their potash requirements without the assistance of extra supplies. It is to be noted, however, that he recommends the addition of muriate or sulphate of potash to the fertilisers advised for Apples.

Careful experiment indicates that the two food-materials which it is most essential to add are compounds of nitrogen and phosphorus. Thus, the effect of supplying these fertilisers was to increase the yield from 136 to 467 bushels per acre. Phosphates and potash gave an increase of 103; complete fertiliser one of 339, and farmyard manure an increase of 463. It should be noted that though it heads the list, the farmyard manure cost at least twice as much as the complete fertiliser. In another set of experiments, extending over a period of five years (1908-12), similar results were obtained. The application—at the beginning of the experiment—of nitrogenous and phosphatic manures resulted in increased yields in each of the five years, and gave a total increase over the control (manured) plot of 204 per cent.—20,161 lbs. as against 8,520 lbs. Animal manure produced in this case the second best result.

Dr. Stewart has some interesting remarks on the influence of various fertilisers and manures on colour and size. He fails to find confirmation of the prevalent view that potash has an effect on coloration, but observes that size appears to be increased by the addition of potash manures. This may be a direct consequence or only indirect, due to the fact that, in experiments with potash manures only, the yield is smaller. The inferiority of colour in orchards to which nitrogen has been applied—whether in the form of artificials or as farmyard manure—is attributed by Dr. Stewart to two causes : (1) the slower maturing of the fruit, and (2) the greater development of foliage, as a result of which sunlight is cut off from the fruit. As a result of his experiments, carried out in various orchards, Dr. Stewart recommends as a general fertiliser for Apple orchards :—Per acre of bearing trees, nitrogen, 30 lbs., contained in 100 lbs. of nitrate of soda and 150 lbs. of dried blood; or, in lieu of these, 150 lbs. of sulphate of ammonia. Phosphoric acid (P_2O_5), 50 lbs., supplied in 350 lbs. acid phosphate, or 200 lbs. bone meal, or 300 lbs. basic slag. Potash (K_2O), 25-50 lbs., in 50-100 lbs. muriate of potash, or 100-200 lbs. of low-grade sulphate of potash. A section of the orchard should be left as a control in order to test the effects of the fertilisers, and also from another section the potash may be omitted, as it is only in some soils that the addition of potash is of use. To anyone who wishes to ascertain experimentally the fertiliser most suitable for his particular orchard, Dr. Stewart recommends the following plan of manuring :—Divide the orchard into eight similar parts, 1-8, and treat as follows for each mature tree in bearing: (1) control, no manure; (2) nitrate of soda, 2½ lbs.; dried blood, 3½ lbs.; acid phosphate, 10 lbs.; (3) nitrate of soda, 2½ lbs.; dried blood, 3½ lbs.; potash, 2 lbs.; (4) acid phosphate, 10 lbs.; potash, 2 lbs.; (5) control, no manure; (6) nitrate of soda, 2½ lbs.; dried blood, 3½ lbs.; acid phosphate, 10 lbs.; potash, 2 lbs.; (7) same as 6, plus lime, 12-25 lbs.; (8) manure, 400 lbs.; (9) control, no manure. It is recommended that the nitrate be applied not earlier than the time of petal-fall, and not later than mid-July. The time of application of the other mineral fertilisers is of less importance.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

MASDEVALLIA TOVARENSIS.—This species is undoubtedly the best of the winter-flowering Masdevallias. The plants are sending up their spikes of pure white flowers above the foliage. While in bloom the plants should be kept in the cooler and drier part of the intermediate house, where the flowers will remain in a good condition for several weeks. When fumigating with nicotine vaporisers it is advisable to remove the plants from the house, or their white flowers will assume a pink tint. Afford water at the roots sparingly at this season, or the foliage will decay at the base. It is now generally known that the flower-spikes, if not cut off, will produce blooms again next year, but it is advisable as a rule to remove them as soon as the blossoms fade. Repotting is best done in the spring.

HABENARIA.—For several weeks past the terrestrial Orchids, H rhodocheila and H. militaris, have formed a prominent feature in the warm house. The bright vermilion flowers of H. Roebelinii are expanding, and will last fresh for at least a month. Very soon after the flowers fade the plants will pass into the resting stage, and must then be kept increasingly drier at the root. When the foliage changes colour, and the stems die down, water should be entirely withheld for a week or two. While at rest the plants should be placed on a dry shelf in full sunshine. Although dormant the tubers must be moistened occasionally, or they will shrivel. It is advisable to examine them once or twice every week throughout the resting period, and those that are found to be dry should be made moderately moist with tepid rain water from a fine-rose watering can. When the stems and foliage die down do not cut them off, but allow them to fall away naturally.

CALANTHES.—The pseudo-bulbs of the deciduous Calanthes have attained to their full size, and the flower-spikes are well advanced. At this period the usual copious waterings should be discontinued, and only a moderate amount of moisture afforded until all the flowers are expanded, when water should be gradually withheld. If the plants in bloom are arranged in the drier atmosphere of the Cattleya house the flowers will last fresh much longer than if kept in the moist temperature of the East Indian house. When the spikes are cut the pseudo-bulbs should be examined for the presence of scale insects, and afterwards arranged closely together in their resting quarters. A light, dry position, where the temperature throughout the winter does not fall much below 60°, is suitable. Water should be withheld until the plants are repotted in the spring. The late-flowering varieties of the C. Regnieri section should be placed close to the roof-glass in the warmest house, and carefully watered each time the compost becomes dry.

PLEIONE.—Among the few Orchids which require repotting at this season are the Pleiones, including P. maculata, P. Lagenaria, P. Wallichiana and P. concolor, which are passing out of bloom. The green shoots from which the flowers are produced will, if carefully attended to, have become plump pseudo-bulbs by next autumn, capable of carrying several flowers. Immediately after the flowers fade these shoots produce from their base a number of small, white roots, and as these roots lengthen rapidly, the plants should be repotted as quickly as possible. Pleiones grow well either in pots or in shallow pans. The latter are preferable, as they are lighter and more easily suspended; those 10 inches in diameter, which will hold about two dozen pseudo-bulbs, are the most suitable receptacles. Plenty of drainage will be required, and for a compost use good fibrous peat, fibrous loam and Sphagnum-moss in equal parts, to which a little leaf-soil and coarse sand may be added. After being repotted suspend the pans near to the roof-glass of any house with an intermediate temperature. For a few weeks afterwards give sufficient water to keep the compost just moist. As the roots become active, and the leaves begin to unfold, afford water more frequently and copiously. Pleione Hookeriana and P. humilis have completed their growth, but may still be kept suspended in the cool house, and watered often enough to prevent shrivelling. The plants flower in February.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

ROSES.—Prepare a batch of pot-Roses for early spring flowering, selecting the best and strongest plants. Those which have been forced for several years in succession may be planted out on a border to furnish cut blooms. The drainage of the pot-Roses should be attended to carefully. Some of the plants will require top-dressing; remove some of the old soil and replace it with a compost of rich loam, with the addition of fine bones, decayed cow manure, lime rubble and soot. All the pots should be washed and the plants pruned according to their varieties. Hybrids should be cut back to one or two eyes, the end bud pointing outwards. The weak wood of the Teas and Hybrid Teas must be removed, the degree of pruning to depend upon the variety. The plants should then be placed in a light, airy house, which will at once be closed, but no heat will be needed at first. When the plants show signs of growth, the night temperature may be 45° to 50°, and increased warmth afterwards afforded gradually. The side ventilation must not be used, only the roof ventilators, in order to prevent draughts. When growth is fairly advanced liberal supplies of manure water may be afforded the roots, the best kind being liquid cow manure. As soon as heat is employed the pipes should be sulphured for the prevention of mildew.

SHOW PELARGONIUM.—Plants of this type of Pelargonium should be sufficiently well grown for transference into their final pots. The ball of each plant must first be thoroughly soaked with water. The compost should consist of rich loam with the addition of a liberal quantity of coarse sand, leaf-mould, decayed cow-manure, and a little fine bone-meal and soot. The roots should be disturbed as little as possible, and the soil must not on any account be rammed tightly. Let the soil be carefully worked down

between the roots and the pot, and made firm with the fingers. The plants may then be placed in a warm temperature and kept close for a few days. Until the plants become thoroughly established they should not be watered much. Occasional fumigation will be advantageous in preventing attacks of Aphis.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Shrubberies.—The weather this autumn has been exceptionally favourable for planting, and in most gardens deciduous trees and shrubs will be in the ground by now. When planting is finished the shrubberies will need tidying. Fallen leaves and rubbish must be raked out from amongst the trees, and the ground afterwards dug. The opportunity should also be taken to enrich the ground around the roots of some of the choicer plants with well-rotted manure or leaf-mould, but the surface roots must not be damaged. Shrubberies may be brightened by planting suitable herbaceous plants among the bushes. Perennial Asters, Chrysanthemum maximum, Helianthus and Solidago are all suitable for this purpose. Rhus glabra and its variety laciniata, R. Cotinus, Quercus coccinea and Quercus rubra are good subjects for autumn display. Berberis vulgaris atropurpurea, Berberis Thunbergii, Betula purpurea and Viburnum Opulus are others with autumn-tinted foliage. Japanese Acers should be planted freely, both for outdoor effect and for cut sprays for decorations. The stems of Cornus sanguinea afford bright colouring during the winter. This plant should be massed by the side of large ponds and streams, and the shoots cut hard back every year. Prunus Pissardii is useful not only for its outdoor effect, but also for house decoration. It is a good subject for foliage in large vases of flowers, and if required for this purpose should be annually cut back. Vitis Coignetiæ and V. purpurea trained on poles, either in the shrubberies or in isolated places, are very handsome when they have assumed their autumn colouring. The shoots must be cut hard back when the leaves have fallen. Bamboos should be planted freely for winter effect if a suitable situation can be found, but though they will pass through the severest winters unharmed by severe frosts, they are not immune against damage by cold, cutting winds. When choosing a place, therefore, one should be sought which is sheltered on the north and east. Wall plants should be made tidy and secure for the winter. Preparations may be made for protecting some of the more tender subjects in severe weather. Up to the time of writing the thermometer has only fallen below freezing point on one occasion. Tender plants will, in consequence, be unable to resist a severe spell of frost, which is likely to occur at any time now. A few evergreen branches fastened over them will save many from injury. Where Heather is plentiful, a quantity can be placed in readiness for this purpose. It is not only effective, but is less unsightly than other materials. Now that all the leaves have fallen, no time should be lost in removing them from the pleasure grounds. Oak, Beech and Elm leaves should be utilised for making hot-beds or leaf-mould. Others should be taken straight to the fire and burnt.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Planting Fruit Trees.—The wet weather has delayed the work of planting considerably, and opportunity should be taken whenever the conditions are favourable for completing the arrears. This is necessary, because when frost occurs the soil becomes very cold on the surface, and the little sunshine in winter is only sufficient to make the ground moist and sticky. On mild days following frosty nights planks should be placed along the fruit borders for the operators to finish the work of cleansing, pruning and nailing wall trees. If planks are not used, not only is the work done with discomfort, but soil is trampled to other parts of the garden, spoiling the paths. When the work of pruning, etc., is finished the planks may be removed, the prunings and other rubbish gathered up, and the soil, if in a suitable state, lightly forked. This may usually be done, for it is seldom that the soil about the foot of a wall is in a very moist condition, generally the reverse. The forking of the soil is necessary because the rains will drain off the pathway that has been made by the pruner, and the soil next to the wall becoming dry will shrink, leaving a crevice.

Older trees with trunks and lower branches covered with lichen should be detached and the lichen destroyed, choosing a mild day when the atmosphere is charged with moisture. Employ an alkali wash to kill every particle of the foreign growth, but this strong chemical must not be employed unless the buds are quite dormant. Moreover, it is injurious to the operator's hands, and a pair of rubber gloves should always be used for this work. I find it is better to mix the alkali with tepid rather than cold water, and a movable copper is an advantage for heating the water. Long-neglected trees may need a second application of the specific, and for this reason any that have been treated the previous day may be examined the next morning before starting on fresh ones. The alkali wash will destroy any green vegetation, therefore other crops in leaf should be covered up where there is a danger of them being sprayed, and even grass verges need to be protected from the fluid. Take the opportunity to syringe the walls and the trellis work from which the trees have been detached. Those who object to this chemical may paint the bark with a mixture of clay, lime and sulphur. For orchard trees or bush trees dust finely slaked lime over the branches when the bark is damp. Trees that are limed in this way are rather unsightly, whereas the alkali will give them a smarter appearance, for it will cause the bark to assume a healthy, glossy look. Lichen is most abundant on trees planted in badly-drained land, but it may infest trees in low-lying gardens. In selecting ground for fruit-growing it is well to choose a site at a good elevation, for such land is usually well drained and beyond the reach of low-lying fogs.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Pines.—Winter-fruiting varieties, including Smooth Cayenne, Black Jamaica, and Charlotte Rothschild, the fruits of which are now swelling, require watering carefully, as they should not be dry nor excessively wet. Weak guano water may be applied at each watering. If the plants are plunged in tan bark or leaves, resting on an artificially-warmed chamber, the bottom heat should be 85° and the atmospheric temperature 70°, rising to 80° in favourable weather during the day. Overhead syringings should be discontinued, but the floors and other bare surfaces should be sprinkled occasionally with water. In the event of severe night frosts the roof glass should be covered with thick dressed canvas or other suitable protecting material. Pines which are to fruit early in the year may be kept at rest until the end of December. If they are plunged in a bed of which the bottom heat is supplied by pipes the plunging material should be kept moist. If the roots are fairly moist already they need not be watered until the plants are started into growth at the beginning of January. During the resting period let bottom heat be not higher than 70° and the atmospheric temperature 55° to 60°. Advantage should be taken of every bright, sunny day to admit fresh air from outside.

Peaches and Nectarines.—Permanently-planted out trees can only be prepared for the purpose of early forcing by years of careful training. When beginning to force Peach trees care must be taken to avoid a too high temperature—45° to 50° will be sufficient at night until the flower buds begin to open, while in the day, if the sun is shining, the temperature may be raised 10°. If it is found convenient to grow the earliest crops of Peaches and Nectarines in pots, only trees which have been previously forced must be used. A light airy house, facing south, with accommodation for at least partially plunging the pots, will be suitable. Free ventilation is essential whenever the weather will permit; at first no fire heat will be required, but when the nights become cold just enough may be used to prevent the temperature from falling below 45°.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

French Beans.—French Beans, which were sown in pots a month ago, should receive a surface dressing of fine loam and well-decayed manure, well pressed in among the plants. A few twiggy sticks may be placed in each pot, to keep the plants in an upright position. Liquid manure may be given twice weekly, and the syringe freely used among plants in bearing. During mild, sunny weather a plentiful supply of ventilation will be advantageous, and the night temperature need not exceed 60°.

Asparagus Beds.—The old shoots of Asparagus may be cut close to the ground, and the surface of the beds forked over lightly during mild weather; but care must be taken not to injure the roots. Part of the surface soil should be removed and a light top-dressing applied, but it is a mistake to place large quantities of manure on the beds at this time of the year, especially if the soil is of a retentive nature. The manure for top-dressing should be broken up thoroughly and never used to excess. If new plantations are to be made in spring the ground may be trenched and prepared at any time during the winter. The soil should be light and rich, with an abundance of good farmyard manure. The position should be in an open, sunny place; if the soil is light and sandy the trenches need not be more than 2 feet deep, provided the application of manure is a liberal one. If, on the contrary, the soil is heavy, a quantity of lime rubble and rough, river sand should be incorporated with it, and a drain provided to carry the surplus moisture away from the roots of the plants.

Chicory.—Chicory roots intended for forcing should be lifted and stored behind a north wall. Chicory is an excellent substitute for Lettuce, and the plants may be forced in any dark chamber with very little trouble. If only a small quantity is required pots or boxes in a mushroom house can be employed, a little heat being desirable. The soil used should be light and sandy and just sufficiently moist to start the roots into growth. The top of the crowns should be at least 1 inch above the surface of the soil, so that the growth may be quite clean when cut. Slugs can be kept in check by spreading lime between the pots or boxes.

Artichokes.—The stems of Jerusalem Artichokes should be cut down and the crop lifted, small tubers for planting being selected at the same time. These can be planted at any time, preferably apart from the other crops, which they are apt to deprive of light.

Onions.—The Onions in the store-room should be examined carefully and all decayed bulbs removed. Autumn-sown Onions should be kept free from weeds by the use of the Dutch hoe between the plants; when the weather permits the ground between the rows should be trodden lightly to make it firm.

Cabbage. The soil between the rows of early-planted Cabbages should be broken up with a hoe, the recent heavy rains having caked it considerably. Gaps in the rows should be filled and the soil dressed with soot or lime if any trace of slugs is found.

Brighton Flower Shows.—The dates for next year's summer show and Chrysanthemum Exhibition of the Brighton, Hove, and Sussex Horticultural Society have been fixed for August 18, 19, and November 3, 4, respectively.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, **Covent Garden, London**. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

APPOINTMENTS FOR DECEMBER.

MONDAY, DECEMBER 1—
National Dahlia Soc. Annual Meet.

TUESDAY, DECEMBER 2—
Roy. Hort. Soc. Coms. meet. (Lecture at 3 p.m. by Mr. Edward White on "Informal Garden Design.") Scottish Hort. Assoc. meet.
Hort. Club dinner and meet. 6.30 p.m.

WEDNESDAY, DECEMBER 3—
Perpetual-flowering Carnation Soc. Sh. at R.H.S. Hall, Westminster.

THURSDAY, DECEMBER 4—
Linnean Soc. meet.

SATURDAY, DECEMBER 6—
Soc. Française d'Hort. de Londres meet.

MONDAY, DECEMBER 8—
United Hort. Ben. and Prov. Soc. meet.

WEDNESDAY, DECEMBER 10—
Nat. Chrys. Soc. Exh. at Essex Hall, Strand; Conference in evening. N. of Eng. Hort. Soc. meet. at Leeds.

MONDAY, DECEMBER 15—
Nat. Chrys. Soc. Executive Com. meet.

WEDNESDAY, DECEMBER 17—
Roy. Meteorological Soc. meet.

THURSDAY, DECEMBER 18—
Linnean Soc. meet.

THURSDAY, DECEMBER 25—
Christmas Day.

FRIDAY, DECEMBER 26—
Bank Holiday.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 41.1°.

ACTUAL TEMPERATURES:—
LONDON, *Wednesday, November* 26 (6 p.m.): Max. 55°; Min. 50°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, November* 27 (10 a.m.): Bar., 29.9°; Temp., 46°. *Weather.*—Dull.

PROVINCES.—*Wednesday, November* 26; Max. 49°, Liverpool; Min. 42°, Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY—
Dutch Bulbs, Border Plants, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 11.

MONDAY, WEDNESDAY, AND THURSDAY—
Rose Trees, Rhododendrons, Lilies, Bulbs, at Stevens's Rooms, 38, King Street, Covent Garden, London.

WEDNESDAY—
Bulbs, Perennials, etc., at 11; Palms and Plants, at 5; at Protheroe and Morris's rooms.
2,622 cases Japanese Liliums, at 2.30; preceded by miscellaneous Bulbs and Roots, at 12; at Protheroe and Morris's rooms.

THURSDAY—
Roses, at Protheroe and Morris's rooms, at 1 o'clock.

FRIDAY—
Bulbs, Herbaceous Plants, etc., at Protheroe and Morris's rooms, at 11.

The Philosophy of Manuring.

The principles which guide the practical man in his choice of manures and fertilisers are simple and well known. In the first place the growing plant requires large quantities of water, if only to repair the inevitable and continuous loss of water vapour from the leaves. The plant itself contains an extraordinarily large percentage of water, and all the chemical operations which take place in it depend for their fulfilment on a larger or smaller quantity of water in the tissues of the plant. Hence if he is to obtain larger crops the gardener must see to it that an adequate supply of water is available to the plant. It is not enough for him—even where it is practicable—to add water: he must build up a soil of such constitution that it will both hold water and part with it readily to the plant. Since decaying organic matter, farmyard manure, for example, imparts this property to the soil, this class of substance is looked upon as an ideal manure.

In the second place, the practice of manuring depends on the well-established fact that certain mineral substances, and particularly nitrogen compounds, potash and phosphoric acid, are essential plant foods. Hence the art of manuring consists in the amelioration of the water conditions of the soil and in supplying deficiencies in what may be called the feeding capacity of the soil. There is, however, a third principle, which is no less important, but which is apt to be overlooked. That principle is an economic one. The gardener must secure the conditions which we have indicated at the minimum of cost.

By the addition of dung in sufficiently large quantities an adequate amount of essential food may be provided; but since dung contains relatively small quantities of such an essential as phosphoric acid it is evident that a more economical method of manuring consists in adding, together with a smaller amount of dung, some phosphatic fertiliser, such, for example, as basic slag.

In recent years these old-established principles have been challenged, and we have been asked to revise the articles which constitute this philosophy of manuring.

The new philosophy, which has been urged by Messrs. Whitney and Cameron, of the Bureau of Soils*, holds that all soils contain large stores of the essential foods, phosphates and potash, that the water in the soil—the soil solution—contains enough of these substances for the purpose of plant growth, and that one soil is not more fertile than another because it is richer in such mineral substances as potash or phosphates, but primarily because it is in better case to supply the crop with all the water which it requires. A second cause of the inferior fertility of certain soils is found by Messrs. Whitney and Cameron to lie in the existence therein of toxic substances produced by the roots of previous crops, and left in the soil to the detriment of the growth of the plants which succeed these crops.

In order to meet the objection that artificial potash and phosphatic manures are known to increase soil fertility these investigators urge that the fertilisers act, not by supplying food to the plant, but by putting the toxic soil-substances out of action.

From the point of view of immediate practice the newer hypothesis is not important; but from that of the ultimate practice of manuring no less than from the point of view of scientific horticulture it is of very great importance indeed. Hence the investigations carried out by Mr. A. D. Hall and his colleagues at Rothamsted, and published recently by the Royal Society*, are particularly opportune.

The net result of these investigations is to vindicate the older view, and to show that the revolutionary toxic hypothesis is without foundation. The conclusions reached by Mr. Hall, which are of greatest interest, are, first, that the Rothamsted plots, which are to-day producing poor crops owing to the fact that essential foods—now potash, now phosphoric acid—have been withheld during the past 60 years, yield good crops when their *particular* deficiencies are made good. Thus a phosphorus-starved soil gives a normal good crop when phosphatic manures are added to it, and similarly a potash-starved soil recovers its fertility when its defect of potash is made good.

Second, although the soil of such plots has carried continuously for the past 60 years crops of one kind only—wheat in some cases, barley in others—water extracts from the soil are found to have no toxic action whatever on the roots of similar or different plants.

Hence the toxic theory of soil-fertility may be dismissed, or at most regarded as of very limited applicability.

Third, the Whitney-Cameron hypothesis that all soils contain enough potash and phosphates for plant-feeding purposes is shown to be improbable. For Hall demonstrates that, as we might expect on the old view, the feeding value of a soil-extract increases within wide limits with its concentration. That is to say, a solution which contains *more* potash or phosphates produces bigger crops than one which contains less of the substances. Naturally, there is a limit to this law that concentration increases crop, and, as we all known, an excess of a soluble fertiliser may result in no crop at all. The rôle, therefore, of the artificial fertiliser is to bring the "soil solution" up to the maximum beneficent concentration, and we may still hold the common-sense view that fertilisers used as supplements to dung exert their beneficial effects by reason of the plentiful supplies of specific foods which they put at the disposal of the plant.

* U.S. Department of Agriculture.

* *Phil. Trans. Roy. Soc.*, London, 1913.

Coloured Supplement.—A good description of Mutisia Clematis by a non-horticulturist who had seen it in fine health and full of flower in a conservatory not far from London, was that it had the habit and foliage of a Sweet Pea and the flowers of a Marigold. It is an old garden plant, yet it has never been among the favourites; perhaps its time has now arrived, for it has all the attributes of a good greenhouse climber—free in growth, handsome of flower, and distinct enough to stand out in a class by itself. All the Mutisias are peculiar, all we have had in cultivation that is, M. decurrens (see *Gard. Chron.*, Dec. 23, 1911, fig. 179), M. ilicifolia (see fig. 135), and the species figured in the Supplement. These three are very dissimlar in foliage and flower, and they are all showy. Where it is happy, M. decurrens is the pick of the three. We have seen it at its very best on a terrace wall in a Devon-

shire garden, and once upon a time it was a success against a sunny wall at Kew, bearing its brilliant orange-coloured flowers, over four inches across, freely and continuously throughout the summer. It has the unfortunate habit of dying without evident cause; it is also unfortunate in being much beloved by the garden snail. M. ilicifolia has spiny leaves, like those of Chorizema rather than Holly, and its flowers are pink. It is quite a showy climber when succeeding well, but as a garden plant its uncertainty is against it. The romp of the trio is M. Clematis, for it grows with extraordinary vigour, forming a curtain of shoots if allowed to scramble up a pillar and along a rafter, and its sinnate, Vetch-like leaves felted with silvery, silky hairs are an excellent foil to its pendent scarlet flowers, so that it is a first-rate climber for a sunny conservatory. It prefers a peaty soil, and it is all the better for a somewhat severe pruning and combing of branches in spring. Mutisia is a genus of Compositæ inhabiting the higher ranges of the Andes of South America. About 40 species are known, every one of which is large of flower, by which we mean, of course, flower-head.

Fig. 135.—Mutisia ilicifolia: colour of the flowers pale mauve.

Royal Horticultural Society.—The next meeting of the committees will be held on Tuesday, December 2, in the Vincent Square Hall, Westminster. At the 3 o'clock meeting of the Fellows a lecture on "The Principles of Informal Garden Design" will be delivered by Mr. E. White.

Horticultural Club.—A house dinner of the club will take place on Tuesday next, December 2, at 6.30 p.m., at the Hotel Windsor, Victoria Street, Westminster, when Mrs. Julia L. Henshaw will deliver a lecture entitled "A Ramble Along the West Coast of Vancouver Island." The lecture will be illustrated with coloured lantern slides, reproduced from photographs taken by the lecturer. Ladies will be specially welcomed on this occasion.

King Manoel at Fulwell Park.—On November 28 King Manoel and his Queen take up their residence at Fulwell Park, Twickenham, where the builders have been busy for some time past. Fulwell Park is a pleasantly-wooded estate, and, although quite close to the fast-growing town of Twickenham, is pleasantly secluded.

Official Guide at Kew Gardens.—In the *Gard. Chron.* for March 29, 1913, p. 209, we re-printed particulars of the Official Guide appointed by the President of the Board of Agriculture and Fisheries to conduct parties of visitors round the collections contained in the garden, plant houses, and museums, and to point out objects of particular botanical interest. We are informed that the scale of charges has been reduced as follows:—From half-a-crown to sixpence for each person attending a morning tour and from one shilling to threepence for each person attending an afternoon tour. The constable attached to the parties will collect the fees of visitors, who will sign their names in the book and pay their fees before the tour commences. Children under the age of twelve years cannot be included in the parties.

Birmingham Chrysanthemum Show.—At the recent show at Birmingham Charles Winn, Esq. (gr. Mr. Sheppard), of Selly Hill, near Birmingham, won the first prize for two bunches of white Grapes (Muscat of Alexandria) grown within four miles of Birmingham, and also the first prize for two dishes of dessert Apples. The date for the Society's Exhibition next year has been fixed for November 10, 11, 12.

Edinburgh Chrysanthemum Show.—At the recent show of the Scottish Horticultural Association the Silver Medal offered for the best new Chrysanthemum was awarded to the variety "Daily Mail." Messrs. Wells, the exhibitors, inform us that owing to the ticket being reversed the name appeared as Mrs. Tresham Gilbey.

"Acquired Characters" in Trees.—Professor Engler's investigations on the influence of place of origin of seeds on the character of the plants produced therefrom have led him to conclusions of considerable interest and importance which are summarised in the *Quarterly Journal of Forestry* (October, 1913). Among these conclusions are the following: The height of one and two-year-old Scots Pine seedlings varied in inverse proportion to the altitude at which the seed which produced these seedlings was formed—i.e., seed from the highest altitudes produced the smallest plants. Seedlings from seed raised in Scandinavia and East Prussia completed their first year's growth from one to two months earlier than seedlings from seed obtained from the low ground of Switzerland and Germany. Seed taken from deformed Scots Pines produced seedlings which were normal or poor, according to the nature of the cause which led to deformity in the parent. The seedlings were poor when the parental malformation was due to poverty or aridity of the soil; they were normal when it was the outcome of accidental agencies, such as gales or mutilation by man or by animals. Professor Engler's observations point to the conclusion that the defective form of the Scots Pine due to soil conditions is transmitted to the first generation; but before this conclusion may be regarded as established some-

thing of the nature of pure-line breeding of parents and of offspring is necessary. From the immediately practical point of view, however, the interpretation to be put on these experiments is of minor importance. A full account of Professor Engler's researches is published in Part 3, Vol. x., of the *Mitteilungen d. Schweizerichen Centralanstalt f. d. forstliche Versuchswesen.*

Progress in South Africa Since the Union.—An interesting summary of the progress in agriculture and horticulture since the Union is contributed by Mr. P. J. du Toit, Under-Secretary for Agriculture to the *Agricultural Journal* of the U.S.A. (October 13). The yields of all the more important crops have increased; that of wheat shows an increase of 60 per cent. since 1908, and Mr. du Toit estimates that in six years South Africa will cease to be obliged to import Wheat. The yields of Barley and Oats have also increased. The area under Tobacco is enlarging, and during the past year the Transvaal has ousted the Cape as the chief Tobacco-producing State of the Union. The report on vine-growing is less favourable, but the comparative lack of progress in this respect is explained and more than compensated by the fact that the rapidly-growing fruit trade is proving more remunerative than the wine and brandy industry. In illustration of the importance and rate of growth of the former Mr. du Toit mentions that whereas in 1910, 200,000 packages of fruit were exported, no fewer than 296,962 packages were exported in 1912.

A Curious Hybrid.—A note in *Revue de l'Horticulture Belge* (Nos. 19, 20, October, 1913) describes the fidelity with which the bigeneric hybrid, Odontonia Cleverleyana, shows its mixed ancestry. Derived from a cross between Miltonia vexillaria Leopoldii and Odontoglossum Rolfeæ, which latter plant is a hybrid from Odontoglossum nobile and O. Harryanum, this Odontonia has the distinctive spot of M. vexillaria Leopoldii, the numerous purple spots of D. Rolfeæ, the white ground and form of O. nobile, the undulated labellum of O. Harryanum, but large and wrinkled after the manner of Miltonia vexillaria Leopoldii. No doubt we are all as faithful to our ancestors as is Odontonia Cleverleyana, but it is rare to recognise an individual manifestly taking after so many of its ancestors.

"The Gardeners' Magazine."—A few weeks ago we announced the impending retirement of Mr. George Gordon, V.M.H., editor of the *Gardeners' Magazine*. Our contemporary has since published an appreciative notice of the retiring editor and a portrait stating that Mr. Gordon will not entirely sever his connection with the paper, but will continue to give advice on editorial matters. It also announces that the editorship will devolve upon Mr. C. H. Curtis, who has been Mr. Gordon's assistant for the past twenty years. Notwithstanding this long period of service, Mr. Curtis is still young, and we wish him all success in the office he is taking up.

The Covent Garden Life-Boat Fund.—So accustomed are we to the fact that Covent Garden salesmen and growers are amongst the most liberal supporters of the horticultural charities that it surprises us to learn that the Committee of the Lifeboat Fund is not receiving the support that is necessary to maintain the boat efficiently. The secretary, Mr. Bert J. Monno, states that during the present year the lifeboat "Covent Garden," stationed at Caister, has been launched on nine occasions, and has been instrumental in saving the lives of twenty-four persons and two vessels. He appeals to all friends in the trade to take their share in the maintenance of this lifeboat, which was originally provided by the Covent Garden Market, and has been since 1866 associated with it. Last year the contributions amounted to £30, which was insufficient by more than £200 to defray the expenses of upkeep, and therefore the appeal is made for a generous measure of support, in order that the annual contribution may be worthy of the traditions of Covent Garden Market. We trust that our readers will help the Committee to make good the deficit. Contributions should be addressed to the hon. secretary or to any of the Committee.

Changes at Leonardslee.—We learn that Mr. W. A. Cook is leaving the service of Sir Edmund Loder, Bt., at Leonardslee, Horsham, and is desirous of obtaining a new appointment. Leonardslee ranks amongst the most interesting gardens, and the experience to be gained in them is of quite an exceptional character.

Presentations to Gardeners.—Mr. Robert Fleming, gardener at Garscube for thirty-eight years, has recently resigned his position. Sir Archibald and Lady Campbell of Succoth have granted Mr. Fleming an annual pension, and have also made presentations to him and to Mrs. Fleming. Mr. Fleming's fellow employees on the Garscube estate and personal friends have given him a purse of sovereigns, together with souvenirs. Mr. Fleming is to be succeeded at Garscube by Mr. G. A. Harrison, gardener at Cloncaird Castle Gardens.—Mr. G. H. Cook, who is relinquishing his duties as head gardener at Abberley Hall, Worcester, to take up a similar position at Sudbourne, has received a presentation from his fellow employees at Abberley and friends in the district. The presentation was made jointly to Mr. and Mrs. Cook.

Perpetual-Flowering Carnation Society.—The winter exhibition of the above society will be held at the R.H.S. Hall, Westminster, on December 3. The Geo. Monro, jun., Challenge Cup is offered in the new class for 12 vases of distinct varieties of Carnations, 25 blooms of each variety.

Mr. George Mount.—For the second year in succession Mr. Geo. Mount, the well-known Rose grower and head of Messrs. Geo. Mount and Sons, Ltd., has been elected Mayor of the old Kentish Borough of Canterbury, by the unanimous vote of the Council.

A Genetical Puzzle and a Solution.—One of the most curious facts brought to light by recent experiments in plant breeding is the behaviour of the reciprocal crosses of Œnothera biennis and O. muricata. On making these crosses, de Vries discovered that the offspring in either case resembled the male parent. Thus, writing the species each by its initial letter :—

$$O\,b\ ♀ \times O\,m\ ♂ . F_1 = O\,m \text{ and}$$
$$O\,m\ ♀ \times O\,b\ ♂ . F_1 = O\,b.$$

In either case the subsequent generations produced by these hybrids are constant. The interpretation given by de Vries involved the assumption that the egg cell and the male cell do not transmit similar characters. Recent experiments supply a simpler explanation of this phenomenon of patroclinous inheritance. It was suggested by Goldschmidt that the predominantly paternal character of these hybrids might be due to a failure on the part of the female nucleus to play its part in fertilisation. In ordinary plants the nucleus of the male cell, derived from the pollen tube, fuses with that of the egg cell. The product of this fusion is a hybrid nucleus consisting of material from both mother and father, and therefore transmitting maternal and paternal characters. It is now shown that in the Œnothera biennis and muricata crosses fusion of the male and female nucleus does not take place. The female nucleus degenerates and leaves the male nucleus in possession of the egg cell. The fact that the characters which are exhibited by the "hybrids" are those of the male parent is therefore intelligible, and incidentally the view that the nucleus transmits the characters of parent to offspring receives remarkable confirmation.

Increase of Wages for Nursery Employees.—An agitation by the employees of Messrs. S. Bide and Sons, Ltd., nurserymen, Farnham, for increased wages and shorter hours has just been settled. The men's demands were : (1) An increase of 2s. per week for all employees with the exception of certain casual labourers; (2) Work to cease an hour earlier on Saturdays, viz., 4 o'clock; (3) One hour to be allowed for dinner every day, instead of half an hour. The movement was organised by the newly-formed branch in Farnham of the Workers' Union, which the firm declined to recognise, and is no doubt the sequel to the successful agitation by nurserymen in the Woking district. A meeting of the employees, arranged by the Workers' Union, was held at the nurseries on the 14th inst., and through the kindness of the firm the proceedings took place in the large and well-lighted packing-shed, instead of in the road outside the nurseries. The firm had replied to the demands by offering an increase of 1s. a week to a certain section of their employees, and agreeing to the cessation of work on Saturdays one hour earlier, the offer to take place immediately. With these terms the men were dissatisfied, and subsequently a conference took place between Mr. Kelly, the London organising secretary of the Workers' Union, and Mr. Bide. At the private conference between the heads of the firm and their employees, the firm made the following offer : 2s. per week increase to experienced knife hands; 1s. per week increase to labourers and carters; in certain individual cases labourers to receive 2s. per week increase. Hours of labour.—In winter work to commence at 7 a.m., and cease at 5 p.m., with half an hour for breakfast and one hour for dinner. Usual hours during the summer, viz., from 6.30 to 5.30 p.m., with 1½ hours for meals. On Saturdays work to cease at 4 o'clock all the year round. The terms were accepted by the men at a meeting held on the 19th inst.

A Potato Competition.—The second annual potato competition of the Gallows Inn Garden Association, Ilkeston, held recently, revealed extraordinary crops. Each member received exactly one pound of seed tubers of the variety Prolific, and was limited to 30 sets, which had to be cultivated out-of-doors. The cutting of sets, planting, lifting and weighing, was done in the presence of the committee. The 1st prize-winner, Mr. A. Smith, of Ilkeston, had a crop of 201lb. ¾oz. tubers from his pound of seed, while the grand total from 33lb. of seed yielded 1 ton 7cwt. 69lb. 11oz. Mr. Smith grew his crop in a trench 4 feet wide and nearly 4 feet deep, which was filled with soil which had been used for Chrysanthemums and Tomatos, mixed with leaf-mould and a liberal quantity of stable manure. The sets were planted from 20 to 24 inches apart in the centre of the trench, and when the time arrived the usual process of earthing up was done. When the main stem or shoot was about 12 inches high it was staked, and later, when the haulm had covered the full width of the trench, stakes were placed round the trench and ropes stretched from stake to stake to keep the haulm (which reached a height of 5 feet) upright.

A Profitable Melon.—From trials carried out by M. Zacharewicz, Director of Agriculture, Vaucluse (France), it appears that the best variety for yield is Melon du Montauban. An article by M. S. Mottet in *Revue Horticole* on the intensive cultivation of Melons in the south-east of France (November 16, 1913) describes this Melon as variegated, white and green, with orange-red flesh, sweet, and of exquisite perfume. It is a vigorous grower, and when cultivated in the open on the system adopted in the Vaucluse the yield from a stand of 250 plants amounts to 1,250. The plants are raised

in frames, replanted into prepared beds, and planted finally in the open in ground which has been worked to a depth of 14 inches. The ground is divided up by boards about six feet apart, and the plants are put in at intervals of about a yard. Potash and phosphates are found to affect the yield beneficially. Planting out in the open takes place at the beginning of April, and when the branches have produced from eight to ten leaves they are pinched above the eighth in order to induce the formation of laterals. Each branch carrying two fruits is pinched above the latter, and thus each plant bears on the average five fruits.

The Hooker Lecture Fund—At the general meeting of the Linnean Society, held on November 20, the President, Professor E. B. Poulton, F.R.S., announced that the donations to the fund for establishing the Hooker Memorial lectures amounts to £300. Further subscriptions are invited.

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

The Duffryn Dahlia Trials.—With reference to a letter from *Grower* on p. 364, I shall be glad if you will grant me space for a few words in reply. As to whether anyone has "blundered" in that the awards made at the Dahlia trials held here have not yet been published, I cannot say, but certainly I am not in any way responsible for their non-appearance. Within a day or two of the judging a telegram was received from the secretary of the joint deputation to the effect that the awards were to be kept private; and thus the matter was taken out of my hands, otherwise they would have appeared in the earliest possible issues of the horticultural papers. During the last three meetings at Vincent Square I made ineffectual endeavours to see the R.H.S. Secrtary on the matter, but each time Council meetings prevented. Last Tuesday, however, hearing that there was disappointment at the awards remaining unpublished, I wrote to him expressing my fears that the good results I had hoped might accrue through the trials might be postponed for another year should there be much further delay, and urging that the list should be sent to the gardening Press; and in reply he wrote me as follows:—"I have ordered the Report to be set up in print at once, and copies to be sent to the Press; but don't worry as to delay, as Dahlias are never ordered till well on in the spring." From this your correspondent will see that the matter is being dealt with. *Reginald Cory.*

Artemisia sacrorum viridis.—This annual has proved very useful and ornamental here this season. The seeds were sown indoors early in March and the seedlings planted out when they were large enough. They formed handsome pyramidal plants, 6 and 7 feet high, well deserving their catalogue description of summer Ferns. The plants resembled dark green Cedars of perfect shape, 4 to 5 feet through at the base, tapering to a point. In exposed positions a stake is necessary, as owing to its bushiness the wind sometimes proves destructive. For cutting purposes the foliage is extremely useful, lasting well in water, and it also forms an agreeable change for tracing purposes, for though some may consider its straight growths detrimental to what is usually an informal arrangement, if used with care an attractive and artistic effect can be obtained. The plants are now showing myriads of minute white flower-buds, which will, I am afraid, be too late to open, but the effect at present is greatly enhanced by them. I am told that the plants are hardy enough to resist slight frosts. Up to the present (November 10) frosts have been conspicuous by their absence, so that I am unable to give any opinion as to its hardiness; but it is at any rate an acquisition to the annual border, for single specimens, or for filling up such blanks as occasionally arise in the best regulated gardens. *F. A. Edwards, Upton, Alresford, Hants.*

Apple Nelson's Glory.—I enclose you the last fruits of Nelson's Glory I have, to try to settle the doubt about Nelson's Glory and Warner's King being distinct varieties. You will see at a glance that the fruits are distinct from Warner's King. I first made the acquaintance of Nelson's Glory eighteen years since in Messrs. E. P. Dixon's nursery at Burton Constable, Hull, where there were two fine trees of the variety growing in the nursery quite 30 years of age. The manager, Mr. Lambert, told me that they annually bore good crops of fruit, and if my memory is right he informed me that he sometimes gathered about half a ton of fruits from each tree. It is a very free-cropping kitchen Apple coming into use in October. The tree is also distinct in growth from Warner's King. I have never seen the Apple elsewhere, or, rather, only trees which have emanated from the Burton Constable Nursery. I have seen Warner's King colour in the same way as Mr. Molyneux mentions, especially when grown on a black, light soil in Lincolnshire, near Brigg, and almost wax-like. *T. Down, Basing Park Gardens, Alton, Hants.* [The Apples received are certainly not Warner's King, nor do we think they should be named Nelson's Glory. At the Apple Congress, held at Chiswick in 1883, many dishes of Warner's King were exhibited under the name of Nelson's Glory. We believe that the variety you send was exhibited at the 1883 Congress as Nelson's Prolific.—Eds.]

Silver-Leaf Experiments.—The note by *A Southern Grower*, p. 357, is interesting, as are all his writings. I notice that he has been more successful in assisting his trees to regain their natural vigour by the use of sulphate of iron than in any other way. *Southern Grower* says, "The only tree left was dressed in 1910 with 6 lbs. of iron sulphate alone; it improved slightly in 1911. In 1912, by the aid of complete artificials, the tree bore a big crop of fruit. He now has strong hopes that the tree is finally cured." This is, indeed, good news. I have no silver leaf in Plum trees, but close to where I write there is plenty of the disease, and the trees will be experimented upon during the coming autumn. If *Southern Grower* would say what were the complete artificials he applied to the tree in 1911 he would confer a boon, because they seem to have had a considerable influence upon the tree. I shall experiment upon the "control" tree this winter with an extra quantity of sulphate of iron in crystal form with a view of testing its manurial effect upon the tree, which is considerably weaker in growth than that treated in March, although both are of the same variety—Norfolk Beauty. No stimulant was given the treated tree last March, but a dressing of farmyard manure was applied in the autumn of 1911. *E. Molyneux.*

——May I suggest that the amount of sulphate of iron, 3 to 6 lbs. to a tree, applied by *Southern Grower*, is much too large, and therefore the experiments are inconclusive. The editorial article on p. 299 rightly says, "the amount of iron which suffices to satisfy the needs of plants is very small." In Mr. Molyneux's experiment (see p. 293), he applies the sulphate 6 feet from the stem of the tree, consequently some of the roots do not come in direct contact with it; but in this case, too, the application appears excessive. Probably, if we examine the soil in which Oak trees luxuriate, we shall find the percentage of iron comparatively small, and not in such a form as to be taken up as quickly as artificial sulphate, yet we know that the Oak requires more iron than many other plants. Were I experimenting, I should use homœopathic doses of ground sulphate, repeating the application at intervals immediately before and during the growing season, because it appears to be so quickly taken up when other essential constituents of plant food are present in sufficient quantities. Some years ago I applied a solution of sulphate of iron at the rate of half an ounce to a gallon of water to Chrysanthemums in pots, in the month of August, and those plants where there was no deficiency of nitrogen in the soil showed the effects of the application within 48 hours, and after three or four days the colour of the leaves was very much darker than the normal green. Although I could not detect any injurious results, I came to the conclusion that the change might be too rapid, and have since used weaker doses. I should like to know what is the ingredient in soot which gives a darker colour to the leaves of plants, and also if anyone has tried this substance for silver leaf? Some growers use clear soot-water for syringing their Carnations, and claim that it prevents rust as well as giving a darker colour to the foliage. I cannot suppose that the amount of soot falling on the roots of the plant would be sufficient to produce any effect. Is it possible that the leaves in this case obtain carbon from it? *Wm. Taylor.* [The darker colour induced by soot is generally attributed to the nitrogen—in the form of ammonia—which is contained in soot.—Eds.]

The Forcing of Spanish Irises (see p. 357).—I read with considerable interest your correspondent's article on forcing Spanish Iris. He seems to have handled a great many bulbs, and from my own experience I would be inclined to follow his practice, excepting that I much prefer pots to boxes. For several years I used boxes, but was greatly disappointed with the results, and since then I have used 9-in. pots, for I find that the roots do not grow through the pots and out of bounds, and that the pots may be removed from place to place if desired without injury to the roots. Your correspondent gives us the size of boxes he uses, but does not mention the number of bulbs for each box. This is important, as I have noticed that when the bulbs were planted thickly there was a collapse when the buds show colour. A Dutchman once gave me a hint that the foliage should be cut over before the buds appeared, and although I have never followed that advice it seems as if there is something in it. Our practice here is to put about 40 bulbs in each 9-in. pot and place them in a cold house, from which frost is excluded, and plenty of ventilation is employed in favourable weather. It is often very difficult to keep the temperature sufficiently low in March and April when bright sunshine is experienced. The first blooms appear about the end of May. Your correspondent states that from plants housed on January 19 blooms were ready at the end of April. A day or two has been gained by placing the pots in a Cucumber house when the flower-spikes have been well up. Some varieties have a tendency to develop too much foliage, which should be kept upright by the use of sticks, for if the foliage gets down a number of formed buds die. *A. J. A. B.*

Gas Tar and Mealy Bug (see pp. 279, 293, 309).—I wish to thank those correspondents who have kindly answered my query respecting mealy bug and gas tar, and it is satisfactory to note that they have found it harmless to the vines. Possibly there may be others who could write differently, but are unwilling to do so, as it seems somewhat strange that on the two occasions when I have seen it applied, and helped to apply it, and could safely assert that on one occasion it was well mixed and kept stirred, and the vines not unduly scraped, a certain amount of harm should result. In each instance the vines were rather old, having been cut back, and three or four rods trained instead of one; but several of these, following the tar application, had to be cut out. Although plenty of good foliage developed from some spurs, the crop was not satisfactory, but in following seasons the Grapes were good. On younger and more vigorous vines the harm was less noticeable. My note was written mainly as a warning. *A. Shakelton, Forde Abbey Gardens, Chard.*

The Trade a Century Ago.—Your correspondent, W., in his letter on p. 363, questions the existence of Mr. George Nash. Permit me briefly to state that he was the son of Mr. Daniel Nash, and in his earlier years was associated with the Strand house. Later he travelled widely and did not take any active part in the firm until the death of his uncle William. He only lived a very short time after his return to England, which will account for his existence being unknown to your correspondent. With reference to the remarks of Mr. R. P. Brotherton respecting the importation of seeds from

Holland in the seventeenth century, the following extract from the *Scots Gardiner's Director* may be of interest, for on p. 312 the author states :— "I shall now proceed to treat of annual flowers, and especially of those we annually receive catalogues of from *Holland*, which I must say are neither rightly named botanically or otherwise." He then inserts in full the "Catalogue of choice flower seeds for sale by Dirk and Pierre Voorhelm, florists, Haarlem, 1754." The catalogue, which was numerically arranged, contained 342 annuals, including Painted Lady and purple and red Sweet Peas, and four varieties of Love Apple; 50 biennials, including Lathyrus perennis, majus and minus, Digitalis and Laburnum; and 29 "seeds of flowers which must be sown upon hot-beds," which included Ice Plant, Job's Tears, Canna indica and Amaranthus tricolor. I am glad to note *R. P. B.'s* confirmation of my surmise respecting the antiquity of the business of Robert Furber. The catalogues in the Library at the British Museum and the splendid set of engravings which accompany them bespeak the attainment of a good position at the time they were issued. There is nothing new under the sun, Mr. Editor. When many years back seeds were offered in penny packets we held up our hands in horror, but I find that Dirk and Pierre Voorhelm quoted all the flower seeds referred to above at 100 packets for 5 gulden, which is exactly one penny per packet. *S. B. Dicks.*

SULPHATE OF IRON FOR APPLE TREES.—There can be no doubt as to the value of sulphate of iron as a stimulant for Apple trees. For the past few years I have used it with beneficial results, as is evidenced by the healthy appearance of our trees, which make strong but not coarse shoots and healthy green foliage. For the past ten years in succession we have never failed to have crops of clean, well-matured Apples. Our soil is very heavy, resting on clay, and is deficient in iron. It has always been my practice to annually top-dress our Apple trees with basic slag, sprinkling it on the surface of the ground as far as the branches extend, and lightly forking it in. This operation is usually carried out in November. The crystals of sulphate of iron are applied during the winter in exactly the same manner as the basic slag, and is also lightly forked in. Now comes another problem—will sulphate of iron cure canker? A friend of mine who is engaged in fruit growing commercially claims that it will! His trees, which I have frequently examined, certainly bear out his assertion, the cankered wounds after treatment becoming clean and the bark growing over them again. For the past two years I have been treating a few diseased trees, so far with beneficial results, and I am continuing the experiments. The cankered wounds are washed thoroughly with the sulphate of iron in solution. *Wilmot H. Yates, Rotherfield Park Gardens, Alton, Hampshire.*

N.R.S. CATALOGUE OF ROSES.—After reading your leader on this subject I looked through the list of synonymous varieties (p. 72), and to my surprise I find Dorothy Perkins and Lady Gay are classed as similar. Surely this is a slip, as there are distinctions between these two varieties in colour, size of bloom, and especially in the manner in which the blooms are arranged on the truss. In Lady Gay the blooms are much more widely spaced than in Dorothy Perkins, and they are a distinct shade of cherry pink as compared to the soft, light pink in Dorothy Perkins. *E. M.*

A DICTIONARY OF HARDY PLANTS.—There are many who will echo the call for a Dictionary of Hardy Plants (see *Gardeners' Chronicle*, p. 315). New plants are constantly being introduced, and old ones re-introduced, and to find any description of the same apart from the introducer's description, often too highly coloured, one must possess a library of books and periodicals, for I know of no book at present which contains a fairly complete description of known hardy plants, Alpines in particular. One can certainly find Weldenia in Nicholson's *Dictionary of Gardening*, but at the same time one looks in vain for Mazus rugosus; on the other hand, Clarke's *Alpine Plants* gives the culture of Mazus rugosus, and even of Meconopsis aculeata vera, now called, I believe, M. Delavayi, but no mention of Weldenia. Again, in M. Correvon's latest work, *Les Plantes des Montagnes et des Rochers*, 1914, where attention is called to many beauties at present little known, one looks in vain for Chimaphila. The gardeners' Bible, *The English Flower Garden*, mentions many plants elsewhere unnoticed, but neglects many others, e.g., it only mentions Onosma tauricum of all the Onosmas. One could go on multiplying instances, but those given will serve to show that at present anyone really interested in hardy plants must possess a small library in order to be able to find any particular species he or she may want. Further, there are many beautiful species of hardy plants not yet introduced. Mr. Robinson has already done service in calling attention to species of possible horticultural value, e.g., in *Alpine Flowers for Gardens* there is an interesting list of unintroduced species of Acantholima and Æthionema, but this idea has not been carried out right through the book. To call attention to some as yet unintroduced gem is sooner or later to stimulate some enthusiast to go in search of the same, to the general benefit of the gardening world. Perhaps I may be allowed to sketch roughly the plan on which such a dictionary should proceed. It could contain as complete a list as possible of known hardy plants in and out of cultivation. Each species should be shortly described, as in *Nicholson's Dictionary*, giving height, colour, size of flower, etc. This should be followed by country of origin, conditions of growth in native habitat, propagation, general indications for culture in the British Isles, and last, but not least, an indication of its horticultural value. I should like here to elucidate these points more fully. First, let us once and for all have the names correct, let Campanula Allionii be called C. alpestris, as this name has priority, and let us no longer muddle up C. cæspitosa (Scop.) and C. pusilla (Hænke). All synonyms should be given and cross referenced, so that, as Mr. Farrer remarks, one will avoid paying 2s. 6d. for Bellidiastrum Michelii under the name of Aster Michelii. *Colour.*—I regard it as absolutely necessary that the colours should be referred to some standard chart incorporated in the volume, in order to avoid lurid or washy magentas being described as glowing velvety purples or crimson roses. *Native Habitat.*—The description of the conditions under which and soils upon which a plant grows in nature is a useful even if not absolute guide as to its cultivation in the garden. Recently, Mr. Hornibrook and Mr. Farrer, writing in *The Garden*, have bewailed their failure with Campanula pulla when planted in the orthodox mixture of sandy peat. Mr. Hornibrook found success when his plants escaped into a limy soil, where they thrive amazingly, and Mr. Farrer by discovering it on limestone in nature. Now, had either of these gentlemen possessed Mr. H. S. Thompson's excellently written but, speaking generally, horribly illustrated book on *Alpine Plants of Europe*, they would have found C. pulla described as growing in "pastures, woods, bushy and stony places in the *calcareous* Alps 4,000-6,500 feet"; and so avoided their early failures. This not only shows the value of some knowledge of natural conditions, but also that one cannot possess every book on Alpines in order to search out such facts, and here it is that the need for a dictionary collecting all such data comes in. *Propagation.*—I think that, apart from the usual "seed, cutting, division," there should be some indication of the difficulty in certain cases, e.g., the necessity of sowing seeds of most of the Ranunculaceæ as soon as ripe; which Primulas germinate readily at any time and which do not, etc., etc. *Culture.*—All who grow hardy plants, Alpines particularly, know that cultural directions can be of a general nature only. What succeeds in one country fails in another, but in the case of the more difficult plants, the various methods advocated might be given, with the authority for same and a reference to the original article, so that intending planters would have some facts to go upon. I have myself found it useful to jot down in a card index the various cultures advised for different plants in books, gardening periodicals, etc., as a guide to the culture of difficult plants under various conditions, in order to attain success. *Horticultural Value.*—I regard the indication of this property as most important. Such an indication would save many regrets and no doubt introduce new joys. Take, for instance, the genera Alyssum and Draba. Who knows what to obtain beyond one or two species? and yet there are many desirable plants among them. Mr. Farrer, to whom we all owe a great debt for his work in drawing attention to neglected beauties, has recently called attention to Alyssum ovirense as of great worth; but for this, who would have tried it? I myself by chance came across Draba rigida, a delightful miniature seldom if ever seen. Again, in the Potentillas, who knows P. nevadensis and P. Woodfordiæ, two gems, or P. Clusiana and P. Saxifraga, to which Mr. Farrer has recently called our attention? On the other hand, beginners often seem to possess Horminum pyrenaicum, as uninteresting a plant as one could name. The Dictionary would save them from this. As regards the general "get up" of the book, let it not be on that heavy loaded paper so popular to-day. If one must have plates, and there is no doubt that they appeal to most of us, let them be from actual photographs and of choice plants only. We all know the appearance of Narcissus poeticus. Now, to cut a long story short, where are the editor, publisher, contributors and last, but very important, the subscribers? Ernst Graf Silva Tarouca's book, which Mr. Farrer reviews, is 15s. Can one produce such a book as this for, say, a guinea or thirty shillings, or even two pounds? If so, here is a subscriber. *E. B. Anderson, Dublin.*

THE DIVORCE OF BOTANY AND HORTICULTURE.—If the efforts which are now being made to raise horticulture into a science are to be crowned with success, it is obvious that a reconciliation must be brought about between botany and horticulture, for unless these two go hand in hand there can be no certainty or finality about the names of the plants that we grow in our gardens. It is never pleasant to suggest that all is not well with familiar institutions, but the words, which Dr. Stapf, the Keeper of the Kew Harbarium, wrote in the *Gardeners' Chronicle* for March 15, 1913 (p. 171), suggest the admission that there is some dissatisfaction with the present state of affairs, even at the centre of botany and horticulture. We cannot but agree with Dr. Stapf that an "impetus would be given to a clearer and sounder conception of species . . . if every herbarium stood in a botanic garden and every botanic garden had its experimental ground, if no scientific worker were attached to the herbarium who had not served his apprenticeship in the field, or was not given from time to time the opportunity of refreshing his mind and widening his view by going back to the limitless experimental ground of nature." The force of these remarks is only realised when we remember that of our two national herbarium collections, one, the botanical department of the British Museum (Natural History) has no garden whatever attached to it, while at Kew the small trained herbarium staff is kept so busy dealing with the ever-increasing mass of dried material from distant corners of the earth that its members have little or no time to make themselves acquainted with the living plants that are cultivated in the gardens, much less to carry out experimental research there with a view to the solution of some of the many difficulties which must crop up in dealing with dried specimens in the herbarium. It has been my lot to work through a large number of sheets of dried specimens of plants with most of which I am familiar in the living state in my garden. I have watched them here, growing in many cases from seeds and reproducing themselves for several generations, and as I have compared the dried specimens with my mental picture of the living plants it has often occurred to me to wonder what impression the dried material would convey to the botanist who did not know the living plant. For instance, I remember finding, among unnamed Iris specimens of the various herbaria, sheets containing a thick tuft of long, narrow leaves enclosing a capsule of seeds set on a very short stem. I was only able to recognise them as Iris kumaonensis because I had plants growing in my garden and had been able to watch the leaves develop to a length of 18 or 24 inches, although at flowering time they scarcely,

if at all, overtopped the flowers. Unless one had seen this it would be difficult to connect together as specimens of the same plant at different periods of its growth the sheets already mentioned and the usual examples of this Iris, which consist of the remains of the flowers with a few short, immature leaves. When one has collected together and grown side by side the numerous local forms, to which so many species seem to have given rise, doubts suggest themselves as to the utility of trying to draw up from herbarium material alone any trustworthy account of the flora of such a region as Tropical Africa. Local forms, which when grown side by side are clearly seen to differ, are often indistinguishable as herbarium specimens, and, on the other hand, the same plant when grown under different conditions may vary enormously in size. For instance, in a favourable year Iris seeds may easily be twice the size of those produced by the same plant in the same position in the following year, when climatic conditions have been less favourable. Facts such as these, which must be familiar to every observant gardener, seem at times to be forgotten by the professional herbarium botanist, who appears to be content to describe his new species, often basing it on one single specimen, which may easily be one extreme of a long series of forms, all of which should properly come under the one species. The specimen first described is called the type; every slight variation from it receives a varietal name, and so the multiplication and confusion of names go on. In this connection I must confess to having once shown a Californian botanist a drawing of three specimens of Iris graminea. I had been complaining that American botanists seem to delight in hair-splitting, and in making a new species for each minute difference. Of the three specimens in question, one had spathe-valves of equal length, in the second one valve was twice, and in the third four or five times, as long as the other. The two extremes were pronounced without any hesitation to be different species, though some doubt was expressed on the subject of the intermediate form. It was, however, something of a shock to the botanist to be taken out into the garden and shown the three forms all growing on the same plant. It is not difficult to see that with only herbarium material to work upon, varietal, if not specific, names might here have been bestowed. Still more futile are the minute measurements, which form so large a part of the professional botanist's description of a plant. The very fact that herbarium specimens are dried and pressed makes it impossible to build up on their measurements exact mathematical theories based on minute accuracy—a method which is thought to have been successfully applied to such things as birds' eggs. Moreover, every gardener knows to what a large extent colour, size and vigour depend on soil, situation and cultivation, and he must see the uselessness of any comparison between two plants which is based on *absolute*, as opposed to *proportional*, measurements. What is really important and often essential is a record of the *relative* proportions of the different parts of the plant or flower, but this cannot be set down in fractions of a centimetre. It can only be given roughly, for allowance must be made for both the shrinking and the flattening out which are a necessary consequence of the usual method of preserving specimens. If these and similar objections to herbarium work, unsupported by experiment and research, either in the garden or in the field, are in the least valid, it is the more surprising to see our trained botanists devoting their time and energies to whole classes of plants which are not, and perhaps cannot in any sufficient quantity be, cultivated in England, while all the time such confusion reigns as to the proper names of the plants which we use to decorate our gardens. Knowledge is always desirable for its own sake, but are we justified in seeking after it in directions where it can only be incomplete and tentative, so long as much work lies close to our hands involved in difficulties which ought to be solved and which to a large extent can be solved? It is perhaps not generally known that it took a trained member of the herbarium staff at Kew several days to unravel the tangle of names and plants that has grown up round Saxifraga lantoscana. That the difficulties of such tasks are not realised by horticulturists is shown by the fact that the Royal Horticultural Society hopes to dispose of all the difficulties to be found in the whole race of Saxifrages in a conference which can hardly last more than two or three days. What better evidence could there be of the necessity for a reconciliation between botany and horticulture? Criticism is always easier than reconstruction, but, if a suggestion might be made, it would be that, if no public funds are available to increase the scientific staff at Kew, and so enable its members to make use of their opportunities in the Gardens and yet have time to deal with the masses of dried material which constantly pour in from the ends of the earth, the Royal Horticultural Society might devote some part of its large income to the maintenance of one or more officers, who should be trained in botany as well as skilled in horticulture, and whose duty it should be to work out by a combination of botany and horticulture some of the many difficulties of nomenclature and relationship which constantly arise among our garden plants. It would, of course, be no part of their duty to name new plants, but it would be incumbent upon them to see that our garden plants bore the names under which they were originally described and introduced. Such an official would, we cannot doubt, be given every facility for, and help in, carrying out research work in herbaria and botanical libraries, and he would gradually get together at Wisley a collection of authentic specimens of the wild species from which our garden plants have developed. It would be impossible, of course, for one man to be well acquainted with all classes of plants, but doubtless he would soon discover where to turn for help with the various families of plants, and, at the same time, be in a position to check any information which was thus obtained. Such an official would form a connecting link between scientific work in the herbaria and practical work in our gardens. He should be of immense service to the Royal Horticultural Society, for he ought to be able to speak with authority, after a due allowance of time in which to investigate the facts, on questions of the nomenclature of plants exhibited at the Society's meetings, and we cannot doubt that botanists would welcome the formation by a public body of a living collection of wild species to which they could go to supplement the conceptions derived from dried herbarium specimens. *W. R. Dykes, Charterhouse, Godalming.*

Plants for the Bog.—In the belief that it may prove useful to those who have a bog garden or are thinking of making one, I append a list of the plants which have flowered in the bog garden at Bitton Vicarage, near Bristol, together with the months in which they flowered:—February: Saxifraga apiculata; March: Synthyris reniformis, Primula rosea, P. frondosa, Saxifraga Clibranii and S. rosea, Anemone ranunculoides, Caltha polypetala; April: Primula Sieboldii, the variety alba Veronica repens, Gentiana verna, Trollius Orange Globe, Caltha palustris; May: Dodecatheon Meadia, Primula Cockburniana, P. pulverulenta, Iris virginica, I. versicolor, Mertensia paniculata, Mimulus cupreus; June: Veronica filifolia, Iris Delavayi, Spiræa lobata, Crinum riparium, Orchis pyramidalis, Clematis recta, Epipactis gigantea; July: Rodgersia pinnata, Spiræa palmata rosea, S. digitata, Astilbe Davidii, A. grandis; August: Kirengeshoma palmata, Houttuynia cordata, Primula Gagnepainii; October: Saxifraga Fortunei. *A. C. B.*

Forcing Hellebores.—Referring to the note by Mr. Coates (p. 364), I may state that the species used for forcing at Grimston Park, Yorkshire, some years ago was Helleborus colchicus. As many of your readers are aware, the flowers of this species grown naturally are of a light purplish shade. The plants being good growers generally, it is easier to get some clumps for forcing than with H. niger and its varieties, and the flowers, as Mr. Coates says, are quite white when grown in the dark. If care is taken not to expose the plants to spring frosts after the flowers are cut they may be used two or three years with good results. Shallow tubs are the best to grow them in, plunging them in coal ashes in the summer not far away from a water tank. *H. J. C.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

November 18.—*Present*: Mr. E. A. Bowles, M.A., F.L.S. (in the chair), Messrs. J. T. Bennett-Poë, W. Hales, G. Wilson, A. Worsley, J. Fraser, R. A. Rolfe, H. J. Elwes, A. W. Hill, and F. J. Chittenden (hon. sec.).

Chrysanthemum-Carnation Graft.—The exhibitor of the flowers from this alleged graft now sent the plants from which they were taken, and careful examination of the lower part of the plant failed to reveal the least trace of grafting, while from the base of the stem from which the roots were derived a sucker was developing clearly belonging to the Chrysanthemum. It seems evident that, unknown to the sender, the scion used had rooted and produced a Chrysanthemum plant, not perhaps exactly like the original plant, for sporting may occur, and frequently does, while colour varies in shade at least, according to the conditions under which it is produced.

Pelargonium Sporting.—Mr. A. Worsley showed Pelargonium Firedragon with a large flowered double sport from it.

Lycoris straminea, etc.—Mr. H. J. Elwes showed a reputed hybrid Lycoris from a garden in Amoy, but which Mr. Worsley recognised as Lycoris straminea, a not very well characterised species allied to Lycoris aurea. Mr. Elwes showed also a three-flowered Cypripedium hybrid, C. concolor × C. superbiens = C. Arnoldianum.

Hybrid Pelargoniums.—Mr. Fraser continued his remarks upon the history of Pelargonium hybrids, dealing with the forms of P. Radula and P. denticulatum.

Catasetum macrocarpum.—Mr. R. A. Rolfe exhibited, from the collection of Mr. G. Rae Fraser, Letchmore Heath, Herts, an inflorescence of male flowers of Catasetum macrocarpum. Female flowers of the same plant have twice been shown before the committee, in October, 1910, and November, 1911, respectively. In the interval the plant made two futile attempts to flower, but this year it has produced the male inflorescences shown, thus enabling the species to be identified with certainty. Both inflorescences are being preserved at Kew, and the plant is now being presented to the collection there, Mr. Fraser having another good plant.

Cypripedium insigne with Three Lips.—Mr. Rolfe also exhibited from the collection of Mr. Albert Pam, Wormley Bury, Broxbourne, a twin-flowered scape of Cypripedium insigne, in which the upper flower was normal, but the lower had three lips, representing the condition of the well-known variety Oddity. In this case the two lateral sepals were developed separately and diverge laterally, and the dorsal is reduced in breadth, while the petals are metamorphosed into lips, which clasp the normal lip.

HORTICULTURAL CLUB.

November 18.—On Tuesday, the 18th ult., this club held its usual monthly dinner at the Hotel Windsor. The President, Sir Frank Crisp, Bt., presided. Subsequently to the dinner, Mr. Reginald Farrer gave a lecture entitled "Not about Switzerland," explaining that the vagueness and widely-extended implication of the title were due to the fact that he was always being asked about Switzerland to the exclusion of other Alpine regions, and he desired to give some indication that the other mountain ranges had floras of their own with which he had ventured to make some acquaintance.

In peculiarly eloquent language, therefore, he gave many details of his travels and researches in connection with the collection of Alpine plants, in the extensions of the Alpine ranges beyond the Swiss limits; the peculiarities which he had noted in his travels with regard to the plants he discovered, and the peculiar failures and successes which eventually attended the transference of these plants to the lowland conditions of his home collection. Amongst other things he combated the general opinion that the whole of the Primula family required moist and protected environment, as most of them he found

did well in positions well exposed to the sun, and some at least did not require a soaked condition of the soil. The generally essential condition was a long and uninterrupted resting period. Mr. Farrer also dealt with botanical specific differentiation, challenging in several cases the correctness of the specific names often given to simple varieties of one and the same, or the confusion of one species with a really distinct one. In order to have a fair opportunity of widening his experience as a plant collector, he purposed going in the New Year to Western China and Thibet to familiarise himself as far as possible with the Asiatic Alpine flora in its native habitats. He promised on his return to give the Club an account of the results, a promise received by his audience with great gratification.

In the subsequent discussion, Sir Frank Crisp and Messrs. Bilney, Hogg and Pearson participated, giving their own experiences in connection with Alpine plants, both at home and in their native habitats. The counsel was given and approved by all that it is not advisable to collect long-established plants, but that young ones should be chosen, the roots of the former often penetrating so deeply in course of time as to render proper extraction impossible, the result being failure.

Sir Frank Crisp proposed a vote of thanks to the lecturer, and expressed the hope that his journey to China might prove successful and enjoyable, and that his promise of another lecture at the Club might be fulfilled. The President also mentioned that ladies were specially invited to attend the next dinner, when Mrs. Henshaw would give an illustrated lecture on Vancouver.

LANCASTER HORTICULTURAL.

November 12.—This society's eighth annual show, held in the Alexandra Hall, was a great success. The entries were 50 more than last year, totalling nearly 300. Unfortunately the weather was wet, and the attendance was slightly below that of last year. Additional interest was caused by the schedule requiring that each exhibit should be named, even in the fruit and vegetable section. The competition for the "Lady Storey" Rose Bowl brought forth three grand exhibits of eighteen blooms each. A Challenge Cup, given by Lord Ashton, was offered for a group of Chrysanthemums, and three competed, and in addition to these groups non-competitive groups of plants were shown by Mr. H. L. Storey, Mr. F. R. C. Storey and the Corporation Parks Committee. Mr. W. Robinson showed vegetables.

The "Lady Storey" Rose Bowl for eighteen Japanese blooms was won by Rev. R. T. Langtree, Grange-over-Sands, the variety Mrs. G. Drabble being specially good; 2nd, Mr. W. W. Brocklehurst, Macclesfield.

For twelve Japanese blooms Mr. Smith was placed 1st, and Mrs. Ormrod, Wyresdale Park, 2nd; while for six blooms, distinct, Rev. R. T. Langtree, Mrs. Porritt (Grange-over-Sands), and Mr. W. W. Brocklehurst were placed 1st, 2nd, and 3rd respectively.

For three blooms of a white Japanese variety Mrs. Porritt was awarded the 1st prize, followed by Mr. W. W. Brocklehurst. In the similar class for a yellow variety Mr. H. Smith was placed 1st, whilst for three Japanese blooms of any variety Rev. R. T. Langtree and Mr. W. W. Brocklehurst excelled.

For three vases of Japanese Chrysanthemums, distinct varieties, Mr. J. G. Martin (Grange) excelled; 2nd, Mr. Whitney.

The best four vases of singles and the best four vases of decorative Chrysanthemums were shown by Sir N. W. Helme, and he was followed in each class by Mr. E. G. Clark, who was placed 1st in the class for two vases.

The best table of Chrysanthemums arranged for effect was shown by Mr. R. N. Helme.

In the plant classes some splendid specimens were shown. Sir N. W. Helme secured the Lord Ashton Challenge Cup for the second year in succession, and was placed 3rd for three specimen plants, 2nd for three decorative plants, and 1st for three singles, distinct. Mr. J. Dearden (the Corporation gardener) beat Sir N. Helme in the class for three specimen Japanese blooms, and three decorative Chrysanthemums, and was placed 2nd for three single varieties. Mr. J. L. Rushton showed the best table plants and Begonias.

The fruit and vegetable classes were well represented.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

November 13.—*Committee present*:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, H. Bell, J. Cypher, J. Evans, J. Howes, F. K. Sander, W. Shackleton, H. H. Smith, W. Thompson, G. Weatherby, and H. Arthur (secretary).

A Silver-Gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden), who staged a fine group of Cattleyas in variety; and Messrs. Cypher and Sons, Cheltenham, staged a fine group of Cypripediums in variety.

Large Silver Medals to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish), for Cypripediums; and Messrs. Charlesworth and Co., Haywards Heath, for a mixed group.

Silver Medals to Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby), for Odontoglossums; Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes), for a small group of choice varieties. Other exhibitors included O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); Messrs. A. J. Keeling and Sons, Bradford; Mr. W. Shackleton, Great Horton, Bradford; and Mr. H. Arthur, Blackburn.

AWARDS.

First-Class Certificates.

Odontoglossum eximium var. rubrum, a flower of beautiful shape, self-coloured crimson, with white edges; *Odontoglossum Helius*, a large flower of similar colour, large square, flat lip, both from Wm. Thompson, Esq.

Cattleya labiata La Vierge, a large, well-shaped flower, white, with purple markings in lip; *Miltonia Ashlandensis* (superba × G. D. Owen), a well-coloured flower, with brilliant colour in lip, both from R. Ashworth, Esq.

Awards of Merit.

Odontioda Bradshawae var. Aurora, *Cattleyas Phrygia* and *labiata Athene*, *Cypripedium Estella* and *San Actaeus*, all from Wm. Thompson, Esq.

Odontoglossum Percultum var. Brunette from R. Ashworth, Esq.

BANBURY WINTER FLOWER AND FRUIT.

November 12 and 13.—The Banbury Chrysanthemum Show was held in the Town Hall and was opened by the Hon. Mrs. Fitzgerald, daughter of Lord North, the President. The exhibits showed an improvement over those of former years, especially in the amateur classes.

In the class for cut flowers (Chrysanthemums only), the 1st prize for 9 vases of Japanese, not less than 8 varieties, was awarded to Sir Samuel Scott, Bt. (gr. Mr. F. Tapper), Westbury; Lord North (gr. Mr. E. James), Wroxton Abbey, being placed second. For 12 distinct varieties of Japanese, Mrs. F. Myers (gr. Mr. J. Bush), Charlton Lodge, gained the 1st prize, and the Rev. B. W. Bradford (gr. Mr. W. A. Sadler), Broughton, the second. In the class for 6 varieties of Japanese, Lord Ashby St. Ledgers (gr. Mr. R. G. Martin) took the first place, the Rev. B. W. Bradford gaining the second place. For 18 distinct varieties of Japanese, Sir Samuel Scott was placed first, Mrs. F. Myers coming second; and for 12 varieties of Japanese, Sir Samuel Scott again took the first place. In the singles section, Lord Ashby St. Ledgers came first for 6 vases of distinct varieties, Sir S. Scott taking second place. For 6 vases of distinct decorative varieties, H. Boxold, Esq. (gr. Mr. W. Rawlings), Banbury, took the first place, while Mrs. Myers was successful in gaining the 1st prize for a vase of singles arranged for effect. There were exhibits of other flowers as well as of Chrysanthemums, and some the classes were well filled. Mrs. Myers won the 1st prize for 6 bunches of Carnation blooms, distinct varieties, Lord Ashby St. Ledgers coming in second. Lord North showed a very effective display of winter-flowering and foliage plants, but as this was the only exhibit in the class, the Coronation Challenge Cup was not awarded. The Rev. B. W. Bradford gained the Banbury Cross Challenge Cup for a group of winter-flowering and foliage plants and Orchids arranged for effect, Lord North being second in this class.

Fruit was plentiful, and some of the exhibits were extremely good. For 6 dishes of culinary Apples Lord North gained the 1st prize, and for 3 dishes the Earl of Effingham (gr. Mr. J. F. Young), Tusmore Park. There were several other classes for Apples and three for Pears. The Earl of Effingham gained the 1st prize for Black Grapes, Mrs. Myers taking the 1st prize for white, and also for one dish of Tomatos.

The classes for amateurs residing within ten miles of Banbury were well contested, the exhibits being generally creditable. The 1st prize for 6 distinct varieties of Japanese Chrysanthemums (cut flowers) was awarded to Mr. L. H. Southam; and for 6 specimen glasses of Chrysanthemums for table decoration, arranged with Fern or foliage, Mrs. W. R. Bye gained the 1st prize. Mrs. E. H. Sellers gained the first place for a table decorated with flowers, her arrangement being most artistic.

Other classes were open to amateurs (members of the Society) who did not employ a gardener. Mr. E. Muscott gained the 1st prize for 3 vases of single Chrysanthemums in this section, and Mr. T. Cakebread for 3 vases of decorative. In the fruit classes, Mr. A. Fairfax was most successful in showing Apples and Mr. Eustace Durran for Pears. There was only one class for Grapes (two bunches), the prize for which was won by Mr. W. S. Rowles.

EDINBURGH BOTANICAL.

November 13.—At the meeting of the Edinburgh Botanical Society held on the 13th inst., Mr. R. Stewart Macdougall, D.Sc., was elected President, in succession to Sir Archibald Buchan-Hepburn, Bart. A paper was read on behalf of the Hon. W. R. Riddell, B.Sc., on "The Pharmacopœia of the Botanical Physician Eighty Years Ago," as given by Samuel Thomson, a herb doctor, in his book published at Hamilton, Upper Canada, in 1832. Papers were read by Mr. James Fraser and Mr. W. W. Smith.

BLACKBURN CHRYSANTHEMUM.

November 21 and 22.—The 18th annual Show was held in the Town Hall, and although an extra room was provided, there was only space for competitive exhibits. The society enjoys a generous patronage, and crowds of visitors thronged the show, especially on the second day. In the large hall Chrysanthemums and Orchids were the principal features. One end of the room was furnished by a bold group of single Chrysanthemums supported on either side by the blooms of large Japanese varieties. At the other end of the room was a table of Orchids. Tables on one side were furnished with grand masses of Cypripediums, Orchids, Begonias, Salvias and other flowers, whilst on the opposite side were groups of Begonias, berried and miscellaneous plants. Two tables running the length of the hall were brightly furnished with cut flowers, small plants, fruits, baskets and table epergnes; with a couple of lofty miscellaneous groups in the centre. Col. J. Rutherford, M.P. (gr. Mr. J. Lupton), showed a bank of Orchids about 8 feet in height, composed of Oncidiums, Odontoglossums, Lælias and other species. Four competed in the class for a table (4 feet table run) of Cypripediums, and Mr. Lupton excelled with a varied and choice display.

This exhibitor also won the 1st prizes for (1) three Cypripediums; (2) three hybrid Orchids; (3) four Orchids; (4) three Oncidiums; (5) one Cypripedium and (6) one miscellaneous Orchid.

For a table of Begonias J. Thompson, Esq. (gr. Mr. C. Samways), proved the 1st prize winner.

J. Wilcock Holgate, Esq. (gr. Mr. H. Bradburn), showed the best table plants and the best Primula obconica.

Mr. Thomas Bury was successful for a group of miscellaneous plants in oval form, nine feet by six (open only to nurserymen). The plants included well-flowered Heaths and Orchids; 2nd, Messrs. Edward Lodge and Son.

Mr. H. Bradburn won in the class for a group of Chrysanthemums ten feet by seven, and not exceeding ten feet in height; 2nd, T. Mitchell Eccles, Esq. (gr. Mr. J. Pimlott), with slightly smaller blooms. For a group of single Chrysanthemums, the same size as the former, J. Thompson, Esq. (gr. Mr. C. Samways), won with a grand exhibit.

J. Bartlett, Esq. (gr. Mr. H. Shutt), excelled for a group of flowering and foliage plants, in which Oncidiums and Odontoglossums showed to advantage.

For a table of miscellaneous plants T. Hodgkinson, Esq. (gr. Mr. C. Smith), won with a well-arranged display.

The classes for cut flowers were fairly well contested. Captain Feilden (gr. Mr. H. Boyd) won the 1st prize for twenty-four Japanese blooms, and was also awarded the Society's Certificate for the best Japanese bloom in the Show, with a specimen of Lady Talbot variety; 2nd, Mr. J. Pimlott. For twenty-four incurved blooms, A. E. Troop, Esq. (gr. Mr. R. H. Jones), was successful; his best bloom was the variety Mrs. J. Hygate. Mr. Boyd showed the best twelve Japanese blooms. Mr. R. H. Jones had the winning dozen incurved blooms, Mr. C. Samways and Mr. R. McCullock the six blooms in the classes for these respectively.

Mr. R. McCullock showed the best three bunches of single Chrysanthemums grown naturally. Messrs. H. Boyd and W. Wilkinson were the winners in the two classes for cut Carnations.

H. H. Bolton, Esq. (gr. Mr. W. Eastwood), secured the 1st prize for two bunches of black Grapes, whilst for two bunches of white Grapes Edmund Lord, Esq. (gr. Mr. J. Wright), was successful.

For a collection of vegetables A. T. Walker, Esq. (gr. Mr. J. H. Wells), won the 1st prize with an excellent display, the same exhibitor being successful in the class for Onions.

DUNDEE CHRYSANTHEMUM.

November 21 and 22.—The annual two-days' show was opened in the Kinnaird Hall by the Lord Provost Urquhart, the President, Walter S. Melville, Esq., taking the chair. The hall contained a brilliant display, the exhibits being first-class in quality and very well arranged.

The principal award—the Corporation Cup and £4 in money—offered for twelve vases (thirty-six blooms) of Chrysanthemums, was won by Mrs. Grimond (gr. Mr. A. Duncan), Carbet Castle, Broughty Ferry, with a fine collection. J. M. Smieton, Esq. (gr. Mr. D. Keillor), Seaborne House, won the 1st prize for eight vases (twenty-four blooms); J. A. Coats, Esq. (gr. Mr. R. McNaughton), Battleby House, Perth, coming 2nd. Mr. Coats has now won the Smieton Memorial Challenge Medal three times, and it becomes his property. The medal was given (with 25s. in money) for six vases of six distinct varieties, and the winning group was composed of exceptionally fine flowers. J. M. Smieton, Esq., was placed 2nd. Mrs. Grimond won the 1st prize for four vases of Japanese incurved Chrysanthemums, and J. M. Smieton, Esq., was 2nd. For nine vases of single varieties, not disbudded, Mrs. W. L. Boase (gr. Mr. J. Beats), Binrock House, won the 1st prize; Mrs. Grimond being placed 2nd. Mrs. Boase was also the winner of the 1st prize in the class for one vase of disbudded singles, and for a vase arranged for effect. Mr. Geo. Scott, Seathgood Gardens, gained the 1st prize for table decoration, Mrs. W. L. Boase being placed 2nd. The same two competitors gained the 1st and 2nd prizes respectively for a bouquet and a basket arranged for effect. In the plant section, Mr. Geo. Scott was placed 1st for nine disbudded plants in six pots. His specimens were of the first order, and those shown by Mrs. Boase were also extremely creditable. There were several classes for flowers other than Chrysanthemums, notably for Primulas and Cyclamens. There was only one vegetable class open to gardeners, namely, one for a collection of eight kinds. The 1st prize was won by C. Gilroy, Esq. (gr. Mr. Jas. Bethel), The Grange, Monifieth, and the 2nd prize by W. S. Stuart Fotheringham, Esq. (gr. Mr. J. Machar), Forfar. In the section reserved for amateurs, vegetables were numerous and well shown. Mr. D. Orchiston was placed 1st for a collection of four kinds, and also for three Leeks and two stalks of Brussels Sprouts. Mr. David Smith also won several 1st prizes. In the amateurs' classes for cut flowers, Mr. John Denholm, Blackness Road, won the Watson Challenge Cup for twelve Chrysanthemum blooms, and several 1st prizes. Mr. J. S. Gray, of Perth Road, won the chief prize for a bouquet, and also for a basket of Chrysanthemums arranged for effect.

Trade exhibits were not numerous, but Messrs. Harley and Sons showed an artistic arrangement of imported fruits and vegetables, and a collection of fine Chrysanthemums. Messrs. D. and W. Croll arranged an attractive table, on which Begonias Gloire de Lorraine and single Chrysanthemums were chiefly in evidence. Mr. Arthur Edwards, a florist of Nottingham, showed some tasteful examples of rustic table work, and Mr. D. M. K. McKindley, of Gorebridge, showed a collection of flower-paintings in oils.

NEWCASTLE-ON-TYNE AND DISTRICT CHRYSANTHEMUM.

November 19 and 20.—The ninth annual exhibition of the above Society was held in the Town Hall, Newcastle, on these dates. The show was one of the finest held in connection with the Society. The attendance of visitors on both days was very satisfactory, a record sum being taken at the doors. The competitive classes were well contested. Bush-trained plants, in many cases grown by amateurs, formed one of the principal features in the show, and these occupied nearly one-half of the Corn Exchange building. In the open class for twelve vases of Japanese Chrysanthemums, in not fewer than twelve varieties, three blooms in each vase, for which a Silver Challenge Cup and £5 in money was offered as the 1st prize, R. D. Marshall, Esq., Castlerigge Manor, Keswick (gr. Mr. H. Smith), was successful. His blooms of Lady Talbot, F. T. Mew, Frank Payne, Reg. Vallis, F. S. Vallis, Lady Conyers, W. Turner, Master James, Mrs. G. Drabble, Queenie Chandler, Frances Jolliffe and Florence Rome were exceptionally good; 2nd, the Countess of Ravensworth, Cresswell Hall, Morpeth (gr. Mr. R. Addison), whose blooms of F. Green, Algernon Davis, Eclipse, Edith Jameson and Mrs. A. T. Miller were particularly fine; 3rd, Dr. J. B. Simpson, Bradley Hall, Wylam (gr. Mr. J. Kerr). In the class for six vases of Japanese Chrysanthemums, three blooms in each vase, not fewer than six varieties, R. D. Marshall, Esq., was again successful with fine flowers of The Hon. Mrs. Lopes, Mary Boulton, Sir F. Crisp, Mrs. Drabble, Lady F. Ryder, Hasta Dow, William Turner and W. Rawlings; 2nd, the Rt. Hon. W. Runciman, Esq., M.P. (gr. Mr. J. Askew). Mr. Marshall was also placed 1st for four vases of Japanese varieties, in not fewer than four varieties; 2nd, Mr. Lacy-Thompson; and 3rd, Major Innes Hopkins (gr. Mr. T. Swan). For three Japanese blooms (white) Mr. Marshall excelled with the variety White Queen; 2nd, the Rt. Hon. Viscount Allendale, Bywell Hall, Stocksfield (gr. Mr. J. Thomas), with the variety W. Turner. The 1st prize for three Japanese blooms of a yellow variety was won by Mr. Lacy-Thompson with F. S. Vallis; 2nd, F. R. A. Shield, Esq., Leazes Hall, Burnopfield (gr. Mr. L. Eldon). For three Japanese blooms of any other colour the Countess of Ravensworth secured the 1st award, showing fine flowers of F. Green. The Rt. Hon. W. Runciman, M.P., was awarded the 1st prize for four vases of incurved varieties, showing Clara Wells and Buttercup very finely. Mr. Runciman was also successful for two vases of incurved varieties. Viscount Allendale showed the winning six vases of single-flowered varieties of Chrysanthemums; 2nd, Dr. Simpson. The best table of single Chrysanthemums, arranged for effect, was shown by Earl Grey, Howick Hall, Lesbury (gr. Mr. W. Lambert); 2nd, Mr. F. Straker.

In the classes open only to growers in Durham and Northumberland the Rt. Hon. W. Runciman was successful for four vases of Japanese Chrysanthemums, dissimilar varieties, showing finely-coloured blooms of Frances Jolliffe, Lady Talbot, Mrs. W. Blackwood and Mrs. A. T. Miller; 2nd, Viscount Allendale.

For two vases of Japanese blooms, dissimilar, The Rt. Hon. Sir Edward Grey, Bart., K.G., M.P., Fallodon Hall, Lesbury (gr. Mr. Henderson), was successful, his blooms of J. H. Selsbury and F. S. Vallis being excellent. For a group of Chrysanthemums arranged with other plants for effect, in a space 10 feet by 6 feet, Mr. H. H. Hillier, Green Park, Darlington, excelled; 2nd, A. E. Bainbridge, Esq, Lynwood, Jesmond (gr. Mr. T. Bell).

The Challenge Cup valued at £10 10s., offered for a decorated table, Orchids excluded, brought five competitors. Mr. Kerr (gr. to Dr. J. B. Simpson), who received the 1st award, employed Begonia Gloire de Lorraine and Codiæum foliage; 2nd, Mr. Lovett, gr. to A. B. Collingwood, Esq., Lilburn Towers.

Fruit.—For two bunches of white Grapes J. R. Scott, Esq., Binton (gr. Mr. R. Elliott), was successful with good bunches of Muscat of Alexandria. For two bunches of black Grapes Mr. J. Hetherington, North Shields, was placed 1st with Black Alicante. For twelve dishes of Apples, for which a Challenge Cup was offered, Dr. Stewart, Hexham (gr. Mr. H. Lloyd), excelled; 2nd, Mr. J. Hall, Hexham.

Dr. Stewart was placed 1st for six dishes of dessert Apples and for six dishes of cooking Apples, respectively. The Earl of Devon (gr. Mr. T. H. Bolton) exhibited a collection of finely-coloured Apples from his gardens at Powderham Castle, Devon, for which the N.E.H. Society's Plaque was awarded.

In the Vegetable Classes the new feature was the class for six dishes of Potatos, dissimilar, which brought a large competition. The 1st prize was awarded to Dr. J. B. Simpson.

Non-Competitive Exhibits.—The following awards were made to trade groups: Gold Medals to Messrs. S. Finneys, Granger Street, Newcastle; Mr. W. Lawrenson, Yarm and Newcastle; Messrs. Kent and Brydon, Darlington; and Messrs. Mitchie and Co., Alnwick. Silver-Gilt Medals to The Tyneside Seed Stores, Newcastle; Messrs. W. J. Watson, Ltd., Newcastle; Messrs. Stuart and Main, Kelso; and Messrs. Cooper and Nephews, Berkhamsted.

FINCHLEY CHRYSANTHEMUM.

November 12 and 13.—The annual exhibition of this society took place on the above dates, at the King Edward Hall, Finchley, which was well filled with exhibits of a superior class. The large groups of Chrysanthemums, shown in open competition, were most effectively arranged, especially that of Mr. J. J. Willis, which was awarded the first prize. A Silver Challenge Bowl was presented for competition by a friend of the society, and this was awarded, for 4 vases of very fine specimen Japanese blooms, shown by Mr. C. H. Gosling. In the class for 6 vases of singles, the five-guinea Challenge Shield presented by Mr. T. A. Williams was won by Mr. W. H. West, who showed some very fine blooms.

The produce in the cottage section was of a high order of merit, and reflected great credit on the raisers.

There were several classes for fruit, the prize for the best collection (open competition) being awarded to Mr. J. Turk. Mr. C. Gosling gained the 1st prizes for Grapes.

BOLTON CHRYSANTHEMUM.

November 21 and 22.—The annual Chrysanthemum Exhibition was held in the Town Hall, which was filled almost to overflowing, the number of exhibits being well on the increase. For an artistic arrangement of plants in a circle 12 feet in diameter, three prizes were offered, the first to be £10 in money, combined with a handsome Silver Challenge Cup. Only one exhibit was, however, forthcoming, and this was only awarded the 2nd prize. For a group of Chrysanthemums, undisbudded, arranged in a half-circle, the 1st prize was awarded to G. S. Peck, Esq. (gr. Mr. B. Hardy), who showed some bright, fresh flowers. Miss A. M. Phillips (gr. Mr. D. Wilson) was placed second. In the class for 3 Orchids, J. McCartney, Esq., was placed first for some good plants, followed by Jos. Magee, Esq. (gr. Mr. G. Trevena). Mr. D. Wilson was awarded the 1st prize for one Palm, his specimen being a very fine one. For Primulas, Roman Hyacinths and dinner-table plants, Miss A. M. Phillips won the 1st prizes, and for

Begonias L. TILLOTSON, Esq. (gr. Mr. W. Austin) was placed at the head of the list. In the Chrysanthemum classes, Mrs. C. TAYLOR (gr. Mr. H Wainwright) was the most successful exhibitor, gaining 1st prizes for 3 pots of singles, 2 large-flowering specimens, 1 Japanese, and 1 single. Mrs. PORRITT (gr. Mr. J. Day) was second in each of the four classes. For 24 cut blooms of Japanese and 12 of incurved, there were three competitors, the 1st prize being awarded to Sir GILBERT GREENALL, Bt. (gr. Mr. C. Goves); Sir W. H. TATE, Bt. (gr. Mr. G. Haigh) came second. There was some keen competition in the class for 36 Japanese blooms. Mr. C. JONES, of Abergele, took the first place with a very good collection. For a basket of Chrysanthemums, O. ROBINSON, Esq. (gr. Mr. J. Nixon), was placed first.

There were some very creditable exhibits in the fruit section. J. W. MCKAUT, Esq., gained the 1st prize for 2 bunches of Black Grapes, his Black Alicante being first class alike in size and in colour. For 2 bunches of White Grapes the winners were EDMUND LORD, Esq. (gr. Mr. J. Wright), and Mr. R. BULLEN.

WOOLTON CHRYSANTHEMUM.

NOVEMBER 19.—The fifteenth annual Chrysanthemum Show held by this Society took place in the Church Hall, and was attended by a large number of visitors. The exhibits were of a high order of merit, and upheld the reputation already gained by the Society.

Cut flowers were especially creditable, the 1st prize in the class for 24 Japanese varieties being awarded to Sir W. H. TATE, Bt. (gr. Mr. G. Haigh). The challenge cup which forms the chief award in this class has now been won outright by Sir W. TATE. Col. J. P. REYNOLDS (gr. Mr. G. Lowe) won the prize in the class for 18 Japanese blooms, and for 12 blooms A. S. MATHER, Esq. (gr. Mr. H. Howard) was placed first in the list. For 18 incurved varieties, Lieut.-Col. J. B. GASKELL (gr. Mr. J. Honey) was successful in taking the first place with an excellent exhibit, and for 12 incurved blooms A. S. MATHER, Esq., was awarded the 1st prize. The most popular class was that for 9 vases of singles with 9 blooms in each vase. The exhibits shown in this class were of a high order, the first prize being awarded to Mrs. SCHINTZ (gr. Mr. R. Hitchman) for a particularly fine exhibit of well-coloured, artistically arranged blooms. The prize for 6 vases was awarded to Sir W. H. TATE, and for 4 vases of incurved blooms, 3 blooms in each vase, the same exhibitor was again successful. An interesting class was that for bouquets, sprays and buttonholes, confined to under-gardeners. There were a number of competitors, the prize-winners being Messrs. G. COWLEY (Highfield Gardens) and R. HOOKER (Dove Park Gardens). Pot Chrysanthemums were shown in increased numbers, and the specimens, both trained and staked, were excellent. A. FLETCHER, Esq. (gr. Mr. J. Penlington), won the 1st prize for 3 large-flowering plants, and W. CUNNINGHAM, Esq. (gr. Mr. W. Wilson) was first in two classes: for the single and the anemone plants. Mrs. SCHINTZ was also successful in two classes: for incurved and for reflexed flowers.

The 1st prize for white Grapes was awarded to W. CUNNINGHAM, Esq. Apples were shown in considerable quantities and many good specimens were to be seen. The vegetable display was highly creditable. The three silver challenge cups offered for the best exhibit in each of three sections (gardeners, farmers and cottagers) were awarded to Messrs. C. PRICE, J. GORE and J. RADLEY.

CHESTER PAXTON.

NOVEMBER 18 AND 19.—The twenty-fifth annual Chrysanthemum Exhibition of the Chester Paxton Society was opened by the Mayoress in the presence of a large attendance of visitors. The exhibits maintained the high reputation of the Society, although the season has not been quite so favourable as usual. Besides the large display of Chrysanthemums, there were exhibits of other flowers, as well as of fruits, and the hall was filled with artistic groups. The 1st prize for a group of single Chrysanthemums was awarded to the President of the Society, T. GIBSONS FROST, Esq. (gr. T. Gilbert), Mollington Hall. The first place in the class for a group of naturally-grown Chrysanthemums was taken by J. R. SAMUEL, Esq., Woodbank, Shotwick, and the 2nd prize was awarded to the master of the workhouse, Mr. J. MARTIN. The favourite class was that for naturally-grown trusses of 6 distinct single varieties. A. D. PITCAIRN-CAMPBELL, Bangor-on-Dee, won the 1st prize, and Capt. T. CURRIE, of Christleton, the 2nd. There were a number of exhibits in the class for decorated dinner tables, and the 1st-prize winner, Miss N. DENSON, had arranged a most effective display of pink Carnations and Lily-of-the-Valley. Mrs. WILLETT obtained the 2nd prize for a somewhat similar table, and in the class for a table decorated only with Chrysanthemums this lady won the first place. There was some keen competition in the class for 18 varieties of Japanese cut blooms, and the 1st prize was awarded to R. BROCKLEBANK, Esq., Haughton Hall. Two remarkably fine groups of Orchids were shown by A. HANMER, Esq., Curzon Park, and W. R. Moss, Esq., the Oaks, Upton, to which the Society's Silver and Gold Medals, respectively, were awarded.

The well-known Chester firm, DICKSON'S, LTD, sent a fine collection of Chrysanthemums and other plants, to which the Gold Medal was awarded. A similar award was made to the exhibit of Messrs. MCHATTIE AND CO., Chester, who showed a beautiful display of Chrysanthemums, Carnations, Begonias, and Palms.

ST. ALBANS CHRYSANTHEMUM.

NOVEMBER 12 AND 13.—A very successful exhibition of Chrysanthemums was held at St. Albans, under the auspices of the St. Peter's Chrysanthemum Society. The exhibits were of good quality, and the classes were well filled with keen competitors. A departure from former custom was made in the substitution of tables of Chrysanthemums for the usual groups, and was found to produce satisfactory results, artistic arrangement being much easier under the new conditions. The 1st prize in this section was awarded to EDGAR TAYLOR, Esq. (gr. Mr. J. Graham), who showed a table of excellent blooms, both double and single varieties, arranged with Crotons and other foliage plants. The prize for the best bloom in the show, given by Viscountess Grimston, was awarded to C. WOOLLAM, Esq. (gr. G. Smart). The winning bloom was a white William Turner of excellent form, measuring 27 inches in circumference, with a depth of 8 inches. There were several groups of miscellaneous flowers other than Chrysanthemums; Messrs. SANDER AND SONS sent a collection of Orchids, well arranged beneath the shadow of two large tree ferns, and a similar collection came from Messrs. SWAN AND PRICE, of St. Albans. The vegetable classes included some very creditable exhibits, and fruit was also well represented, hothouse Grapes being especially good.

DEBATING SOCIETIES.

DUMFRIES AND GALLOWAY GARDENERS'.—Mr. A. Hosking, of the Glasgow and West of Scotland College of Agriculture, gave a lecture on "Plant Propagation," illustrated by limelight views, in the Wesley Hall, Dumfries, on October 30. There was a good attendance, presided over by Mr. S. Arnott. The lecture, which was thoroughly practical and interesting, was much appreciated.

BRISTOL AND DISTRICT GARDENERS'.—The fortnightly meeting of this association was held at St. John's Parish Rooms, on Thursday, October 30, Mr. Bastin presiding. A lecture on "Manures: Organic and Inorganic," was delivered by Mr. Elkes, and was much appreciated by a large attendance of members. The lecturer dealt with his subject in a practical manner, giving useful advice as to what manures were essential to the various forms of plant life, and the times and methods of applying them in order to obtain the best results. Four new members were elected. The prizes kindly offered by Messrs. Sutton and Sons for a collection of vegetables were won by Mr. Young, who received the 1st award; 2nd, Mr. Miles; and 3rd, Mr. Thoday.

BRITISH GARDENERS' ASSOCIATION.—Meetings are being held as follows:—Friday, November 7, Jolly Gardeners' Hotel, Mortlake Green; Saturday, November 8, 7, St. Botolph Street, Colchester; Monday, November 10, the Schools, Hanworth; Wednesday, November 12, the Thatched House Hotel, New Market Place, Manchester. The general secretary of the B.G.A. will address each meeting, and other speakers are being arranged for. All meetings commence at 8 p.m.

CHELMSFORD AND DISTRICT GARDENERS'.—The third meeting of the winter session was held on the 7th inst. at the County Laboratories. Mr. O. Wakely presided, and about fifty members were present. Mr. Jackson, of Braxted Park, gave a lecture on "Begonias." Mr. Jackson dealt with Begonias of the Gloire de Lorraine, winter-flowering, fibrous-rooted, and tuberous-rooted sections.

DERBYSHIRE GARDENERS'.—The second of a series of lectures before this Society was delivered recently by Mr. Goodwin, M.Sc., Ph.D., on "Nitrogenous Manures." The lecturer discussed the effects of nitrogen on both animal and plant life, and said that the principle in each case was identical. Dealing with farmyard manure, he said that this was fairly nitrogenous; it also contained properties which could not be found in artificials, and which rendered it an indispensable asset in the cultivation of the land. Dung, said Mr. Goodwin, contained every element necessary for the growth of crops, but not in the best proportions, and that was where artificials supplied the deficiency. The four constituents most likely to be inadequate in soils were nitrogen, phosphate, potash and lime; organic manure also improved the texture of the soil, while it conduced to the retention of moisture and was a necessity to the life of the bacteria. Nitrogen stimulated the growth, which was soon apparent in the leaf. Nitrogen was in the most available form in nitrate of soda, which should be applied in spring, when growth had started; being soluble, the soil had no power to retain it, and if not taken up by the crops would be liable to be washed away by rains. Sulphate of ammonia, a product from coal, was another source of nitrogen, but it acted more slowly, having to undergo chemical changes, and these changes were the work of the bacteria in the pressence of lime. The bacteria converted the ammonia into nitric acid, which united with lime before it became available for food, this taking a couple of weeks. The lecturer dealt fully with the action of lime in relation to the development of the bacteria, and said that lime was absolutely necessary, for a shortage increased acidity, acidity meant death to the bacteria, and without bacteria the soil would be of no use to plant life.

BATH GARDENERS'.—The fortnightly meeting of this society was held at the Foresters' Hall, Bath Street, on Monday, the 10th inst. Mr. T. Parrott (chairman) presided over a large attendance of members. Mr. Sims read a paper on "Orchids." The chairman thanked the members who took part in the Chrysanthemum Show, and congratulated them upon the success achieved.

LAW NOTES.

WRONG DELIVERY OF MANURE.

AT the Croydon County Court recently His Honour Judge Harington gave judgment in the action between the L.B. & S.C. Railway and Messrs. F. and G. Mizen, nurserymen, Mitcham.

A truck of tanners' waste consigned to Mizen Bros. was brought to Hackbridge Station, and the company sent an advice to Messrs. Mizen, thinking them to be the firm meant, asking them to come and clear it. The defendants were expecting a consignment of road sweepings from the contractors to the London County Council, who were obliged to get rid of it, and defendants took it as a gift. The error being discovered, the consignors made a claim upon the railway company, who paid £10 13s., and now claimed the amount from defendants. His Honour said that where the carrier delivered goods to some person in error and that person appropriated them, and the carrier had paid the consignor, then he could recover; but in cases where the person to whom the goods were delivered was induced to believe they were a gift, he was not put on his enquiry in respect of these goods, and he could not be held responsible. This was one of the latter cases. Although this was called waste manure and not road sweepings, the defendant was not put on his enquiry, and at once had the stuff dug into his ground. There must be judgment for the defendants.

Leave to appeal was granted.

OPERATION OF STATUTE OF LIMITATIONS.

AT the Bloomsbury County Court recently, before his Honour Judge Bray, Mr. John Russell, Devonshire Nurseries, Haverstock Hill, sued Mr. Harry Green, of Robert Green, Ltd., for the sum of £4 11s. 9d. for goods sold and delivered. The plaintiff's representative, in proving the case, stated that verbal promises to pay had repeatedly been made, but defendant, through his solicitors, pleaded the Statute of Limitations, and his Honour, in giving judgment, said that as there was no promise in writing he had no alternative but to give judgment for the defendant.

MARKETS.

COVENT GARDEN, November 26.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Flowers, &c.: Average Wholesale Prices.

	s. d.	s. d.
Aruma, per doz.	2 0	3 0
Azalea, White, per doz. bunches	3 6	4 0
Camellias, per doz.	1 6	2 0
Carnations, per dozen blooms, best American varieties	1 6	2 6
— smaller, per doz. bunches	9 0	12 0
— Carola (crimson), extra large	3 6	4 0
— Malmaison, per doz. blooms:		
— — pink	6 0	9 0
Chrysanthemum:		
— White and coloured, large specimen blooms	4 0	5 0
— Special blooms	2 0	2 6
— Medium blooms	1 3	1 9
— Bunch, white, per doz	4 0	6 0
— — coloured, per doz.	3 6	5 0
Eucharis, per doz.	2 0	2 6
Gardenias, per box of 15 and 18 blooms	2 6	4 6
Lapageria alba, per doz. blooms	2 0	2 6
Lilium auratum, per bunch	2 0	2 6
— longiflorum, per doz., long	1 9	2 0
— — short	1 6	1 9
— lancifolium album, long	1 3	2 0
— — short	1 3	1 6
— rubrum, per doz., long	1 3	1 6
— — short	0 9	1 0
Lily-of-the-Valley, per dozen bunches:		
— extra special	15 0	18 0
— special	12 0	14 0
— ordinary	9 0	10 0
Orchids, per doz.:		
— Cattleya	10 0	12 0
— Cypripedium	2 0	3 0
— Dendrobium Phalænopsis	1 6	2 0
— Odontoglossum crispum	3 0	4 0
Pelargoniums, per doz. bunches, white	3 0	4 0
— double scarlet	4 0	6 0
Pointsettias, per doz. blooms	9 0	10 0
Roman Hyacinth, per doz. spikes	0 9	1 0
Roses: per dozen blooms, Bridesmaid	2 0	2 6
— Kaiserin Augusta Victoria	1 6	3 0
— Liberty	2 6	4 0
— Mme. Carnot	2 6	3 0
— Madame A. Chatenay	2 6	4 0
— Melody	2 6	3 0
— Niphetos	1 6	1 9
— Prince de Bulgaria	2 6	4 0
— Richmond	2 6	4 0
— Sunburst	2 6	3 0
— Sunriae	2 6	3 6
Spiræa, per doz. bunches	6 0	8 0
Stephanotis, per spray of 72	2 6	3 0
Tuberoses, per gross	4 0	5 0
Violets, English, per dozen bunches	1 0	1 6
— Princess of Wales per doz. bunches	2 6	3 0

French Flowers.]

	s. d.	s. d.
Anemones, double pink, per doz.	1 3	1 6
Lilac white, per bunch	4 0	4 6
— mauve, p. bnch.	6 0	6 6
Marguerites, yellow, per dozen bunches	1 6	1 9
Mimosa (acacia), per pad	5 0	6 0
— — per bunch	0 9	1 0
Narcissus, Paper White, per pad	5 0	6 0
— — — per doz. bunches	1 6	1 9
— Sol d'Or, per pad	6 0	7 0
Narcissus, *Continued:*		
— Soleil d'Or, per dozen bunch s	1 6	2 0
Ranunculus, scarlet, per dozen	9 0	10 0
— Barbaroux	3 6	4 0
— carmine	3 0	4 0
— orange	10 0	12 0
— yellow	9 0	10 0
Roses, Safrona, per packet (24)	1 6	1 9
Violets, single, per pad	4 0	5 0
— — per dozen bunches	1 3	1 6
— Parmas, large bunch	2 0	2 6

Cut Foliage, &c.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum Fern (Maidenhair), best, per doz. bunches	4 0	5 0
Agrostis (Fairy Grass), per doz. bunches	2 0	4 0
Asparagus plumosus, long trails, per half-dozen	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	6 0	12 0
Carnation foliage, doz. bunches	—	
Croton foliage, vrs., doz. bunc.	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Honesty, per doz. bunches	10 0	12 0
Moss, gross bunches	6 0	—
Myrtle, doz. bnchs. English, small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0	1 3

REMARKS.—Trade is very quiet, and except for Roses and Carnations the prices show no alteration on those of last week. There are fewer Chrysanthemums, but prices have not advanced, and except in the case of two or three late varieties the quality is deficient. There is a good supply of Richardias (Arums), Lilium Harrisii, L. rubrum, L. lancifolium album, Camellias, Roman Hyacinth, Lily-of-the-Valley, Azalea, Eucharis, and Carnations. Prices for Carnations are firmer. Roses are becoming very scarce, although there are still supplies of the varieties Mme. Abel Chatenay, Liberty and Richmond. Pointsettias can now be procured: no special prices are made for these early inflorescences, and possibly these flowers will be more valuable later in the season. French flowers are arriving in greater quantities, and their quality is better. Violets can now be despatched to provincial buyers with safety. The latest arrival is Safrana Roses; these are consigned in paper packets of 24 blooms in each. The blooms will take the place of the English Roses, and trade in them will improve. White and mauve coloured Lilac, pink Anemones also scarlet, orange and yellow Ranunculuses are improving in quality. The prices remain very low for Narcissi Paper-White and Soliel d'Or, also Violets. All the Narcissus blooms are of very good quality.

Plants in Pots, &c: Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldii, dozen	6 0	7 0
Araucaria excelsa per dozen	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri	6 0	8 0
Aspidistra, per doz., green	18 0	30 0
— variegated	30 0	60 0
Begonia Gloire de Lorraine, 48's, per dozen	9 0	12 0
Cacti, various, per tray of 15's	4 0	—
tray of 12's	5 0	—
Chrysanthemums:— 48's, per doz.	6 0	10 0
Cocos Weddeliana, per dozen, 60's	6 0	12 0
— larger, each	2 6	10 6
Croton, per dozen	18 0	30 0
Cyclamen, 48's, per dozen	10 0	12 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen	10 0	12 0
Erica gracilis, per dozen	9 0	12 0
— hylmalis	10 0	15 0
— nivalis, per doz.	10 0	15 0
— small, in thumbs, per dozen	4 0	6 0
Ferns, in thumbs, per 100	8 0	12 0
— in small and large 60's	12 0	20 0
Ferns, in 48's, per dozen	5 0	6 0
— choicer sorts, per dozen	8 0	12 0
— in 32's, per doz.	10 0	18 0
Geonoma gracilis 60's per dozen	6 0	8 0
— larger, each	2 6	7 6
Kentia Belmoreana, per dozen	5 0	8 0
— Fosteriana, 60's, per dozen	4 0	8 0
— — larger, per dozen	18 0	36 0
Latania borbonica, per dozen	12 0	30 0
Lilium lancifolium rubrum, per dz.	12 0	18 0
— lancifolium album	15 0	18 0
— longiflorum, per dozen	12 0	18 0
Lily-of-the-Valley	18 0	21 0
— 48's, per dozen	21 0	30 0
Marguerites, in 48's, per doz., white	6 0	7 0
Pandanus Veitchii, per dozen	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Pointsettias, per dozen 48's	10 0	12 0
Roman Hyacinths, per doz.	1 6	1 9
Solanums, 48's per dozen	6 0	10 0
Spiræa japonica, per dozen pots	6 0	8 0
— pink	10 0	12 0

REMARKS.—Ericas, Solanums, Cyclamens, Begonias and Pointsettias are selling better. The plant trade has improved a little all round, and more business should be done during the next month.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English Dessert, ½ bushel	3 0	7 0
— cooking, per bushel	3 0	6 0
— American, brls.	18 0	26 0
— Californian Newtown Pippin, case	10 6	11 6
— Cox's Orange Pippin, per doz.	2 0	3 0
— — ½ bushel	5 0	7 0
— Nova Scotian, barrel	17 6	26 0
— Oregon, Newtowns, case	13 6	15 0
— Wenatchee, case	10 6	11 6
Avacado pears, per dozen	6	0 10 0
Bananas, bunch:		
— Double Ex.	11 0	12 0
— Extra	12 0	13 0
— Extra medium	10 0	12 0
— Giant	14 0	16 0
— Medium	8 0	9 6
— Red, per ton	£25	£28
— Jamsica, p. ton	£11	£12
Cranberries, Cape Cod, per case	8 6	13 0
Custard apples, per doz.	6 0	12 0
Dates, dozen boxes	4 0	4 6
— per cwt. case	20 0	—
Figs, Italian, box	1 0	1 6
Grapes—English:		
— Gros Colmar, per lb.	0 0	2 0
— Black Alicante	0 10	1 6
— Canon Hall Muscat	1 0	5 0
— Muscat of Alexandria	1 0	5 0
— Guernsey, Black Alicante	0 4	0 6
— Dutch, Gros Colmar	0 8	1 0
Grapes, *continued:*		
— Almeria, per barrel	14 0	21 0
Grape Fruit, case: — 96's, — 80's, — 64's, — 54's	12 6	18 6
Lemons, Messina, per case	13 6	26 0
— Malaga	21 0	—
— Murcia, p. case	16 0	22 0
Limes, per case	4 6	5 6
Lychees, box	1 6	—
Medlars, ½ bushel	4 6	5 0
Melons, Spanish case	13 0	14 0
— English	1 0	2 0
Nuts:		
— Almonds, sack	65 0	—
— Barcelona, sack	44 0	—
— Brazils, cwt.	95 0	100 0
— Chestnuts, Naples, per bag	12 0	20 0
— Cobnuts, English, per lb.	1 3	—
— Cokernuts, per 100	18 0	22 0
— Grenobles, bag	8 0	9 0
— Walnuts, Double English, per lb.	0 10	—
— — French, bag	8 0	9 0
Oranges, Jamaica	10 0	14 6
— Denia, per case	18 0	22 0
— Mandarines, box	1 2	4 6
— Mercia, p. case	9 6	10 6
Pears, Californian, box	9 0	15 6
— Stewing, ½ bus.	3 0	4 0
Persimmons, p. box	1 6	—
Pineapples, St. Michael	3 0	3 6
Pomegranates, per case	3 0	10 6
Quinces, ½ bushel	10 0	—

REMARKS.—Varieties of English culinary Apples are limited to Bramley's Seedling, Newton Wonder and Dumelow's Seedling (Wellington). Of dessert varieties a few fruits of Cox's Orange Pippin are arriving in the market. Growers from overseas are contributing large supplies of apples, the bulk being dessert varieties. The best fruits in barrels are York Imperial and Albemarle. There are fair supplies of Pears packed in both barrels and cases. Grapes continue to be very plentiful. A few Melons are still available. Nuts are plentiful, with the exception of Cobs and Walnuts. Supplies of English Tomatos are gradually decreasing, but Tomatos from Teneriffe are becoming more plentiful. Beans from Worthing, Guernsey and Madeira growers continue a good supply. There are a few New Potatos and Green Peas. Seakale is an increasing quantity. Asparagus is now available from both English and French growers. Outdoor vegetables, including root crops, continue very plentiful.—*Edgar H. Rides, Covent Garden, November 27, 1913.*

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Artichokes (Globe), per dozen	2 0	2 6
Asparagus, Paris green	4 3	4 9
— Cavillion	2 10	3 6
— Sprue	0 8	0 9
Beans, Gnernsey, lb.	0 9	0 10
— Madeira, per basket	4 0	4 6
— French canes	4 6	5 0
Beetroot, per bushel	2 6	—
Cabbages, per tally	3 0	5 0
Carrots, (English), bags	3 0	4 0
Cauliflowers, per dozen	1 6	2 0
Celeriac, French, per dozen	2 0	2 6
Celery, per doz.	6 0	8 0
Chicory, per lb.	0	4½
Corn (Maize) per dozen	0 9	1 6
Cucumbers, per doz	3 0	5 0
Endive, French, per dozen	1 0	1 6
Garlic, per strike	3 0	4 0
Horseradish, 12 bundles	9 0	10 0
Leeks, per dozen	2 0	2 6
Lettuce, English, Cos, per score	0 9	1 3
— English, round, per score	0 4	0 9
Lettuce, *Continued:* — French crates	3 0	3 6
Marrows, Madeira, per doz.	6 0	8 0
Mushrooms, cultivated, per lb.	1 0	1 6
— Broilers	0 8	1 0
Mustard and Cress, per dozen punnets	0 10	1 0
Onions, picklers, per ½ bushel	1 3	1 6
— Dutch, bags	3 6	4 6
— English, bags	5 0	5 6
— Spanish, cases	6 0	7 0
Parsley, per dozen bunches	1 6	2 0
Peas, Gnernsey, lb.	2 3	2 6
Radishes, per doz.	2 0	—
Sage, per dozen	2 0	—
Savoys, per tally	4 6	6 0
Sprouts, ½ bushel	1 3	1 6
Stachys tuberosa, lb.	0	4 —
Tomatos, English, per dozen lbs.	4 0	5 0
— seconds, per dozen lbs.	2 6	3 0
— Canary, bundle	13 0	16 0
Thyme, per dozen bunches	2 0	6 0
Turnips (English), per bag	2 0	3 0
Watercress, per doz.	0 4	0 6

Potatos.

	s. d.	s. d.
Bedford, per cwt.	3 6	3 9
Blacklands	2 6	2 9
British Queen	3 6	4 0
Dunbars	4 6	5 0
Evergood	3 0	3 3
Langworthy, per cwt.	5 6	—
Kent	3 0	3 6
King Edward	3 3	3 9
Up-to-date	4 6	5 0

REMARKS.—Trade is still very steady; no doubt the mild weather has much to do with the present conditions. Prices are inclined to be a little easier. Stocks in London are very large, and arrivals are heavy.—*Edward J. Newborn, Covent Garden and St. Pancras, November 26, 1913.*

GARDENING APPOINTMENTS.

[Correspondents are requested to **write the names of persons and places as legibly as possible.** *No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.]*

Mr. H. Hewgill, late of Wynyard Park, Coombe Abbey, Walton Hall, and Shenstone Court Gardens as Gardener to Miss BAKER BAKER, Elemore Hall, Durham.

Mr. T. Nevitt, for 2½ years Gardener to Mrs. SCULLY, at Culmington Manor, Craven Arms, Shropshire, as Gardener to W. DUGDALE, Esq., Meeson Hall, Wellington, Shropshire.

Mr. W. J. Murphy, for the past 6 years Gardener at Coombe Lea, Bickley, Kent, as Gardener and Orchid Grower to H. D. BORET, Esq., The Gables, Surbiton, Surrey. [Thanks for 1s. for R.G.O.F. box.—EDS.]

Mr. J. E. Henshall, for 10½ years Gardener to G. A. J. BELL, Esq., Woldhurstlea, Crawley, Sussex, as Gardener to A. W. SUTTON, Esq., Bucklebury Place, Woolhampton, Berkshire. [Thanks for 2s. for R.G.O.F. box.—EDS.]

Mr. J. H. Ayling, for the past 2½ years Gardener to G. F. DEEDES, Esq., The Wash, West Coker, Yeovil, as Gardener to Mr. R. A. SANDERS, M.P., Barwick House, near Yeovil, Somersetshire

Mr. Frank Ashton, for 3 years Gardener at Caldy Manor, West Kirby, Cheshire, as Gardener to SAMUEL LAMB, Esq., Abberley Hall, Worcester. [Thanks for 1s. for R.G.O.F. box.—EDS.]

Mr. J. W. Funge, previously Gardener at Bethlem Royal Hospital, Lambeth Road, London, as Gardener to H.R.H. PRINCESS BIBESCO, at Mogosoaia, Kitila, Roumania.

Mr. Alfred Lloyd, late Foreman at Garnstone Castle, Weobley, Herefordshire, as Gardener to R. S. WOODWARD, Esq., Hopton Court, Cleobury Mortimer, Shropshire.

Mr. Henry Henderson, Gardener and Steward to J. STUART, Esq., Stonehurst, Sussex, as Gardener to R. H. PRIOR-WANDESFORDE, Esq., D.L., Castlecomer House, Castlecomer, co. Kilkenny.

Mr. J. H. Simpson, for the past 4 years Foreman in The Gardens, at Bowood Park, Colne, Wiltshire, as Gardener to Major ATHERLEY, Croft Castle Kingsland, Herefordshire. [Thanks for 2s. for R.G.O.F. box.—EDS.]

Mr. Samuel Auger, previously Gardener to the late Mrs. DEWAR, Cotmore, Bicester, Oxfordshire, as Gardener to A. M. DUNNE, Esq., Highlands, Calne, Wiltshire.

Mr. F. Prior, for the past 5 years Gardener to STANLEY PEARSON, Esq., Park Hill, Hale, as Gardener to J. E. G. GROVES, Esq., Deans Green, Lymm, Cheshire. [Thanks for 2s. for R.G.O.F. box.—EDS.]

Mr. D. Diplock, for the past 3½ years Second Gardener at Langley House, Abbots Langley, Hertfordshire, and previously at Rossway, Berkhamsted, as Gardener to Mrs. MARKE-WOOD, Walmer Place, Deal, Kent.

THE WEATHER.

GENERAL REMARKS.

November 25, 1913.

Weather continued very unsettled, with frequent rain, and occasional intervals of bright sunshine. Thunderstorms occurred in some Scottish localities on the 18th, 19th, and 22nd, and lightning was observed in other parts of the Kingdom.

Temperature was again above the normal, the excess being about 6.5° in England East and the Midland Counties and about 5.5° in some other English districts. The highest of the maxima were recorded early in the week—mostly on the 17th—and ranged from 60° in Scotland East, England East, the Midland Counties, and Ireland South, to 55° in Scotland West. The lowest of the minima, which were generally registered on the 22nd, varied from 25° in Scotland East and 27° in Ireland South to 32° in Scotland North and to 42° in the English Channel. The lowest grass readings were 21° at Balmoral, West Linton, and Hampstead, 22° at Worksop, Marlborough, and Newton Rigg, and 23° at Crathes and Markree Castle. The temperature of the soil continued above the normal at a depth both of 1ft. and 4ft. At many stations in England and Wales the excess of warmth at a depth of 1ft. amounted to more than 6°, and at Worthing and Southport to more than 6½°.

Rainfall varied greatly in different parts of the kingdom. In Scotland North and West and England South-East, North-West, and South-West, it was above the average, but in the other districts it was rather deficient. More than an inch fell in several localities within 24 hours. At Fort William, on the 16th, there was 1.3 inches, and on the 19th 1.8 inch; at Lancaster on the 20th 1.4 inch; at Llangammarch Wells 1.1 inch; and at Aberdovery 1 inch; at Canterbury on the 21st 1 inch; and at Salisbury 1.2 inch.

Bright Sunshine did not differ much from the average over the United Kingdom as a whole. In Scotland East and England North-East and East the daily mean exceeded two hours, and was equal to 27 or 28 per cent. of the possible amount. In Scotland North the daily mean was only 1.1 hour, and the percentage 14.

Barometer and Wind.—The only depressions that advanced directly across the United Kingdom were some secondaries to very large and deep systems moving in an easterly or north-easterly direction over the Icelandic region. These systems extended southwards and sometimes caused a steep gradient over the British Isles, where the general force of the wind, from some point between south-west and west, was fresh, and gales not uncommon. On some parts of the western and north-western coasts the wind blew with the force of a gale on almost every day, and about the middle of the week gales were experienced on most other parts of our coasts. On Saturday a high pressure system extended over England from the south-westward, and the wind veered to the north-westward, while it decreased in force over the kingdom generally.

THE WEATHER IN WEST HERTS.

Week ending November 26.

Another Unseasonably Warm Week, and the Tenth in Succession.—There was one cold day—the first unseasonably cold day for a month; but there were two cold nights, on one of which, that preceding the 23rd, the exposed thermometer registered 12° of frost, the lowest reading indicated by that thermometer as yet this autumn. The ground is now 1° warmer at 2 feet deep, and 2° warmer at 1 foot deep, than is seasonable. Rain fell virtually on only one day, to the total depth of ½ inch. Since the beginning of the month 3 inches of rain has fallen, which is more than the average quantity for the whole of November. After the one wet day 1⅞ gallons of rainwater came through the bare soil percolation gauge, and 1¼ gallons through that on which short grass is growing, but on the other days of the week the measurements were small. The sun shone on an average for 2½ hours a day, which is half an hour a day longer than is usual at the same period in November. On the sunniest day the sun was shining brightly for six hours. The wind was rather high on the first two days, but light airs as a rule prevailed during the rest of the week. The mean amount of moisture in the air at three o'clock in the afternoon exceeded a seasonable quantity for that hour by 1 per cent. My Dahlia plants were completely killed on the night preceding the 23rd by 12° of frost. This is nineteen days later than the average date of their destruction in the previous 28 years, and with two exceptions, 1894 and 1898, later than in any of those years. *E. M., Berkhamsted, November 26, 1913.*

Obituary.

JOHN BRODRIB.—The *Florist's Exchange* records the death, which occurred at Tolland, Massachusetts, U.S.A., on the 29th ult., of Mr. John Brodrib, formerly in business as florist. Mr. Brodrib was a native of England, but had resided in America for twenty-seven years.

REPLY.

AFRICAN UMBRELLA TREE.—In reply to the enquiry by *Bristol*, the name African Umbrella Tree is applied to Brunsvigia Josephinæ. The large bulbs grow best under greenhouse treatment, and should be planted deeply in a compost of sandy loam and peat. *J. W. D.*

Answers to Correspondents.

APPLE COX'S ORANGE PIPPIN AND PEAR SECKLE.—Cox's Orange Pippin is only one of the many varieties of Apples which have not succeeded as well as usual this year, the season having been unsuitable. The fruits are scarce and dear for two reasons: first, because the variety does not flourish in the majority of soils, and second, because the fruit, being of the best quality possible, meets with a great demand. The proper name of the Pear referred to is Seckle. Only one variety of it is mentioned in the *Fruit Manual* as "Seckle (New York Red-cheek, Shakespear, Sicker, Lammas of the Americans)." It is described as one of the most valuable of dessert Pears, ripe in October. It is of American origin, and was introduced to public notice by Mr. Seckle, of Philadelphia. It was sent in 1819 by Dr. Horack, of Philadelphia, to the gardens of the Royal Horticultural Society, and in the Society's list it is named "Seckel." It is not altogether surprising that American varieties of fruits are not of the same quality when grown in this country. The well-known New York Pippin Apple is a case in point.

AZALEA INDICA: *H. B.* Plants of Rhododendron indicum (Azalea indica) intended for forcing this season should be potted at once in a mixture of peat, loam, leaf-mould and sand, in the proportion of three parts of peat to one each of the other materials, taking care to have all the ingredients as fine as possible When potting, ram the soil tightly, it being almost impossible to make it too hard for Azaleas. A loose soil is one of the chief causes of infestations of thrips and red spider, which are the principal insect pests of these plants. The plants should be started in gentle heat, gradually increasing the amount of warmth as the flower-buds swell. Syringe regularly to destroy thrips and red spider, which if not kept in check soon cause the leaves to drop. When the flowers are expanding the plants should be removed to cooler quarters, when they will be found to last much longer in bloom. As soon as the flowers fade they should be picked off, and the plants kept in a cool house for two or three weeks, affording less root-waterings, though on no account should they be allowed to become quite dry. Old-established plants needing potting should be attended to after this period of comparative rest, but they will grow well for some years in the same pots if they are fed occasionally with weak soot-water and cow-manure. The plants should afterwards be removed to a warmer house, and be kept well watered and syringed to induce new growth to develop, but air must be admitted freely to keep the young shoots firm and short-jointed. In June, the young growths being well-developed, the plants can then be gradually hardened off preparatory to plunging them to the rims of the pots outdoors in an open situation. But on no account must the roots be allowed to become dry, and the syringe should be used on the undersides of the leaves on every possible occasion. The plants should be housed again in the autumn before there is danger of frost.

BOOKS: *C. D. and W. B. J.* No date has yet been fixed for the publication of the work mentioned on p. 362 of the last issue, but we believe that the Publishers hope to issue it next month. In respect to the nature of the contents of the *Horticultural Record*, it will be found to deal with the progress of horticulture during the past half-century. Indeed, it is the only book of its kind ever published. It contains a vast amount of most valuable information and 117 coloured illustrations of flowers and other subjects photographed direct from Nature.

CALANTHES UNHEALTHY: *A. B.* It is not an uncommon occurrence for those who usually cultivate hybrid Calanthes well to fail with them occasionally. The pseudo-bulb sent (which may not be a fair sample) does not appear to be fully developed, and the retention of the leaves seems to indicate that the atmosphere of the house has been too moist, a condition which favours vegetation, but is against the production of flowers. Maintain a cooler temperature and admit rather more ventilation.

CODIÆUM (CROTON): *Rolac.* The lack of colour in the foliage of the Crotons may arise from lack of sunlight or warmth. See that the plants are exposed fully to the sunshine, plenty of light, and maintain a stove temperature with plenty of atmospheric moisture during the growing season. Crotons always colour well if they get sufficient light, heat and moisture.

COMPENSATION FOR NURSERY STOCK: *F. H.* Assuming that your lease is in the usual form, you would be entitled to remove before the end of your tenancy all growing stock not permanently set out, and also to claim compensation from your landlord for buildings and for certain growing stock permanently set out, as mentioned in Schedule III. of the Agricultural Holdings Act. It would be wiser to remove the bulbs, as we know of no decided case or general custom affecting the point.

CORROSIVE SUBLIMATE: *C. R.* This is the common name for mercuric chloride, or perchloride of mercury, and is made by subliming a mixture of mercuric sulphate and common salt. It may be obtained from chemists or horticultural sundriesmen.

NAMES OF FRUITS: *Rides.* Pear Chaumontel.—*W. B.* 1, Reinette du Caux; 2, Hermann's Pippin, resembles Hoary Morning; 3, French Crab; 4, Braddick's Nonpareil.—*H. B.* Apple D'Arcy Spice (syn. Spring Ribston).

NAMES OF PLANTS: *Miles, Covent Garden.* Azara microphylla.—*A. C.* 1, Chlorophytum elatum variegatum; 2, Euonymus macrophyllus variegatus; 3, Panax Victoriæ; 4, Abutilon megapotamicum variegatum; 5, Dracæna Godseffiana; 6, Sedum Sieboldii.—*Cattleya* Cattleya labiata.—*J. H.* 1, Phaius grandifolius; 2, Bletia hyacinthina; 3, Brassia verrucosa; 4, Epidendrum ciliare.—*A. E. J.* 1, Ruellia Portellæ; 2, Tibouchina (Lasiandra) macrantha.—*J. W. T.* 1, Libonia Penrhosiensis; 2, Ligustrum lucidum coriaceum; 3, Ceanothus Gloire de Versailles; 4, Buddleia variabilis; 5, Choisya ternata.

PEACH STONES SPLITTING: *J. P. Lymm.* This defect may be attributed to imperfect fertilisation of the flowers, but is usually restricted to a few varieties only. An excessively rich soil, over supplies of food, and a moist, close atmosphere during the last stages of the swelling of the fruit accelerate the malady. The most thorough treatment is to lift the trees and re-make the borders, employing good loam of a heavy nature and adding a quantity of old mortar rubble and wood ashes.

SENDING ROSES TO AMERICA: *T.* Yes, there are several restrictions regarding exporting Roses and other plants to the United States. First of all your customer must obtain a permit number from the Agricultural Department, Washington, and forward this number to you. You will then either be obliged to have your nurseries examined and certified as having satisfied an inspector of the Board of Agriculture, the fee for which is two guineas and expenses, or you can send the packages—up to one hundredweight—to the offices of the Board of Agriculture, 4, Whitehall Place, who will examine there for a fee of 2s. 6d. packages not exceeding 56 lbs.; between 56 lbs. and one hundredweight, 5s. Write to the Board of Agriculture for a leaflet on the subject.

ERRATA.—In the notice of R.H.S. certificated plants on p. 366, Columnea Oerstediana was printed C. Verstediana. A printer's error was also responsible for bouquetin appearing as bonquetin in the review of Mr. Malby's book, p. 359.

Communications Received.—C. E. T. (many thanks)—A. B.—B. C.—H. A. M.—S. P., Godalming—T. S. N.—C. H.—F. C.—G. A. C., Norwich—A. W.—E. R.—B. B., Reading—H. B. M.—G. B. L.—E. L.—G. B. R.—F. C.—W. H. N.—M. B.—W. B.—T. D.—T. D. S., Ireland—H. K.—A. S.—R. R. G.—R. and T.—Interested—F. G. B. and Son—W. W. and Co.—H. J. C.—G. W.

MUTISIA CLEMATIS (Nat. Ord. Compositae)

A greenhouse climber from New Grenada.

THE
Gardeners' Chronicle

No. 1,406.—SATURDAY, DECEMBER 6, 1913.

CONTENTS.

ILLUSTRATIONS.

THE POLLINATION OF FRUIT TREES AND ITS BEARING ON PLANTING.

THE subject of the pollination of fruit-bearing plants is being actively studied in its practical bearing in the U.S.A. and Australia as well as in England.

Our Strawberries, Raspberries, Gooseberries, Red and Black Currants set and mature their fruit perfectly with pollen of the same variety, plant or flower, though the Gooseberries and Currants will not set and mature without insect visitors.

Many of our Apples, Pears, Plums, and Cherries, however, are subject to the strange law of self-sterility—that is to say, they will not set and mature fruit if the flowers are merely pollinated with pollen of the same variety.

Some ten years ago trials were commenced by Mr. F. J. Chittenden to test which varieties of Apples and Pears are self-fertile, and which are self-sterile. He has continued his investigations at Wisley, and has now tested nearly 200 varieties of Pear, and 180 varieties of Apples, and finds only one in four or five varieties to be self-fertile.

In 1911 Mr. W. O. Backhouse commenced trials on Plums at the John Innes Horticultural Institution, and found that less than half the varieties of plums were more or less fertile, the remainder being absolutely self-sterile.

During the last six years I have made observations on the blossoming of Apples, Pears, Plums, and Cherries in order to try to ascertain the comparative order of blossoming of the different varieties of each fruit, which varieties are self-fertile and which self-sterile, also what insects chiefly visit the flowers of the different sorts of fruit. I have also made trials to find which varieties are the best pollenisers for certain market varieties and shy bearers, as although some varieties will set with almost any other variety, many show better results with one kind than with another.

Observation and experiment show us that we want to know three things about each variety:—

(1) Whether it is self-sterile; or if self-fertile, to what extent, whether, say, setting one fruit to six blossoms or only one in a hundred.

(2) Its relative order of flowering as compared with others, whether relatively early, mid-season or late, in order to choose another variety which will be in flower about the same time; for even if a variety be self-fertile a larger proportion of fruits set if it be cross pollinated.

(3) To know which are good varieties to plant with other varieties to ensure the best setting of fruit, by cross pollination —*i.e.*, which are the best pollenisers.

Order of Blossoming of Fruit Trees.

In the *Journal of the Royal Horticultural Society* for 1911 (vol. 37, part II., pages 350-361) a list is given of the average order of blossoming of 235 varieties of Apples based on three years' observations at the R.H.S. gardens at Wisley by Mr. F. J. Chittenden, who is preparing a similar list of the flowering of Pears, shortly to be published. In the *Journal* of the same Society (vol. 36, part III., pages 549-564) tabular diagrams are given showing the order of flowering of 33 of the Apples most generally grown, of 18 Pears, of 18 Plums, being the average of three years' observation by me at Wye and records of Cherries at Chilham and Sheldwich; records also appeared in the *Board of Agriculture Journal* for December, 1908.

In the case of Apples the very earliest flowering kinds have dropped their petals before the very latest begin to flower, so that in order to pollenise an early variety one would by preference plant another early-flowering kind near it, and in order to pollinate a late-flowering Apple one would prefer a late or mid-season-flowering variety for interplanting; the same applies to the other fruits. In Apples, and I think in the other fruits mentioned, the stigmas are generally ready to receive the pollen before the anthers of the flower shed their pollen.

During three years' observation by me at Wye, the different varieties of Apples were in flower from 14 for the shortest to 21 days for the longest in flower, full bloom occurring on about the seventh day after blossoming began; in Pears different varieties varied from 16 to 22 days, being in full flower generally on the eighth day; Plums were 13 to 24 days each in flower, and in full bloom on the eighth day; Cherries of different varieties were each in flower about 22 days, and were in full flower on the seventh or eighth day after commencing to flower.

The following is a list of self-fertile and self-sterile varieties (from the results of trials by Messrs. F. Chittenden, W. Backhouse, and C. H. Hooper).

Apples, more or less self-fertile, in approximate average order of blossoming:

Early-Flowering. — Irish Peach, Golden Spire (rarely), Tower of Glamis, Mr. Gladstone, White Transparent, Duchess of Oldenburgh, Egremont Russet, Stirling Castle, Devonshire Quarrenden, Summer Golden Pippin, Christmas Pearmain.

Mid-Flowering.—Domino, Lord Grosvenor, Washington, Endleigh Beauty, Ben's Red, Potts's Seedling, Baumann's Red Winter Reinette, Early Victoria, Ecklinville, James Grieve, Lord Derby.

Late-Flowering.—King of the Pippins, Peasgood's Nonesuch, Foster's Seedling, Newton Wonder.

Apples, self-sterile, or very nearly so:—

Early-Flowering. —Bismarck, Ribston Pippin, Hoary Morning, Warner's King, Old Nonpareil, Lord Suffield, Striped Beefing, Sturmer Pippin, Fearn's Pippin, Duchess Favourite.

Mid-Flowering. — Charles Ross, Beauty of Bath, King of Tompkins County, Cellini, Worcester Pearmain, Beauty of Kent, Belle de Pontoise, Cox's Orange Pippin (very rarely self-fertile), Allington Pippin (rarely), Seaton House, The Queen, High Canons, Rival, Alfriston, Lady Sudeley, Loddington, Blenheim Orange, Old Hawthornden, Waltham Abbey, Lane's Prince Albert, Hambling's Seedling.

Late-Flowering.—Bramley's Seedling, Wellington, Grenadier, Lady Henniker, Cox's Pomona, Brabant Bellefleur, Hollandberry, Golden Noble, Annie Elizabeth, Williams' Favourite, Mère de Ménage, Sandringham, Graham's Royal Jubilee, Court Pendu Plât.

Pears, more or less fertile (from records of Mr. F. J. Chittenden and C. H. Hooper), in approximate order of blossoming:—

Early. — Easter Beurré, Jargonelle, Duchesse d'Angoulême.

Mid.—Verulam, Colmar d'Eté, Beurré Bachelier, White Doyenné, Bellissime d'Hiver (very rarely), Durondeau.

Late.—Conference, Doyenné Boussock, Hessle, Marie Louise, Passe Colmar, Beurré Hardy, Hacon's Incomparable.

Petite Margarete (? time of blossoming).

Pears, apparently self-sterile:—

Early. — Beurré Clairgean, Beurré Diel, Williams' Bon Chrêtien.

Mid.—Citron des Carmes, Beurré Diel, Emile d'Heyste, Louise Bonne of Jersey.* Olivier de Serres, Pitmaston Duchess* (*occasionally, but very rarely self-fertile), Bellissime d'Hiver (ditto), Souvenir du Congrès, Joséphine de Malines, St. Luke, Beurré Superfin, Uvedale's St. German, Clapp's Favourite, Beurré d'Amanlis.

Late.—Catillac, Doyenné du Comice, Winter Nelis.

Plums, more or less self-fertile (from records of trials made by Mr. W. O. Backhouse at the John Innes Horticultural Institute and by myself at Wye) in approximate order of blossoming:—

Bittern, Monarch, Bullace, Reine Claude de Bavay, Denniston's Superb,

Yellow Magnum Bonum, Golden Transparent, Czar, Prince Englebert, Victoria, Oullins Golden Gage, Early Transparent, Pershore.

Order of flowering not recorded :—Reine Claude Violette, Warwickshire Drooper, and the Glastonbury Damson.

Apparently Self-Sterile, in approximate order of flowering :—

Grand Duke, Black Diamond, Jefferson, Coe's Golden Drop, Cox's Emperor, Sultan, River's Early Prolific (only sets about 1 per cent. with own pollen), President, Old Greengage, Admiral, Early Orleans, Ponds' Seedling, Blue Impératrice, Bradley's King of Damsons (occasionally, but rarely sets fruit with its own pollen).

Order of flowering not recorded :—Early Greengage, July Greengage, Histon Gage, Late Orleans, Stint, French Prune, Washington, Late Transparent.

Cherries, more or less Self-Fertile (from trials by C. H. Hooper) :—

Florence, Elton Heart (probably to a small extent), Turk, Rundles, Late Duke, Napoleon (well), Kentish Preserving Cherry (well), Morello (well).

Apparently Self-Sterile :—

Rivers' Early Black, Black Eagle, Early Frogmore Bigarreau, Black Tartarian (record Board of Agriculture *Journal*), Amber Bigarreau.

TRIALS TO FIND GOOD POLLENISERS.

Apples :—The following have given successful results with me; the first-named being the fruit-producing, the second the pollen-yielding, plant, tried in the open garden.

Mr. Gladstone × Beauty of Bath; Alfriston × Beauty of Bath; Christmas Pearmain × Cox's Pomona; Brabant Bellefleur × Beauty of Bath; King of the Pippins × Ribston Pippin; Cox's Pomona × James Grieve; Allington Pippin × Summer Golden Pippin; Allington Pippin × Ribston Pippin; Hoary Morning × Seaton House; Mère de Ménage × Lady Sudeley; The Queen × Baumann's Red Winter Reinette; Lane's Prince Albert × The Queen; Grenadier × Hoary Morning; Grenadier × Lord Derby; Lord Derby × Grenadier; Grenadier × Crab; Wellington × Adams's Pearmain; Worcester Pearmain × Cox's Orange Pippin; Newton Wonder × Lord Derby; Sandringham × Hornmead's Pearmain; Cellini × Graham's Royal Jubilee; Cox's Orange Pippin × High Canons; Cox's Orange × Bramley's Seedling. In 1911, on a Cox's Orange Pippin tree, I pollinated with ten different pollens, viz., with its own pollen and nine of other varieties, but only the above two set and matured fruit. However, I know of two other sets of experiments between Cox's Orange and Bramley, in which, although the pollen of Cox's set Bramley very well, the pollen of Bramley did not set Cox's, although tried with some hundreds of flowers. Mr. C. Martin (late manager of the Toddington Orchard Company) told me that he had excellent fruit from a plantation of Cox's Orange Pippin where it was intermixed with Duchess's Favourite. Mr. Purchas, of Letchworth, tells me that an orchard of Cox's Orange planted alone by his predecessors never bore; last autumn he took up a certain number of the trees and put in Worcester Pearmains in their place, and around these new trees the Cox's bore well.

Messrs. W. Seabrook and Son, of Chelmsford, recently wrote me in reference to the cross-pollination of Apples, that they have a plantation of ten acres of Cox's and Worcesters alternated and the result has been all that can be desired. In an older plantation they found that Cox planted on each side of Devonshire Quarrenden produced the best fruit in the whole of the orchard. This happened for three years running and they consider the fact sufficiently established. They have no other facts so striking as the above, but find that Cox is sufficiently cross-pollinated by Allington Pippin, Lady Sudeley, and Langley Pippin, as they have these growing amongst them, and are certain that one row they have between Plums has not cropped so well as the other rows, which are between Apples.

Mr. Jordan, for Apples under glass, finds The Queen, Calville Blanche, Peasgood, Charles Ross and Newton Wonder to be good pollenisers.

As an example of how Apples vary in their degree of self-fertility, I may mention some trials made by Mr. W. O. Backhouse, of which I recorded the results; the pollination was done with the anthers. There were respectively 5 bags on Mère de Ménage, 5 on Lane's Prince Albert, 9 on Bramley, 8 on Byford Wonder, 7 on Seaton House and 4 on Duchess's Favourite, but none of these made any attempt to set, though the crop outside was good. With Lord Derby in 6 bags there were 7 Apples which, allowing six blooms to a truss = 19 per cent.; in Warner's King in 8 bags there was one Apple = 1½ per cent.; in Golden Spire 5 Apples in 8 bags = 10 per cent.

In trials with mixed pollen I have had some especially fine fruit as the result, and I consider a larger proportion of the flowers have set and matured fruit than where a single variety of pollen was used. *C. H. Hooper.*

(*To be continued.*)

AUTUMN FLOWERS IN THE SOUTH-WEST.

Early in August Watsonia Ardernei was in flower, a colony in front of a south wall throwing up over a dozen fine, tall flower-spikes, which made a very pretty picture. W. coccinea produced its scarlet flower-scapes through the spring and summer, but W. rosea did not bloom. About the same time the very pretty new introduction Thalictrum dipterocarpum bore on a stem over 3 feet in height its loosely-clustered head of flowers, lavender-purple in colour with yellow eyes and about half an inch across. The foliage is very graceful and resembles Maidenhair. Belladonna Lilies flowered better than they did last year, when only about one out of a hundred bloomed. Amaryllis Belladonna blanda was especially fine, over fifty flower-heads being produced—the yield of a single bulb imported from the Cape about thirty years ago. A. rosea perfecta with flowers of a deep rose colour, borne on stems 3 feet high, bore not a single bloom last year, but this season perfected six. Of Nerines, N. Fothergillii major flowered fairly well, N. Bowdenii bore twenty flower-spikes, and N. flexuosa alba almost as many. These are growing in a narrow wall-backed border. The white Crocus-like blossoms of Zephyranthes candida were numerous, and the far finer Z. Atamasco bloomed freely. Abelia floribunda, after flowering abundantly in the spring, blossomed again in the autumn, and now in the middle of November is covered with flowers, and Choisya ternata is also covered with bloom. The blue Agapanthus umbellatus flowered magnificently, as did its white variety, as well as the white deciduous species that is not recognised in the horticultural dictionaries. The purple Stokesia cyanea came into flower early in October, and its white variety was especially charming. Phygelius capensis, which here forms a large shrub and is never cut down in the winter, bore its scarlet flower-racemes in quantity, and was quite a pretty sight. The Australian Candollea tetrandra, which was killed to the ground in the severe frost of February, 1912, and was thought to be dead, but later on shot up from the roots, is now a healthy little shrub over 2 feet in height, and bears its single yellow blossoms in profusion. The Lapagerias, rose-coloured and white, are still in bloom against a north-west wall, and the white Macartney Rose is yet flowering against a sheltered wall. The scarlet and white varieties of Pentstemon campanulatus, a present from Canon Ellacombe, bloomed very freely through the summer, and even now are holding several flower-spikes. Cassia corymbosa, which came into bloom in August, is still in full flower, and will retain many of its blossoms until Christmas. The Shamrock Pea, Parochetus communis, commenced to flower towards the end of September, and in October was particularly charming, the Clover-like leaves being thickly studded with pale blue blossoms. The Hydrangeas have been as fine as usual in the south-west, great bushes as much as 7 feet in height and of equal diameter standing at the edge of woods, being in many cases covered with pale-blue flowers, though in other instances these are pink. Physalis Franchetii perfected its great, bright orange calyces, many of them being considerably over 6 inches in circumference. The stems bearing these highly-coloured calyces are very useful for indoor decoration. Solidago Shortii is by far the finest of the Golden Rods, growing to a height of 8 feet, and being very decorative when a sheaf of yellow. About a hundred plants of Montbretia Prometheus gave a splendid display of their large, bright orange-red blossoms, and the commoner varieties will be done away with. Ceratostigma plumbaginioides, better known as Plumbago Larpentæ, has been very bright with its deep blue flowers, and a little-known species, C. Polhilli, has been very pretty through October with its small pale-blue blossoms. The South African Hermannia candicans has been blooming uninterruptedly for months, and is still bearing numerous flower-sprays of bright yellow blossoms. It was apparently killed by the frost in 1912, but sprang from the roots again later in the season. Zauschneria californica, growing on a raised bank over which it hangs, has been a brilliant sight, being smothered in its scarlet flowers. Bouvardia triphylla has provided a lovely picture for several months, as it has borne its scarlet flowers continuously, and was exceptionally bright, and B. Alfred Neuner has also flowered in the open. Ceanothus Gloire de Versailles has borne its pale-blue flowers in profusion, and Escallonia floribunda, better known as E. montevidensis, has perfected its flat, white bloom clusters, much appreciated by butterflies, as many as a dozen red admirals often settling on a single bush. Abutilon megapotanicum has also been flowering well, the red and yellow blossoms with their dark brown stamens being very beautiful. Manettia bicolor, which has been flowering all through the summer, is still in bloom, the scarlet, tubular, yellow-tipped blossoms having a very pretty effect as they hang amid the leaves of the tall, twining shoots. *Wyndham Fitzherbert, Devonshire.*

THE PARIS FOREST CONGRESS AND BRITISH FORESTRY.

(*Continued from page* 374.)

Importation of Timber.—The report of the Coast Erosion Commission of 1909 told us that we were sending some £30,000,000 a year out of the country for timber and forest products which might be produced within our borders! Behind this larger sum stand various additions in the form of forest industries; for if capital and industries follow the flag they undoubtedly follow the raw material. Thus we imported paper, mainly made of wood pulp, to the extent of another £6,000,000! The evidence on which the Coast Erosion Report was founded is conclusive reading (Cd. 4,461). In nothing that has been put before the country in modern times do we stand to gain so much as from State Forestry! Something approaching £30,000,000 a year of increased productiveness! It may actually represent more than the yearly cost of the National Debt, £28,000,000.

England is the largest user of timber among the nations after Germany. Says Zon (*Forest Resources of the World*, 1910), "The United Kingdom buys nearly half the total export of all the countries of the globe; the wood prices in the English market affect practically the whole world." It is an economic waste to bring such a bulky product as timber from distant countries, instead of the more portable wool and mutton now being produced at home, and produced at a loss as compared to forest products.

Employment.

Employment is not the pressing question just now that it is sometimes, but the consideration of State Forestry affords some striking figures—fifteen men and their families get employment on 1,500 acres of cultivated forest, against one man on 1,500 acres under grazing! These are the average figures arrived at from the evidence of the Coast Erosion Committee. The Departmental Committee on Forestry in Scotland, December, 1911, says: "Forests of the same size give ten times as much employment as sheep-farms, without reckoning the population absorbed in attendant industries which might in many cases treble that figure."

Not only do we get this huge amount of extra employment, but the labour is of the right sort—the very best sort conceivable. The country can be made to produce £30,000,000 worth a year in timber and forest products, and all the labour on this, and much on the attendant forest industries, is rural. What this means in the long run it is difficult to convey in a few words! Let anyone travel in the forest country of France, Germany or Switzerland, and then pass to industrial districts and towns where factory labour and sedentary pursuits are followed. He will see on the one side brawny, muscular men, large-brained and large-souled; on the other a shrunken, hysterical, tea-drinking race—the white man in decadence! A million men and their families live directly on the forest in Germany, and 3,000,000 indirectly. If we can start getting these millions of our people back to the land as forest workers it will be the greatest social event that this country has seen in modern times! Nothing in the public life of to-day stands more for the development of the national resources of the country; and this was precisely the object for which the Development Grant of half a million a year was authorised.

The Two Kinds of Forest.

If Forestry in these islands is going to be the live idea, the living force that it is across the Channel, we must begin by dissociating from it the wild forest of new countries. The *wild forest* and the *cultivated forest* are two distinct things. The wild forest of new countries has usually to make way for settlement. When a country is settled (unless enough of the wild forest has been preserved) it becomes necessary to form cultivated forests in its midst. This is what European countries, the United States, and Japan are now doing. That is what England has to do now.

It has been objected that the cultivated forest compared to the wild forest is less beautiful. That is rather a matter of taste and circumstance. In any case the young growth, the unsightly thicket, must precede the stately timber as inevitably as the baby the man or girl! This is the way of the world!

That there is really little in this æsthetic objection to the cultivated forest can be seen by considering the beauty of such forests as those of Compiègne and Fontainebleau, near Paris. These are modern cultivated forests, kept at a high pitch of productiveness. But their beauties are a never-ending theme of praise, as much from the Parisians as from travelling Englishmen. Says a recent writer speaking of Compiègne:—"Cette forêt constitue un centre d'attraction bien fait pour donner satisfaction à cet amour du changement, à ce goût de la nature et des sports en plein air, caractéristique de notre temps." The Forest of Soignes at the gates of Brussels is run largely on beauty lines; and this, let it be remembered, is entirely an artificially-planted forest. In fact, the beautiful cultivated forest of our day is as much the work of man as a beautiful garden!

Our Task.

The Coast Erosion Commission found that there were 8½ million acres of land suitable for forest-planting in Britain, and half a million acres in Ireland. Assuming ordinary Forestry data, these 9 million acres would provide the £30,000,000 worth of timber and other forest products now imported from other countries with climates similar to our own.

Suburban State Forest.

The Coast Erosion Commission might have gone a step further and urged the purchase of somewhat higher-priced land situated near London and other large towns. The higher price of this land would be largely reimbursed at once by the sale of building sites in or near the Forest, and later by the saving in having such a bulky material as timber produced close to its market. None of the earth's products are of a more bulky nature than timber, and none get such an advantage by being produced close to the market.

And here comes in the popular and practical aspect of Forestry in this country. We can form extensive State forests as near to London as those near Paris, Brussels, and other European capitals. This is the most practical forest education for the mass of the people. Our popular life is lacking in an element which runs like a silver thread through the warp and woof of Continental life—the State forest at our doors. From 50,000 to 60,000 workmen and their families spend their Sundays, during summer, in the forest of Soignes, on the outskirts of Brussels. There should be State forests near London like Compiègne and Fontainebleau near Paris, or Soignes near Brussels, the Black Forest near Baden-Baden, or the Sihlwald Forest near Zurich. It would not be hard to form them. Grazing and second-class agricultural land within twenty miles of London has a rental which is lower than the present net yield of some of these Continental forests, lower also than the normal yield of the Chiltern Forest near London. This margin in favour of the forest, together with the building sites, would go to cover the extra cost of land-purchase near towns. And assuredly in a matter touching so acutely the moral and physical well-being of the people there should be no hesitation in forming suburban State forests, be their yield only 3 or 2½ per cent. Let us remember that in 1895-9 Consols yielded only 2¾ per cent.—a State forest planted in 1895-9 would have paid for itself with a net return of 2¾ per cent.

Fifty Cubic Feet of Timber versus Fifteen Pounds of Mutton.

Supposing that for our State forests we were to take the poorer class of grazing and agricultural land, what would be the result? To put it tersely, 50 cubic feet of timber, instead of 15 lb. of mutton per acre! An acre under grazing would produce on an average 15 lb. of mutton (evidence collected by Coast Erosion Committee), and an acre under forest will yield 50 cubic feet of timber as a safe and ordinary average. There are forests which yield up to 150 and 200 cubic feet in Central Europe, and 700 cubic feet have been frequently realised with the greater sun power of more southern lands. When we take to breeding trees for the quick production of timber some considerable further increase may be looked for. Considering the rapid growth of Larch, and the much more rapid growth of Douglas Fir, it is evident that 50 cubic feet of timber per acre is a low average for the future. So that to compare the 15 lb. of mutton with 50 cubic feet of timber is rather to understate the matter from a Forestry point of view.

It will, of course, be pointed out that 50 (or more) cubic feet of timber per acre is worth, close to its market, more than 15 lb. of mutton, so that the matter might be left to right itself under the ordinary laws of supply and demand. This, however, is not the case. Forestry has long been admitted to be an exception to the ordinary laws of supply and demand. Timber matures too slowly, and forest as an investment returns too low a rate of interest for the private owner. Private enterprise will produce the mutton, but not the timber. And thus we are left with wide stretches of comparatively unproductive and unlovely acres, till we get State forests. *D. E. Hutchins, Cobham, Kent.*

(*To be continued.*)

THE ROSARY.

NEW ROSES.

(*Continued from page* 378.)

Othello (H.T., Paul and Son, 1911).—This Rose is a strong grower, with dark crimson flowers. The colour is good, but the flowers are rather rough, both in form and outline. Still, we have not too many good crimsons

Rayon d'Or (Aust. Hyb., Pernet Ducher, 1910) is, by reason of its colour and its foliage, quite the most distinct of the Roses in this list. The colour of the flowers is a bright daffodil yellow, the outside of the buds heavily splashed with red. The form of the flower is rounded and rather poor, and the foliage is a dark, glossy green, which is very noticeable. It is a dwarf grower, and makes a good and cheerful bed, which catches the eye all over the garden. It is fairly free, and if not quite continuous there are nearly always a few flowers. The habit of the plant is rather branching, but it is tender, some of the stems being usually killed during winter, and a few shoots will even die at times during the summer for no very obvious reason. It should therefore be carefully earthed up with burnt earth or dry soil at Christmas-time. The foliage is quite mildew-proof, but every known precaution must be taken to keep black spot away, or the foliage will be ruined, the plants enfeebled and the appearance of the beds will suffer greatly. Except where the stems have been affected by frost, it seems to do best with but little pruning. It is a decorative and not an exhibition Rose.

Reine Mere d'Italie (H.T., Bernaix, 1910) is another Rose of very striking colour and poor form. The colour is a deep orange-yellow, and it is a good grower, decidedly taller than the last-mentioned Rose. It has flowered well with me this year.

Souvenir de Gustave Prat (H.T., Pernet Ducher, 1910).—I have grown this rose for the first time this year, and it has produced a very favourable impression. The flowers are only of medium size, but nicely formed, of good stout petals, pale sulphur-yellow in colour, with a deeper centre. The foliage is good and lasting, the habit of the plant is bushy and compact, and it appears to be sufficiently free flowering. The flowers are not large enough or full enough for exhibition as a rule, but are very graceful and pleasing, and the Rose seems a great acquisition to those of this colour for decorative purposes.

St. Helena (H.T., Ben Cant, 1912).—This is a lovely exhibition flower of good form and a high pouted centre. The colour is creamy-yellow, getting deeper towards the centre, and in the early flowers the centre is tinged with a soft pink flush. Later on the flowers seem to lose the pink tinge. In colour it is not very far from Mme. Mélanie Soupert, but the shape and set of the petals is very different. It seems a good, useful Rose, and if not continuous is quite free flowering.

SUNBURST (H.T., Pernet Ducher, 1911).—This Rose is a good, vigorous grower of branching habit. At their best the flowers are a lovely orange colour, slightly paler towards the edges, and, the flowers being of medium size in this condition, make it a beautiful decorative Rose. It is, however, very variable in colour, some of the flowers often being nearly white. I looked over a bed of this Rose this September, in which something like half the flowers were without the typical colouring and a few with little or no colour at all. At the International Show at Chelsea in 1912, in the French section, two batches of this Rose were shown—one with the typical orange colour, said to have been grown on the secondary shoots, and the other batch with little colour grown on the first or crown shoots. But these September flowers must nearly all have been secondary shoots; so it appears that in this country out-of-doors the absence of colour is not confined to the crown shoots. Its value as a garden flower would seem to depend largely on whether we are able to find the conditions and able to supply them under which the orange colour is produced. I had some good flowers under glass, and if we are unable to find the trick of growing it out-of-doors we may have to relegate it to the greenhouse. This would be a pity, for in many respects it seems to have good qualities. I have noted that most of the best flowers I have seen at the shows have been from pot plants.

SUNBEAM (H.T., Ben Cant, 1912) is a little decorative Rose of a really beautiful colour, which is a deep yellow with a peach flush, and though small the flowers are nicely formed. It is also free flowering, and the foliage is attractive; but so far it does not seem to like my garden, for it has made miserable growth. Still, it may do better when it becomes established, and it is so pretty a flower I shall give it another chance.

TITO HEKEKYAN (Soupert and Notting, 1911) is a Rose I got almost by accident, possibly through curiosity at its wonderful name, but I have been very pleased with it. It is one of the Roses of the Lyons Rose type, of rather similar colouring, but a softer pink; while the habit of the plant is good and resembles the ordinary hybrid Tea. It is free flowering and promises to make a nice garden Rose.

YVONNE RABIER (Poly. Pom., Turbat, 1910) is a very free and continuous-flowering little plant, with foliage with a little more yellow in it than most Rose foliage, and green stems. The flowers are cream colour rather than white. This is very marked if it be compared, let us say, with Katherine Zeimet, which is, perhaps, our best white dwarf Polyantha at present. The last-named Rose, though nearly perpetual flowering, has distinct breaks, and I think Yvonne Rabier slightly more continuous. If so, it will make a good companion to Orleans Jessie and Mrs. Cutbush for formal beds near the house. *White Rose.*

RHODODENDRON YUNNANENSE.

RHODODENDRON YUNNANENSE has been described as one of the most beautiful of all the species which flower rather early in spring. Reference to fig. 136, which is reproduced from a photograph taken in the Royal Gardens, Kew, in May last, well bears out this assertion, for the plants therein depicted are almost completely smothered with their pretty blossoms. Rhododendron yunnanense is, as its specific name implies, a native of Western China. The flowers (fig. 137) are about 2 inches across, the white corolla having a most delicate blush tinge; the upper lobes are spotted with blood-red. The plant has one defect as an ornamental evergreen, for the habit is sparse, due chiefly to the narrowness and comparative thinness of the leaves, but the authorities at Kew, by massing the plants together as shown in the figure, take means to ensure that the plants shall present, even in winter, as good an appearance as possible.

[*Photograph by C. P. Raffill.*

FIG. 136.—RHODODENDRON YUNNANENSE IN THE ROYAL BOTANIC GARDENS, KEW.

ST. PETER'S SQUARE, HAMMERSMITH.—The Metropolitan Public Gardens Association has contributed £350 towards the purchase of St. Peter's Square, Hammersmith, as an open space, and has sanctioned plans for the laying-out of the ground, in accordance with its promise, as soon as the area shall have passed into possession of the Hammersmith Council.

ORCHID NOTES AND GLEANINGS.

CATTLEYA SOUVENIR DE QUEEN VICTORIA NAT. HYB.

At the meeting of the Royal Horticultural Society on the 18th ult., Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins), showed his new Lælio-Cattleya Lady Oliphant (L.-C. Norba × C. Souvenir de Queen Victoria), and some discussion took place as to the nature of the Cattleya parent. It is said to have been imported by Wm. Bolton, Esq., Warrington, and passed into Mr. Warburton's collection, and at a duplicate sale from that source in 1901 two plants of it realised £285. A catalogue description says "supposed natural hybrid resembling C. Hardyana. Flowers large, sepals and petals cream colour, lip large, deep rose purple on front lobe, remainder light rose, with two large yellow blotches on sides." Opinions differed as to its being a second cross of C. Hardyana, or an extraordinary variation of that natural hybrid, and consequently the above name was given.

LÆLIO-CATTLEYA FLORENTIA.

Two flowers of this hybrid (C. labiata × L.-C. La France), and very different from each other, are sent by the raiser, Mr. F. C. Puddle, gr. to W. H. St. Quintin, Esq., Scampston Hall, Rillington, York. L.-C. La France (L. tenebrosa × C. bicolor) in this case plays the part that it does in L.-C. scampstonensis (L.-C. La France × C. Dowiana aurea), reported from the same gardens in *Gardeners' Chronicle*, October 11, 1913, p. 251. One of the flowers sent resembles L.-C. Gottoiana with the lip formed like C. labiata. The other has the lip of C. bicolor with the front lobe borne on an elongated isthmus. The column in this form, too, is thick and white, as in C. bicolor, and protruding beyond the narrow white side lobes. Both have the sepals and petals tinged with lilac and the front of the lip reddish violet.

CYPRIPEDIUM INSIGNE, FOL. AUR. VAR.

A flower and leaf of a finely variegated-leaved form of Cypripedium insigne is sent by Mr. Willy Müller, Pratte di Salerno, Naples. The leaf is striped with pale yellow in about equal proportions, with the normal green colour, and it is very effective as a decorative plant. In Tracy's Orchid Nursery, Amyand Park Road, Twickenham, a similarly variegated plant, even more distinctly marked, has been grown for several years, the variety being C. Leeanum Leopoldii. In the same nursery there are two other variegated-leaved Cypripediums not so well marked, Bletia hyacinthina, with white margins to the leaves, and a variegated form of Odontoglossum crispum.

NEPENTHES AT BELSIZE COURT.

Collections of Pitcher Plants become fewer in number as the years pass by, yet there are no more beautiful or interesting species. In Mrs. Bergheim's gardens at Belsize Court, Hampstead (gr. Mr. H. A. Page), there is a fine show of Nepenthes suspended from the roof of the stove-house in which Orchids and foliage plants are also grown. One of the most beautiful and distinct is the Philippine Nepenthes ventricosa, illustrated in the *Gardeners' Chronicle*, June 18, 1898 (p. 379), one specimen of it bearing twelve of its singular pallid-green pitchers each eight inches long and three inches across the opening of the upper part, which is decorated inside with ribbed stripes of dark red. There is a very large specimen of the now rare N. bicalcarata, one of the most peculiar in form, having two formidable spurs projecting from below the cover-

Fig. 137.—Rhododendron yunnanense : flowers white with blush tinge and blood-red spots.

(See page 396.)

ing above the mouth of the large brownish-green pitchers. N. Mastersiana, one of the finest hybrids, has nine dark-red pitchers; N. Morganæ has twenty-four, and N. Hookeriana, N. Rafflesiana, N. mixta, N. Curtisii, N. Dominiana, N. Chelsoni, and others are equally well grown, and bear many of their curious and darkly-coloured pitchers.

Although practically in London, Mr. Page grows these Nepenthes and a fine lot of Orchids in splendid condition. With the Nepenthes the cause of failure in many collections may be assigned to their being allowed to develop too fully the long trailing growths leading up to the flowering stage. The finest pitchers are always on the short basal growth, and those developed on the elongated stem are usually more attenuated in form and generally inferior. The elongation of the growth also lessens the vitality of the plant, and often leads to rapid decline. For this reason Mr. Page always keeps his plants dwarf by pinching out the leading growth when elongation is attempted. Thus treated, the plants produce short growths and pitchers of the best quality in profusion, and they are at the same time rendered secure against the rigours of winter.

In the case of both Nepenthes and Orchids, especially in the neighbourhood of London and other large cities, the course adopted here in late summer, autumn and winter, of making the most of whatever sun-heat can be obtained, is to be recommended.

The artificial heating apparatus is kept well in check, the warm houses are shut up or the ventilation restricted during the appearance of the sun, the houses are damped down, and a healthy moist atmosphere of a much higher temperature than that prescribed to be maintained by artificial heat is sustained. This method, as shown by the vigour of the plants at Belsize Court, helps the plants through the dull and often foggy winter season.

There is no doubt that in successful plant-growing the utilisation of sun-heat is one of the main factors in the production of healthy plants, and such plants are not an easy prey to insect pests.

FOREIGN CORRESPONDENCE.

WOLF RIVER APPLE.

On page 300 Mr. H. W. Ward asks for particulars regarding the Wolf River Apple. This fruit belongs to the Apart group of Russian Apples, of which Alexander is the typical variety. It is supposed to be a seedling of Alexander, and was raised by W. A. Springer, near Wolf River, Fremont County, Wisconsin. It was entered in the catalogue of the American Pomological Society in 1881. It is said to be a valuable variety in the North-Western States, where it has largely superseded Alexander. The tree is described by Professor Hansen, of North Dakota, as a strong, spreading grower, not an early bearer, but productive in alternate years. It is a favourite exhibition fruit, because of its large size and brilliant colouring. I believe it is being planted more in the East than formerly, but its quality is mediocre here, though it sells on its looks. Apparently it attains better quality in the North-west. It is not a late keeper. *Emily Taplin Royle, Maywood, New Jersey.*

LILIUM HENRYI.

I find great pleasure in re-reading the volumes of the *Gardeners' Chronicle*, and the other day volume XLVIII. came into my hands, and I read the article about Lilium odorum on page 175, from the p n of Mr. A. Grove. It is there mentioned that the following species of Lilies produce offsets: L. tigrinum, L. Maximowicsii, L. Leichtlinii, L. Wallacei, L. sulphureum, and L. Henryi. It surprised me to read this of L. Henryi, for I have had this species now for five years in cultivation, but have never found any trace of bulbils; though it is the finest seeder of all Lilies known to me. Any flower I have had pollinated by the pollen of another plant has given me a large capsule, and on one plant I obtained eighteen capsules. The large brown seeds I have sown in the open in a half-shady place, and after one month they have germinated. I have now quite a thousand bulbs of this fine species. My largest bulbs are as large as a Walnut, and a great many of them produced one flower last season. I have planted the stock in a soil more loamy than they formerly occupied, and I am anxiously awaiting the result. Lilium croceum, L. speciosum and L. tigrinum are growing splendidly. *Willy Müller, Naples.*

NOTICES OF BOOKS.

Production and Use of Chemical Manures.*

The Institut International d'Agriculture (Rome) has performed a valuable service in publishing a volume of statistics devoted to the production and use of chemical manures throughout the world. The statistics of production are preceded by useful notes on the composition of the various phosphatic, nitrogenous, and potassic manures. Thus it will be news to many that the estimated reserves of nitrate of soda in Chili amount to 340 million tons, so that at the present rate of use (2¼ million tons per annum) the nitrate beds of Chili will last for nearly a century and a half.

In connection with the world's supplies of nitrogenous manures, it is instructive to learn of the rapid rate of increase in the manufacture of the synthetic nitrogen-containing manures, cyanamide and nitrate of lime. The sales of the former fertiliser in Germany alone have increased from 5,500 metric tons in 1909 to 37,500 in 1912. The production at the present time is estimated at about 87,000 tons, and the production in the years 1913-14 at upwards of 200,000 tons. To this figure must be added the 140,000 tons of nitrate of lime, the estimated output for 1913. Hence, although the world's consumption of artificials is increasing at an astonishingly rapid rate, there appears no risk of a failure of supplies of nitrogenous manures. The volume, which is illustrated by maps and diagrams, will be found invaluable by students of agricultural science.

* *Production et Consommation des Engrais Chimiques dans le Monde* Institut Internat. d'Agriculture, Rome. 3 fr.

Small Holdings from a Horticultural Standpoint.*

We are glad to see that certain of the horticultural instructors who have done so much good work in the counties are putting in print their opinions on the question of Small Holdings. This question is too often considered from the point of view of microscopic agriculture, and not often enough from that of a special form of horticulture. Nor is it only in drawing attention to this aspect of the Small Holdings movement that county instructors may supply useful contributions. They—as is the case with Mr. Martin, the author of this brochure—are out and about the counties, they know the types of men who would do well and those who would do ill if provided with holdings, and they can form an opinion of the local type of holding which is best calculated to prove successful. Mr. Martin places co-operation in the forefront of his programme, but might well have devoted more space to the development of his ideas on this important subject. He deals next with the question of markets, points out the seriousness of foreign competition, and insists on the need for local markets controlled by the local authority. Once such a market were in existence in an area the growers could form an estimate of the amount of produce likely to find a sale, and could adjust their cultivation accordingly.

After suggesting methods for increasing security of tenure Mr. Martin considers the fruit orchard as a source of revenue to the holder. He points out that if a plantation is to be made the only economical way is for the Small Holder to start with just enough fruiting trees to provide annual supplies of scions or buds, and to work his own stocks. Practical advice is offered with respect to bush and other fruit, and he insists that the spade, and not the plough, is the Small Holder's prime implement of cultivation. In this connection, however, it is essential to determine what is the economic size of a holding—a point which Mr. Martin does not appear to have discussed in his booklet. As will be seen the author contrives to give a large amount of useful advice on many diverse subjects within the restricted limits of his pages.

* *Small Holdings from a Horticultural Standpoint.* By C. Martin. Published by J. H. Burgess, Newport, Isle of Wight. Price 6d.

Vegetation of the Peak District.†

The goal of the British plant geographer is a complete botanical survey of the British Isles, with a corresponding series of vegetation maps, which will have the same value to the botanist as the maps of the Geological Survey have for the geologist.

The value of vegetation maps has already been acknowledged by geographers, and they constitute at present the only source of information concerning the nature and possible utilisation of waste lands, and, as such, have a claim for official recognition.

In *Types of British Vegetation* (Tansley, 1911) there was published for the first time a comprehensive, if necessarily condensed, account of the vegetation of the British Isles. Detailed memoirs and maps of parts of the Pennines, Scotland, Ireland, and Somerset have been contributed from time to time by members of the British Vegetation Committee. For the present volume we are indebted to Dr. Moss, who gives us a detailed analytical account of the vegetation of the Peak District of Derbyshire, the result of a botanical survey begun in January, 1903. Only the botanist experienced in this kind of work can appreciate the extreme difficulty of selecting and arranging records so as to explain the vegetation of a district, not only as regards the association of different types of existing vegetation with particular soils and localities, but also in relation to the transition types which occur so abundantly and may shade into one another almost imperceptibly.

The author is to be congratulated on the breadth of view which he has brought to bear on these and similar problems, and on the skill and clearness with which he has collected and arranged the facts.

The conflicting use of such terms as "plant formation" and "plant association" has been a stumbling-block to many students of geology. For those not familiar with the standardised use of these terms, we may quote Dr. Moss as follows:—

"A 'plant formation' is the whole of the vegetation which occurs in a definite and essentially uniform habitat. A 'plant association' is of lower rank than a formation, and is characterised by minor differences within the generally uniform habitat. A 'plant society' is of lower rank than an association, and is marked by still less fundamental differences of the habitat. 'Plant community' is a convenient and general term used for a vegetation unit of any rank."

An introductory chapter deals with the geology and types of scenery met with in the Peak district; the characteristic soils and the plants associated with them, and the climatic conditions generally, including the effects of smoke from the neighbouring manufacturing districts.

In the succeeding chapters Dr. Moss describes in detail the following natural types of plant association, which he finds represented in different soils and at varying altitudes in the Peak district.

Woodland Associations.

Of the three types of wood described, the Ash wood associations deserve mention, and the facts recorded are of interest, inasmuch as the Ash is said to be the only hardwood profitable to cultivate at the present time.

Woods composed mainly of Ash are abundant on the calcareous soils of the carboniferous limestone. They show no signs of planting, possess all the characters of a primitive association, and seedlings appear spontaneously in abundance. "Scrub associations," many of which represent progressive and retrogressive stages to and from woodland of various types.

Many of these pass imperceptibly into "Grassland associations," of which many types are recognised developed in the calcareous and siliceous soils respectively.

"Associations of rocks and screes" possess a flora of the same general composition as that of the adjoining woodland or grassland associations, added to which, on the more precipitous rock faces and cliffs are many species of Algæ, Lichens, Liverworts and Mosses.

"Marsh and aquatic associations" are poorly represented in the district. Where they occur they show differences parallel with those exhibited by the flora and vegetation of the calcareous and non-calcareous, terrestrial soils.

Moorland Associations.

Twelve types of "moorland association" are distinguished by the author, who discusses at some length the relation of these British types of moorland with the "Hochmoor" and "Flachmoor" of Continental phytogeographers.

It must be remembered that a plant association is not necessarily a stable type of vegetation. Transitional vegetation units, if adequately observed, can usually be shown to be progressive or retrogressive stages to or from one of the more stable types.

The same fact is illustrated by the abundant and widespread remains of trees found imbedded in the peat, indicating the existence of forest of a more or less definite kind which has given way—sometimes owing to natural and sometimes to

† *Vegetation of the Peak District.* By C. E. Moss, B.A., B.Sc. (Cambridge University Press, 1913.) 12s. net.

artificial causes—to vegetation of the grassland and moorland type.

Climatic changes have been invoked by some writers to account for evidences of such plant successions within the historic period, but such an interpretation is obviously open to criticism.

Dr. Moss holds the view that "in general, plant successions, which have taken place since early post-glacial times, and in a region of fairly uniform present-day climate, would seem to be explicable by changes in the physiographical and edaphic condition of plant habitats."

The Peak, although of little interest from the point of view of floristic botany, provides many problems in the succession of plant associations. One of these problems will serve as a practical illustration of the view held by Dr. Moss mentioned above. In the Peak district large moorland areas are at present occupied almost exclusively by Cotton-grass (Eriophorum vaginatum). On such areas the peat is rapidly increasing in thickness, as it is more slowly on the drier moors covered with Heather and Bilberry. On the highest ridges and plateaux, on the contrary, the peat is gradually being denuded, giving rise ultimately to bare "peat-hags," almost or entirely destitute of plants.

This regression of the Cotton-grass moors is apparently initiated by the cutting back of streams at their sources, many of which are a quarter of a mile longer than they were shown to be on the ordnance survey maps of 1877.

The result is extensive channelling of the peat, which becomes drier, bears a scanty flora of plants which can withstand the drier soil conditions, and may ultimately become extensively denuded and washed away. Such an explanation of the different type of vegetation found on many of the high-lying moors is intelligible and convincing, and does not rest on the assumption of a succession of climatic changes.

It is made conclusive by a closer examination of the peat underlying such retrogressive moors, which is composed almost entirely of the remains of Cotton-grass. In the author's words, "the living Vaccinium and Empetrum which crown the 'peat-hags' rest uncomformably—as the geologists would say—in strata of Cotton-grass peat."

The book is liberally illustrated by excellent photographs of the types of vegetation described. It includes also an adequate bibliography and two vegetation maps superimposed on the 1 inch ordnance survey maps of the district. *M. C. R.*

CONGEA TOMENTOSA.

Congea tomentosa (see fig. 138) belongs to the Natural Order Verbenaceæ and forms a moderate-sized climber, suitable for growing in a stove or warm conservatory in Britain, though in Ceylon it makes one of our most admired climbing plants in the garden. It is a near relative of Petræa volubilis with its exquisite violet and heliotrope flowers, in which the tints are deliciously blended together. The Congea may be said to rival the beauty and charm of Petræa, but unlike that exceedingly interesting plant, the showy part consists not of the actual flower, but of the brightly-coloured, persistent bracts, which are borne in large, woody, lax panicles at the ends of the branches. At first of a delicate pink shade, these gradually merge into lighter tints of pleasing contrast, the inflorescence remaining on the plant and retaining its attractiveness for several weeks. The plant is an evergreen, and the small, simple oval leaves add to its graceful character. Though seeds are seldom produced, the plant may be propagated readily from cuttings, which should be selected from the ends of the branches. Congea tomentosa is a native of Burma, but it succeeds in Ceylon from sea level to about 3,000 feet elevation. *H. F. Macmillan.*

[*Photograph by H. F. Macmillan.*

Fig. 138.—Congea tomentosa in the botanic gardens, peradeniya, ceylon. colour of flowers pink.

WART DISEASE OF POTATOS.

ORDER OF THE BOARD OF AGRICULTURE AND FISHERIES.

The Board of Agriculture and Fisheries, by virtue and in exercise of the powers vested in them under the Destructive Insects and Pests Acts, 1877 and 1907, do order, and it is hereby ordered, as follows :—

Restriction of Movement of Potatos from Scheduled Area.

1. Potatos grown on any premises within the area described in the Schedule to this Order, or loaded at any railway station or port within the said area, shall not be moved into or within England or Wales, unless accompanied by a licence of the Board of Agriculture and Fisheries, or in contravention of any condition inserted in the licence.

Power by Notice to Restrict Movement of Potatos.

2. An Inspector of the Board of Agriculture and Fisheries or of the Local Authority may, by Notice served on any person having in his possession or under his charge any potatos moved or suspected by the Inspector of having been moved in contravention of this Order, prohibit the removal of the potatos from the place where they are at the time of the issue of the Notice, otherwise than under and in accordance with the conditions of a licence granted by an Inspector of the Board or of the Local Authority.

Information to be given as to Diseased Potatos.

3. An Inspector of the Board of Agriculture and Fisheries or of the Local Authority may require any person having in his possession or under his charge potatos suspected by the Inspector of having been moved in contravention of this Order to give all the information in his possession as to the persons in whose charge or possession the potatos have been and as to the place where they were grown or loaded.

Powers of Entry and Inspection.

4. Any Inspector or other officer appointed by the Board or the Local Authority in that behalf, upon production, if so required, of his appointment or authority, may for the purpose of enforcing this Order enter any premises and examine any potatos thereon.

Offences.

5. Every person shall be liable on conviction to a penalty not exceeding ten pounds, who—

(1) moves or causes or permits to be moved any potatos in contravention of this Order, or of any Notice served thereunder, or of the conditions of any licence granted thereunder; or

(2) refuses or fails to give any information required under Article 3 of this Order or gives false information; or

(3) obstructs or impedes any Inspector or other officer in the course of his duties under this Order.

Execution of the Order.

6. For the purpose of this Order a Notice shall be deemed to be served on a person if it is delivered to him personally or left for him at his last known place of abode or business or sent through the post in a letter addressed to him there, and a Notice or other document purporting to be signed by any person as an Inspector of a Local Authority or of the Board shall be prima facie evidence that it was so signed.

Definitions.

7. In this Order—

"The Board" means the Board of Agriculture and Fisheries;

"Local Authority" means a local authority having power to execute and enforce the Diseases of Animals Act, 1894.

Commencement.

8. This Order shall come into operation on the twenty-fifth day of November, nineteen hundred and thirteen.

Short Title.

9. This Order may be cited as the Wart Disease of Potatos (Special Area) Order of 1913.

In witness whereof the Board of Agriculture and Fisheries have hereunto set their Official Seal this twenty-fourth day of November, nineteen hundred and thirteen.

L.S.

Sydney Olivier,

November 24, 1913. Secretary.

Schedule.

An area comprising the civil parishes of Largs, West Kilbride, Dalry, Ardrossan, Kilwinning, Stevenston, Irvine, Dreghorn, Kilmaurs and Dundonald, in the County of Ayr and the burgh of Irvine.

SCOTLAND.

MR. JAMES FORBES.

Mr. James Forbes, head gardener at Overtoun, Dumbarton, has just retired from active service, and is now resident at Milngavie. Mr. Forbes has occupied the position of head gardener at Overtoun for well over forty years, having served under three proprietors—Mr. James White, his son, Lord Overtoun, and the present proprietor. Both in Mr. White's and Lord Overtoun's time extensive alterations were made in the gardens and grounds, and these were all carried out under Mr. Forbes' directions. Mr. Forbes is a native of Kincardineshire, and began his gardening career at Fasque, at that time the property of Sir John Gladstone, a brother of the late W. E. Gladstone. His first head charge was at Beechwood, Partick, where he remained till he was appointed to Overtoun. Mr. Forbes has the distinction of having visited both the great International Horticultural Exhibitions in London, in 1866 and 1912. He is a member of all the leading horticultural societies north of the Tweed, and has been a member of the Royal Scottish Arboricultural Society for a considerable number of years.

MUNICIPAL GARDEN ALLOTMENTS IN EDINBURGH.

Representations have been made to the Edinburgh Town Council for additional allotments in various districts of the city, and the Parks Committee has shown every desire to meet the wants of the applicants. Mr. J. W. M'Hattie, the city gardener, has reported upon some schemes, and others are to be considered. A peculiar point in connection with the Allotment Act has arisen. The allotment holders at Findhorn Place allotments asked that an iron fence be erected. The Act, however, states that the allotments should be self-supporting, and the expense of the fence cannot well be met from the rents. The question has been postponed for further consideration.

CANADA.

The Growth of Vegetable Culture.

One of the most marked advances in the steady progress of horticulture is that of vegetable culture, which until recent years has been deplorably primitive, not only in the ways of growing the various kinds, but also in the selection of varieties. A change, however, is rapidly taking place, and market gardens are springing up, none too soon, on the outskirts of the city, which will in due course not only supply the markets with something else than hard Peas, Beets and Carrots—the mainstay of the restaurants—but tend to bring down the exorbitant prices at present existing to something like a reasonable level. I have just finished reading an account of the interview with Mr. Burpee, of America, printed in the *Gardeners' Chronicle*. Much of what is written in that notice applies equally to Canada, especially in respect to the growing demand for the finest types of flowers and vegetables.

Ontario Growers and British Seed.

It will interest readers of the *Gardeners' Chronicle* to know that owing to the high price of the seed sold by Canadian nurserymen it is getting the custom to purchase from reputable firms in the Old Country, for the good reason that not only is the seed cheaper but more reliable, and represents more perfect types. About 1,000 growers are concerned in a decision recently come to in this matter. Those responsible for the Canadian National Exhibition will have to mend their ways. Much indignation was expressed this fall at the inadequate sheltering of the vegetable displays and the ignorant judging. It is a pleasure to hear of these outspoken declarations; it shows the men are in deadly earnest—and they are. *Canadian Correspondent, Toronto.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. White, Grower to Sir Trevor Lawrence, Bart., Burford, Dorking.

Cool House.—Whilst mild weather continues, afford plenty of fresh air to Orchids generally, and especially to the occupants of the cool house. Neglect in this respect may cause the young shoots of Odontoglossums, which are more forward than usual, to grow weak, and the leaves to become thin, narrow, and unduly lengthened. Water should be afforded with extra care: let the plants become moderately dry before moisture is applied, for if the compost is kept saturated it will cause the roots to rot and the young leaves to decay at their tips. At this season, when the external air is mild and damp, patches of dark mildew sometimes appear on the undersides of the leaves. The fungus must be eradicated at once, or it will spread rapidly to almost every plant in the house. Frequent and close examinations should be made for the presence of mildew, and immediately it is detected utilise the hot-water system to make the atmosphere slightly warmer, and increase the amount of ventilation. For a few days, also, sprinkle less water about the house. These precautions will check the spread of the mildew, but not destroy it, and some mild fungicide should be employed for sponging the leaves. Some cultivators cut off the affected parts of the leaves and burn them. At this season slugs generally become numerous in the cool house. The pests are nearly always to be found on the sides of the pots or in the Sphagnum-moss, and must be assiduously sought for and destroyed, or they may injure many of the young flower-spikes. Put baits upon and around the plants, consisting of pieces of Lettuce and Cabbage leaves, also pieces of Apple and Potato, which should be scooped out on one side, placed hollow-side downwards on the compost. Examine the baits every evening and again at early morning. At the base of some of the young growths of Odontoglossums a brown outer sheath may obstruct the new roots, and should be slit in several places to permit of its being pulled off in small pieces.

Trichopilia.—Plants of T. lepida, T. tortilis, T. suavis, T. rostrata, T. Backhouseana, T. Galeottiana, T. coccinea, T. Wageneri, T. crispa and T. laxa that have completed their growths should be afforded water very sparingly, or the pseudo-bulbs and leaves may become spotted. So long as the bulbs remain plump no water will be required, but if they begin to shrivel a moderate amount of moisture may be afforded. During the resting period Trichopilia should be placed in a cool, dry part of the intermediate house close to the roof-glass. T. fragrans [or Pilumna nobilis] one of the best of the white, sweet-scented Orchids, is in flower. This plant requires a trifle more heat than the Odontoglossums, so that it may be grown at the warmer end of the cool house, or in any moist house where the atmospheric temperature does not fall below 50° in winter. Trichopilias should be potted soon after growth commences. Well-drained Osmunda fibre is suitable for a rooting medium, and, as healthy plants have numerous roots, ample space should be afforded. Place the growths high up in the pots, so that when water is afforded none of the moisture will lodge in the young shoots, which soon rot when damp. Plants growing actively should be stood in a light position in the Cattleya house. Some of the smaller growing kinds may be suspended from the roof.

Cœlogyne.—C. Mooreana is in bloom; the upright spike of white flowers with a rich yellow centre is very handsome, and the plant deserves a prominent position even in the most select collection of Orchids. The plant grows freely in a shady part of the intermediate house, and requires a moderate amount of water at all times. The same remarks apply also to C. speciosa alba, which is also in flower.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Tree Carnations.—Rooted cuttings are ready for shifting into thumb pots. Water the soil thoroughly, and grow the plants in a light airy position close to the roof-glass in a house having an atmospheric temperature of from 55° to 60° at night. Afford an abundance of air to old plants, and grow them in a house where the temperature at night is not lower than 55° to 60°. Take care to keep fog from the plants as much as is possible, and let the conditions of the house be dry, for an excess of damp will not only injure the blooms but will cause the buds to open unsatisfactorily and the plants to lose many of their leaves. If red-spider is present on the foliage choose a bright day for syringing them with nicotine extract as advised in a previous calendar, taking care that none of the liquid reaches the blooms. It is not advisable to insert fresh batches of cuttings before January.

Lachenalia.—These plants should be removed from the cool frames, and placed on a shelf in a greenhouse. Feed the roots with small doses of liquid manure and soot water. These bulbous plants must on no account be placed in excessive warmth; the best results are obtained when they develop slowly in a cool greenhouse where the atmospheric temperature at night is 40° to 45°.

Gloriosa superba.— The pots containing the ripened roots should be stored under the stage in an intermediate house, placing the pots on their sides. They may remain thus until the time for starting them into growth again. See that no water draining from the plants on the stage wets either the soil or the tubers.

Coleus Thyrsoideus.—The plants are on the point of flowering, and should be arranged in the stove-house with the other inmates. They will serve to brighten the effect in the warm house between now and Christmas. It is advisable to discontinue feeding at this stage, whether it be liquid manure or concentrated fertiliser, and to use clear water only.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Wall Plants.—Many subjects suitable for walls may be planted at the present time provided the weather remains open. Most climbers can be purchased in pots, and pot plants are the most satisfactory. Let the ground be prepared thoroughly, and spread the roots their full length before the soil is placed in position. There are numerous plants suitable for furnishing walls, trellises and pergolas, but the aspect and general situation must be taken into account before the selection is made. Roses grow best on south and west walls; they should never be planted on the north side. Other plants requiring a sheltered situation include Ceanothus and Passiflora cœrulea. Polygonum baldschuanicum and P. multiflorum both grow rapidly, and require plenty of room to develop their long, trailing shoots. Ornamental-leaved vines are both interesting and showy. Forsythia suspensa, Escallonia, Cratægus, Cydonia, and Cotoneaster may be planted in northern or eastern aspects. Jasminum nudiflorum and Chimanthus fragans, both of which are at the present time in full flower, should also be included in the list of subjects for south walls. Hederas (Ivies) are useful for covering unsightly walls or fences, but as there is a great wealth of beautiful flowering plants suitable for this type of planting, room should only be found for a few of the choicest Ivies.

Roads and Paths.—The present is probably the most convenient time to remake or mend roads and paths. Road-making is expensive work, especially when it necessitates labour other than the garden staff affords; therefore it should be done when other matters are not pressing, to enable most of the permanent staff to be made use of. Grass verges may be cut and made level when the paths are finished.

The draining of waterlogged ground should also receive attention. Hollow places on lawns should be made level, as these will otherwise retain too much moisture, causing the growth of rank grass. The soil used for filling in the hollows must not be too rich in quality, as this also would cause the grass to become coarse.

Protecting Bulbs.—Rats and mice often do serious damage to bulbs which have been recently planted. Mice are very partial to Tulips, and where these bulbs have been set amongst such plants as Forget-Me-Not, Arabis, and Polyanthus they should be examined frequently. Mice are easily caught in "break-back" traps, which should be kept dry, for when they are saturated with water they are useless. Rats are more difficult to deal with; it is best to drive the rodents from their holes by means of ferrets and to shoot them as they escape.

THE "FRENCH" GARDEN.

By Paul Aquatias.

Nursery Beds. — Continue to transplant seedlings of Cos Lettuces until a sufficient number is available for the early crops. Do not afford ventilation until the plants are well established. Afterwards, when the bell-glasses are covered at night with mats, ventilation may be permitted during times of mild frosts, but when very cold weather sets in every precaution must be taken to prevent the plants from flagging through frost. They would probably recover and thrive, but when lifted in early spring for the final planting a red ring would be noticeable round the collar of each, which is the first indication of decay that invariably follows injury from frost. During the next four weeks the plants will be very susceptible to attacks of mildew, but there will be very little danger from attacks where copper sulphate was applied to the ground late in September. The disease chiefly appears in patches; the plants should be examined periodically from now onwards, and where traces of mildew are found sulphur or powdered copper sulphate should be scattered on the Lettuces and on the space around the bell-glasses where the disease is apparent. The cloche must be kept closed afterwards. The specific will kill both the plants and the fungus, but it will stop the spread of the mildew; moreover, plants attacked never recover, and are only sources of infection to healthy plants.

Winter Crops.—The Lettuces raised in August are ready for marketing. The heads should be cut during the middle of the day, when the leaves are dry, and the remaining plants kept scrupulously clean. The variety Little Gott must be grown under close conditions both day and night, and covered with mats in frosty weather. The variety White Passion is hardier than Little Gott, and may receive ventilation during times of bright weather. The plants will form a succession to those of Little Gott after Christmas.

Old Manure Beds.—The old manure having been turned over twice is sufficiently decayed, and preparations may be made for making next season's hot-beds. The site of the first hot-bed, 67 feet by 6 feet, is now entirely clear. Let a line be run along the bottom part of this bed, and set a 6 foot stake against it, at 7 feet 6 inches from the outside, and four similar stakes at intervals of 13 feet. Fix another line parallel to the top line at the end of the hot-bed quarter, and place five sticks at the same distance as the others and facing them. Between each top and bottom peg, a ridge of decayed manure 4 feet at the base and 3 feet high is built; this material will be utilised for filling the frames when making the hot-beds in January. The remainder of the manure, about two-thirds of the whole bulk, may be carted to wherever it will be needed. For instance, some may be placed where the crops of Melons and Cucumbers will be grown next season. One barrow-load for every light will be a suitable quantity of decayed manure for these crops. A heap should also be placed close to the space reserved for the crops grown without hot-beds, or it may be left where it is for the present, to be placed direct in the frames within three or four weeks. The surplus manure should be stocked in a convenient place where it can be broken up and passed through the screen for top-dressing seeds and nursery beds next spring. Excess of moisture in the hot-beds often causes much damage to the crops in the early spring. Let the liquid from the manure drain through pipes into a cesspool made for the purpose at the bottom of the hot-bed quarters. The drains should not be sunk into the ground, as they must be in direct contact with the manure when the beds are made. A trench 6 inches deep filled up with stones, broken bricks or large clinkers will answer the same purpose as pipes.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Carrots in Frames.—Young Carrots are much appreciated in the spring, when the old roots begin to lose colour and are of but little culinary value, except for flavouring purposes. A sowing may be made early in December, and the pit should be prepared for the crop now. Collect a quantity of new leaves and place them in a heap to ferment, so that a gentle bottom heat may be available directly the bed is made. In making the hotbed tread the leaves very lightly, and place them to within 18 inches of the roof-glass. A layer of rich soil should be spread over the surface to a depth of 9 inches and pressed lightly with a wooden rake. When the surface has been made level sow the seeds broadcast, and lightly cover them with finely sifted soil, which should be moderately moist, so that very little water may be necessary until the seedlings appear, at which stage soft water may be afforded by means of a fine-rose can. No fire heat is necessary for this crop, provided the soil can be kept at a proper temperature by the bed of leaves. Sufficient covering material should be provided to keep the pit free from frost; dry fern litter is suitable for the purpose, but it should be removed whenever the weather permits, in order to admit all the light possible, so that the plants may not become drawn. Early Scarlet Horn and Early Gem are two good varieties for sowing in December.

Peas in Pits.—A sowing of dwarf Peas may be made in pits about the middle of December. No bottom heat is necessary, but the soil should be light and rich, and one foot in depth, resting on a layer of thoroughly decomposed manure. Sow the seeds in drills, 2 inches deep, the distance apart to depend on the variety. Sutton's Seedling and Chelsea Gem are reliable varieties for the purpose, and the rows should be 18 inches apart. If frost is excluded, no further protection is necessary so early in the season, and as soon as the seedlings are well through the soil they should have an abundance of air. Remove the lights on fine days, replacing them again at night. Prevent cold draughts from reaching the plants, and see that they do not suffer from want of water at the extremities of the roots, or mildew may appear.

Early Potatos.—Pits intended for this crop should be cleared, and fresh beds of leaves prepared in readiness for planting, which should be deferred until the middle of December, as dull weather has a detrimental effect on crops planted too early. If only a small supply is necessary the tubers may be grown in pots or boxes in any structure, with an atmospheric temperature of 50° at night. When shoots push through the soil stand the pots near to the roof-glass, or the plants may become drawn and the crop be inferior. May Queen is one of the best varieties for early forcing. Crock the pots, half fill them with rich soil, and place three moderately sized tubers in each, covering the sets with fine soil, consisting of two-thirds sandy loam and one-third leaf mould, but allow room for applying a top-dressing when the plants are a few inches high. At the stage when the plants are growing freely, afford them ample supplies of water at the roots, and stand them where they will enjoy plenty of light.

Herbs.—Mint roots placed in heat a month ago are furnishing young green shoots. A continuous supply may be had by placing the roots closely together on a bed of leaves. Tarragon and Chives may be forced in the same manner, lightly covering the roots with sifted leaf-mould. Sorrel may be lifted and forced in gentle heat. Soil in which crops of Tomatos or French Beans have been grown is suitable, and it should be worked amongst the roots by a copious watering, when the latter are placed in heat. A temperature of 45° is suitable in winter for forcing Sorrel.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

The Vineries.—Any bunches of Muscat of Alexandria Grapes which may still be on the vines should be cut with as much wood as possible, as the best method of preserving is to fix the latter in a bottle of water containing charcoal. The bunches, after being thus arranged, should be placed for storage in a dry room, without artificial heat, where there is a free circulation of air under the floor, but complete immunity from frost. In case, however, there should be danger from frost, slight artificial heat may be used to counteract it. After the Grapes are cut the ventilators of the vinery may be thrown wide open, and the inside border watered thoroughly, first with clear water and afterwards with liquid manure. Late Grapes other than Muscat of Alexandria may remain on the vines a little longer, but the sooner they are cut the better. While the Grapes are still on the vines the ventilators must be closed during damp weather. On sunny mornings a little heat in the pipes, coupled with open ventilators, will be of advantage in thoroughly drying the air in the house. The night temperature should be 50°, falling to 45° in frosty weather. The bunches should be examined frequently, and every decayed berry removed immediately. No plants requiring water should be kept in the vinery, and the presence of either moisture or dust in the atmosphere must be guarded against. In the mid-season vineries, which have been at rest for some time, pruning, cleaning and any necessary renovation can be proceeded with. Young vines which have made clean, strong growth should be attended to by removing any loose bark and painting the rods with a brush, using Gishurst Compound in solution. If the inside border has been only partially made, and the roots have reached the limits, it should be made two feet wider. Use soil gathered from the whole of the surface, and a quantity of fresh, turfy loam, mixing in some lime rubble, and applying a sprinkling of vine manure. In the case of old vines infested with thrips or mealy bug, drastic means of eradication must be applied, as described in former calendars.

Cool Orchard House.—In colder and more northerly districts it is necessary to grow choice varieties of Plums under glass. The best covering for this purpose is a glass case made wide enough to admit of a flow-and-return hot-water pipe. The present is the best time to prune or renew the trees. Young Plum trees are apt at first to make strong wood growths and produce little fruit. Root-pruning will bring them into a condition of fruitfulness, and this work should be done now. Take care not to injure or destroy the fibrous roots and shorten the strong, bare ones. In re-planting, use some fresh, fibrous loam, and arrange the roots near to the surface. If the trees are infested by scale, a wineglassful of paraffin may be mixed well with each gallon of water, and the trees sprayed with the liquid.

Publications Received.—*Trees and Shrubs.* Illustrations of new or little-known ligneous plants. Edited by Charles Sprague Sargent. Vol. II. Part IV. (Boston: Houghton Mifflin Company.) Price $5. — *Garden Trees and Shrubs.* By Walter P. Wright. (London: Headley Brothers.) Price 12s. 6d. net.—*The Rose Book.* By H. H. Thomas, assisted by Walter Easlea. (London: Cassell & Co.) Price 6s.—*Weeds.* By R. Lloyd Praeger. (Cambridge: University Press.) Price 1s. 6d. net.—*The Sweet Pea Notebook.* By Walter P. Wright, 5, St. Augustine's Road, Canterbury. Price 7d. post free.

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Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, DECEMBER 8—
United Hort. Ben. and Prov. Soc. meet.

WEDNESDAY, DECEMBER 10—
Nat. Chrys. Soc. Exh. at Essex Hall, Strand; Conference in evening. N. of Eng. Hort. Soc. meet. at Leeds.

THURSDAY, DECEMBER 11—
Nat. Rose Soc. Annual Meet. and Conversazione.

MONDAY, DECEMBER 15—
Surveyors' Institution Meet. Lecture by Prof. Ainsworth Davies on "Modern Science and Modern Agriculture."

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 40.7°.

ACTUAL TEMPERATURES:—
LONDON. *Wednesday, December* 3 (6 p.m.): Max. 53°; Min. 50°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, December* 4 (10 a.m.): Bar., 29.2°; Temp. 44°. *Weather.*—Sunshine.
PROVINCES.—*Wednesday, December* 3; Max. 52°, Liverpool; Min. 42°, Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY—
Dutch Bulbs, Perennials, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 11.

MONDAY AND WEDNESDAY—
Rose Trees, Bulbs, Lilies, Perennials, etc., at Stevens' Auction Rooms, King Street, Covent Garden, W.C.

WEDNESDAY—
Dutch Bulbs, Herbaceous Plants, etc., at 11. Palms and Plants, Azaleas, etc., at 5, at Protheroe and Morris's rooms.

WEDNESDAY AND THURSDAY—
Clearance Sale of 6½ acres of Nursery Stock, at Hillier's, West Hill Nursery, Winchester, by Protheroe and Morris, at 11.30 o'clock.

THURSDAY—
Special Sale of Roses at Protheroe and Morris's rooms, at 1.

FRIDAY—
Bulbs, Herbaceous Plants and Perennials, Roses, Fruit Trees, etc., at Protheroe and Morris's rooms, at 11.

Mildew of Grape Vines.

A most exhaustive and valuable study of vine mildew has been published by Drs. Gv. de Istvánffi and Gv. Pálinkás in the *Annales de l'Institut Central Ampélogique Royal Hongrois.** As a result of the labours of these authors, which have extended over many years, it should be possible for Grape-growers to combat this disease the more effectually. Although the observations described in this memoir will prove of the greatest value to growers of vines in the open air, they are by no means without value to those who grow Grapes under glass. We therefore give a summary of the more important of the observations.

* IV., 1913, June.

The life-history of Plasmopara viticola, the fungus which causes mildew in Grapes, is well known. The mycelium attacks all the soft tissues of the plant—leaves, buds, tendrils, flowers, and fruit. It runs in the spaces between the cells and sends innumerable suckers into the cells. The fungus produces asexual spores (conidia) and sexual spores (oogonia). The former give rise to summer infection, and by their numbers cause the disease to spread with terrible rapidity from plant to plant. The oogonia are resting spores which hibernate in the fallen foliage and other débris of the vine and give rise to infection in the beginning of each year.

The conidia as a rule give rise each to a number of naked motile spores (zoospores), which infect the plant. They may, however, germinate directly; that is to say, each produces a germ tube which penetrates into the plant.

Infection takes place through the stomata, and hence it occurs mainly on the lower surface, over which the stomata are widely distributed. Inasmuch, however, as stomata occur also on the upper surface at the edges of the leaf and close to the veins, infection may be effected by way of the upper surface also.

The summer conidia are produced in cushions or efflorescences of hyphæ, which form just beneath a stoma, and it is of the greatest importance to know that at least a day elapses between the time at which these white efflorescences may be recognised by the naked eye and the time at which the conidia are liberated. Since mere traces of copper sulphate (1 in 1½ million parts of water) suffice to prevent the germination of the conidia, and since the conidia do not germinate until 24 hours after they have been shed, the vigilant grower has a means of preventing the further progress of the disease. Sulphur and, when possible, Bordeaux mixture are the fungicides commonly employed. Another point of great importance lies in the fact that, except in certain circumstances, the disease may be diagnosed at a yet earlier stage than that which marks the appearance of the white efflorescences. The means of diagnosis are afforded by transparent spots or patches. The patches are first pale green and later ochre yellow. They make their appearance first on the teeth of the leaf and along the veins. They have zigzag edges, and are sharply marked off from the rest of the leaf. These oil spots make their appearance whenever infection has taken place in a growing green part—in a young leaf, for example. They are due to the fact that the mycelium destroys the chloroplast, and the oily basis of the destroyed chlorophyll grains is distributed throughout a certain area owing to the stretching of the growing leaf. A sharp look-out should be kept for the appearance of these oil patches, and should they be seen remedial measures should be taken immediately.

When, however, the vines are growing in a high temperature and moist atmosphere — conditions which accelerate greatly the growth and development of Plasmopara viticola—or when fully-grown organs are attacked oil patches fail to appear, and in these cases the white efflorescences are the first sign of an impending outbreak of the disease. On the old parts recent infection and an imminent outbreak of spore formation are indicated by leaden grey or brown areas.

The well-known fact that humidity and high temperatures hasten the development of the fungus is illustrated admirably by the investigations of Drs. Istvánffi and Pálinkás of what they term the incubation time—that is, the time between infection by conidia and the consequent formation of the next crop of conidia. Given a rainy day—or a very humid atmosphere—and given the presence of conidia, infection occurs. The zoospores pass into the stomata. Each forms a secondary spore. The secondary spore forms a hypha—thick if the air be moist, thin if it be dry. The hypha spreads and increases, sends suckers into the cells, forms a mass of mycelium, which increases, especially in the spaces beneath the stomata. These masses emerge from the stomata as the white efflorescences and develop branches on which conidia appear. Thus in Hungary in July and August the cycle is 5 to 6 days, in mid-May 15 to 18 days. Hence in vineyards suffering from mildew it is possible to predict fresh periodic outbreaks at fixed intervals measured from days on which rain falls. The rain "sows" the conidia, and the temperature and moisture determine the rate of growth of the noxious parasite.

We congratulate the authors of this memoir on having produced an altogether admirable piece of work, and we hope that it may serve as a model for similar investigations, particularly into the periodicity of outbreak of the late blight of Potatos. For there is no doubt that a similar relation obtains between weather and late blight, and if the precise nature of this relation were obtained it would be possible to issue inspired warnings to the growers, so that the careless might be wise in time. Indeed, the suggestion may be made that the help of the Postmaster-General might be invoked, and, after a summer rain, stamps on letters for rural districts might be defaced by the words "spray Potatos now."

Supplementary Illustration. — A fortnight ago we published an account of the gardens at Huntercombe Manor, with illustrations of the famous Yew hedges and walled-in flower garden. The present supplementary illustration shows a charming example of a woodland glade on the boundary of the gardens. Here Mrs. BOYLE has made a beautiful grouping of Yuccas, Phormiums, native Ferns, and a succession of herbaceous flowering plants, which follows the spring display of bulbs. Near by, where the splendid Elms prevent a floral display, there is a short pleached alley of Hornbeam over a mossy path, the way leading to a variety of shrubs, and so back to the Yew hedges.

Coloured Supplement.—The subject of the Coloured Plate to be published with the next issue is Nymphæa Galatée.

NATIONAL ROSE SOCIETY.—The thirty-seventh annual general meeting of the National Rose Society will take place at the Westminster Palace Hotel, Victoria Street, Westminster, on Thursday, the 11th inst., at three p.m. Several alterations of the rules and by-laws are proposed. Following the general meeting, a conversazione will take place from 4.30 to 6.30 p.m. Applications for tickets must be made to the hon. secretary, Mr. EDWARD MAWLEY, on or before Monday, December 8.

BOTANICAL APPOINTMENT.—Mr. HUMPHREY GILBERT CARTER, M.B., Ch.B. (Edin.), has been appointed by the Secretary of State for India in Council on the recommendation of Kew, Economic Botanist to the Botanical Survey of India.

APPOINTMENT FROM KEW.—Mr. JOHN NOEL MILSUM, a member of the gardening staff of the Royal Botanic Gardens, has been appointed by the Secretary of State for the Colonies, on the recommendation of Kew, an Assistant Superintendent of Government Plantations in the Federated Malay States, in succession to Mr. J. G. WATSON, who has been transferred to the Forestry Department of the Federated Malay States.

THE LAWES AND GILBERT CENTENARY FUND.—Very encouraging progress has been made in establishing this fund since the issue of the report which appeared in these columns on November 1, p. 307. The amount to be raised by public subscription is £6,000, and more than half that amount has already been given or promised. Our readers know so well what excellent work has been done at Rothamsted that we feel sure they will support the scheme for erecting a laboratory in commemoration of the centenary of the birth of Sir JOHN LAWES and Sir HENRY GILBERT. The director, Dr. E. J. RUSSELL, and his staff feel there is a great need for the laboratory, and we believe it to be to the public interest that the need be supplied.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting of the Surveyors' Institution will be held in the Lecture Hall of the Institution on Monday, the 15th inst., when a lecture will be delivered by Professor AINSWORTH DAVIES, M.A., Principal of the Royal Agricultural College, Cirencester, on "Modern Science and Modern Agriculture." The chair will be taken at 8 o'clock.

STRIKE OF NURSERY HANDS.—The employees at Messrs. JACKMAN AND SONS' and Mr. W. C. SLOCOCK'S nurseries, Woking, commenced a strike early last month for higher wages and shorter hours. The men put forward a claim for an advance of 3s. per week for all classes of workers and a maximum working week of 50 hours in winter and 55 hours in summer These demands were afterwards reduced to 2s. weekly increase for regular workers and 1s. for casual labourers, the question of hours to be met by the arrangement that all workers leave off at one o'clock on Saturday from April to October, the former Saturday closing time (4 p.m.) being still adhered to for the remainder of the year.

APPLE LEAF SPOT.—An account of this disease, caused by the fungus Sphæropsis malorum Peck, is given in No. 281 of the Board of Agriculture leaflets. This disease, which is common and serious in America, has been reported recently as occurring in this country. The parasite attacks trunk, branches, leaves and fruit. It causes a patchy roughening and subsequently destruction of the bark with exposure of the wood. Thus branches become ringed and die. The fungus causes a brown rot on the fruit, starting as a small spot and spreading throughout the fruit. Dark purple spots are the first indication of the disease on the leaves, and these spots increase to so much as half an inch in diameter. The older diseased patches are rusty brown, often with a leaden-coloured centre. On infected leaves, which fall early, minute black spots (perithecia) appear, and the perithecia liberate large numbers of ovoid spores. Similar perithecia occur on young diseased twigs, and infection of young leaves in the spring takes place mainly from the spores liberated from these perithecia. The disease is worst in orchards in which pruning is neglected. Clean cultivation, including pruning and destruction of diseased twigs, is recommended, and spraying with Bordeaux mixture, 6 lbs. copper sulphate (of 98 per cent. purity), 4 lbs. quicklime, 100 gallons of water, or with lime sulphur, is advised. A first spraying should be made a week after the petals have fallen, and a second a month later. The symptoms caused by the fungus under discussion cannot be confused with those due to Apple scab (Venturia inæqualis), for the blotches which characterise the latter are of a black or olive colour.

WART DISEASE IN NORTH AYRSHIRE.—In consequence of an outbreak of wart disease in North Ayrshire the Board of Agriculture has passed an order prohibiting the removal of Potatos from that district into England and Wales (see p. 399).

THE NATURE OF THE STARCH GRAIN.—The effect of unsuitable conditions of weather or soil on the maturation of seeds is a subject of such prime interest to the horticulturist that attention may well be directed to an investigation of hard and tender Barleys made by Mr. H. C. A. VINE, and published in the *Journal of the Institute of Brewing* (October). The economic value of a Barley depends largely on the extent of maturation as evidenced by its tenderness or hardness, that is the ease with which it is broken down and dissolved in the malting and brewing process. It is now shown that hardness is always accompanied by an excessive proportion of minute and undeveloped starch grains, resulting from the inability of the protoplasm to bring the ripening process to perfection. In an unfavourable season, when suitable material is not available, the starch grains are starved and remain small, whereas granules developing under favourable conditions appropriate a large proportion of the available nutriment and develop many layers. They are in consequence tender and easily digested, for it is a known fact that small starch granules are attacked less easily by acids, by moisture, or by enzymes than are the larger granules. A somewhat similar variation has already been shown to exist in Wheat, the soft winter Wheat flours of the St. Louis district, which are much sought after in America, having been shown by ARMSTRONG to contain a far higher proportion of very large granules than the spring Wheats. REICHERT, in a remarkable research recently published by the Carnegie Institute, adduces a great deal of evidence to show that the variations of the starch granule, both in shape and size, as well as in chemical and physical properties, are absolutely diagnostic in relation to the plant, and claims that they constitute a strictly scientific basis for the classification of plants. He argues that the starch as it is made is influenced by the peculiarities of the protoplasm of the particular plant, so that allied plants make allied forms of starch.

NEW CACTUS DAHLIA.—A striking novelty among Dahlias was exhibited by the raiser, M. E. NAGELS, of Wilryck-lès-Anvers, Belgium, at the recent exhibition held by the French National Society of Horticulture. The form of the new variety, which is described and illustrated in *Le Jardin* (November 5, 1912), recalls that of a large incurved Chrysanthemum, and is said to be the most distinctly incurved of all varieties of Cactus Dahlia. It is named Mme. E. Nagels, and is of a golden-yellow colour.

TOBACCO-GROWING IN ENGLAND.—As announced in our advertisement columns, a company is being formed in order to apply to the growing of Tobacco in this country the ingenious system of cultivation by means of the PULLEN-BURRY moveable hothouses. Full accounts of this system of cultivation as applied both to ordinary crops and to Tobacco have been published in these columns (*Gard. Chron.*, April 12, June 21, September 20, 1913), and widespread interest has been aroused by the results which Mr. PULLEN-BURRY's system of culture has already achieved.

A NEW WORK ON HARDY AND ALPINE PLANTS.—It may interest those of our readers who are enthusiasts for hardy plants and Alpines to learn that Mr. FARRER is now engaged on a work which, it is hoped, may prove a compendious and adequate guide to all plants that are already grown in the rock-garden, or ought to be introduced. Mr. FARRER would be very grateful for any notes that our readers might care to send him (for incorporation in the book) on plants of very special novelty or beauty—their habitat, habit, and horticultural value. Any photographs, too, of such plants Mr. FARRER would be very glad to have the chance of choosing for inclusion in the book. Communications may be addressed to him at Ingleborough, Yorkshire.

CAUSTIC LIME AND SOIL STERILISATION.—The results of experiments carried out by Mr. H. B. HUTCHINSON, at Rothamsted (*Journal of Agric. Science* V. 3), indicate that the addition of caustic lime to soil produces effects intermediate between those brought about by volatile antiseptics and by sterilisation by high temperature. The effect of the caustic lime is to upset the balance between the several members of the soil micro flora and fauna; many bacteria and protozoa are killed and the rate of growth of the surviving bacteria is depressed. This depression, which apparently persists till all the oxide of lime is converted into carbonate, is followed by an increased bacterial activity, which in turn results in an increased production of plant food. That caustic lime exerts some effect other than that produced by lime in the form of carbonate is evident from the result of experiments made by adding it to soil containing a sufficiency of calcium carbonate. The yields from a poor arable soil showed a considerable increase in consequence of the addition of caustic lime. A rich garden soil, however, gave as the result of an application of caustic lime a poorer yield in the first crop and a largely increased second crop.

THE THATCHED ROOF.—We have received a pamphlet addressed to lovers of English rural scenery appealing against the substitution of corrugated iron for the fast disappearing thatch. We share the horror which the pamphlet expresses for the former monstrous roof covering, and would suggest that if thatch must go attention should be directed to tiles. This discarding of old and picturesque materials for new and ugly things, if it is to be checked, must be effected by finding cheap and pleasing substitutes. For example, in France the charming old tiles and grey rough slates are being ousted by the prim, thin, unsightly dark-blue slate. The latter is efficient, is light, and costs less to carry, and less to fix. Hence economy wins. We fear that for the protest to be successful the builder must be presented with an alternative material at least as cheap as the ugly thing which he is apt to use.

ROSES IN THE VIRGIN ISLANDS.—In the Report (1913) on the experiment station, Tortola, Virgin Islands, mention is made of the Roses which succeed best at the station. They are "roughly in order of merit": Pink Maman Cochet, White Maman Cochet, Souvenir de Pierre Notting, Gruss an Teplitz, Paul Neyron, American Beauty and La France.

TOWNSENDIA WILCOXIANA.—The merits of Townsendia Wilcoxiana Wood as a rock-garden

plant are described by Herr E. Nussbaumer, head gardener of the Botanic Gardens, Bremen, in a contribution to *Möllers Deutsche Gärtner-Zeitung* (No. 45, 1913). Townsendia Wilcoxiana is an April-flowering Composite of dwarf, spreading habit from Colorado and Arizona. Its large inflorescences have lilac ray and yellow disc florets, the flower head becoming brown-violet when fully opened. Unlike T. sericea Hook, and T. grandiflora Nutt, which flourish best in situations with dry autumns and winters, T. Wilcoxiana succeeds in a moist situation. It does best in a sheltered but sunny position, and in rich, well-drained soil.

Lead Poisoning.—Recent discoveries in the treatment of persons suffering from lead poisoning may conceivably point to a new way of treating disease in plants. Patients well-nigh paralysed as the result of lead poisoning are, so it appears, cured in an almost miraculous manner by electric baths, which draw the lead out of them as surely as the Pied Piper drew the rats out of Hamelin town. The thought suggests itself that if lead can be extracted from the animal body by electrolytic methods, may not other metals which are toxic to micro-organisms —copper for example—be drawn into the plant body? We commend the parallel to the attention of plant pathologists, and suggest that silver-leaf disease would prove a convenient subject for investigation on these novel lines.

The Chase Continuous Cloche.—A correspondent, writing of the Chase Continuous Cloche, states that his experience shows it to be a very useful article for protecting and encouraging the growth of seedlings and tender plants, especially from night frosts in the spring months. He also uses it for protecting choice Alpine plants from excessive wet, and from frosts in winter, in cases where it is not convenient to remove the plants to an unheated frame. The frames are lightly constructed, and allow the maximum amount of light to reach the plants. They may be used in many places where it is not practicable to employ frames. Each Cloche is composed of large panes of glass held securely together by spring wire. It can be carried about in one hand. The tent-shaped Cloche is most useful for the protection of seeds sown in the open against mice and other vermin. Germination is quicker, and much time is thus gained by means of this simple contrivance. The Cloches are placed end to end, and a pane of glass fills the opening at each end of the line. In the "Barn" Cloche the height and width are greater. It is 9 inches high at the sides and 14 inches at the ridge. This is useful for encouraging growth in rows of French Beans, Peas, Lettuces, Cauliflowers, and such crops in the spring. When used as a protection for fruiting Strawberries in the open it is found to improve the colour and flavour and to increase the size of the fruit. During autumn and winter the Cloches afford good protection to Lettuces, Endives, etc., keeping them free from excessive rain and frost. The Alpine protector is well designed, and can be used on a rockery or border. It is fixed with strong wire, which can be secured in any position.

Wicken Fen.—The National Trust has issued an appeal for funds to enable it to preserve Wicken Fen in its wild state. The Fen, which was bequeathed to the National Trust by the late Mr. G. H. Verrall, cannot be protected properly without the employment of a guardian or watcher with power to check indiscriminate collecting. Besides being the home of such rare butterflies as the swallow-tail and the breeding ground of various rare birds, including the grasshopper warbler, Wicken Fen gives harbourage to many uncommon plants, for example, the Fen Orchis (Liparis Loeselii), the Marsh Epipactis (E. palustris), the Fen Violet (V. stagnina), the Fen Pea (Lathyrus palustris), the Marsh Fern (Lastrea Thelypteris), the Sweet Gale (Myrica Gale), the Marsh Parsley (Peucedanum palustre), Carex parodoxa and C. filiformis, Carduus pratensis, Utricularia minor, Aster salignus, and Potamogeton coloratus. It is estimated that a capital sum of £2,000 would provide the necessary income for the purpose of safeguarding the flora and fauna of the Fen. Subscriptions should be sent to The Secretary of the National Trust, 25, Victoria Street, London, S.W.

Silver-Leaf Disease.—Experiments made by Mr. F. T. Brooks (see p. 305 *Journal of Agricultural Science* V. 3) tend to indicate that sulphate of iron is of but doubtful value as a curative of silver leaf. Mr. Brooks experimented with 49 silvered Victoria Plums, 37 of which were slightly, and the remaining 12 badly affected by the disease. A hole was drilled into each of the trunks about 3 feet from the ground, an ounce of sulphate of iron was introduced into the hole, which was then plugged. Two years after the treatment it was found that of the 37 slightly affected trees only 9 had recovered, and of the 12 badly diseased trees only 4 had been restored to health. A note in the *Annals of Botany* (January, 1913), by Miss Baker, states that by applying both internally and externally a concentrated aqueous extract of the deliquescing fruit bodies of a fungus—a species of Coprinus—to a silvered branch of Victoria Plum, the latter became in two years almost free from silver leaf, and put forth vigorous new growth. It remains to be seen whether further experiment will confirm this interesting observation.

Salvia nemorosa.—A hardy Salvia of good form and floriferous, Salvia nemorosa Crantz, is described by M. S. Mottet in *Revue Horticole*, 1913, p. 470. Known also as S. virgata, this Salvia bears long branching inflorescences which are erect, and from 3 to 4 feet high. Its flowers are small and blue-violet, but their effect is enhanced by the sombre red colour of the involucre. S. nemorosa is an Austrian species, and flowers from June to August. A white variety exists of lesser height, and like the type it flowers abundantly. Both are propagated from seed, or by division.

Poisoning by Gingko.—The *Botanical Gazette*, Chicago, records cases of skin poisoning by the fruits of Gingko biloba that had been dissected for botanical purposes. The poison is found in the outer fleshy layer. Gingko, in common with other irritant plants, does not affect all persons, but the infection may be communicated.

Rural Depopulation.—Now that the problems of rural life have entered the region of practical politics it is opportune to remind those interested in these problems that rural depopulation is not peculiar to this country. Thus in France, where the provincial population is held to the soil by ties of ownership and by the bonds of family life, which are more closely drawn there than in this country, there is a rapid and continuous fall in the numbers of people engaged in agricultural pursuits. Statistics show that there were, in 1862, 4 million, in 1882 3½ million, in 1892 about 3 million, and that to-day there are less than 2½ million people engaged in rural pursuits.

Election of Orphans.—We would remind our readers that for candidates for the benefits of the Royal Gardeners' Orphan Fund to be eligible for the election on February 6 next, it is necessary that nominations be made on or before December 16. Those who may know of gardeners' orphans in need of financial help should write at once to the Secretary, Mr. Brian Wynne, 19, Bedford Chambers, Covent Garden, London, W.C.

Opinions Differ.—A correspondent writes complaining of the judging in a class for vegetables at the recent Chrysanthemum Show in Edinburgh. The class was one for eight kinds of vegetable, and our correspondent gives us his opinion of the quality of each kind staged in the 1st and 2nd prize collections, concluding with the remark that the exhibit that was placed second should have been awarded the 1st prize. Our correspondent holds the opinion that the judges would have come to the same conclusion as he has done had they pointed each dish.

A Late Season.—The continuance of mild weather has had a most favourable effect on autumn flowers, which are unusually numerous in gardens at the present time. Captain Reid enumerates a long list of plants in bloom in his garden at Yalding, and Miss Willmott, writing to us on the 30th ult. before embarking on a visit to her Mediterranean garden, informed us that on that day she counted 182 species in flower in her garden at Warley Place, Essex.

Dr. J. Medley Wood.—The management of the Botanic Gardens at Durban, South Africa, has been taken over by the corporation of the town, the Union Government having assumed control over the herbarium. Dr. J. Medley Wood has had control of the Botanic Garden since it was in its infancy. Dr. Wood's retirement from the garden was the occasion of the presentation of an illuminated address by the President of the Botanical Society, in the presence of a large and distinguished company. The late Director of the Gardens has been appointed to a position under the Government of South Africa, so that, far from closing a useful career, he is now entering on another phase of it.

A Hardy Lemon.—In the first number of the *Journal of Agricultural Research*, a new periodical issued by the U.S. Department of Agriculture at Washington, there is a detailed account of a peculiar Lemon, which is a native of Central China. It is now described as a new species, Citrus ichangensis, Swingle.* This interesting plant was first discovered in 1885 by Dr. Augustine Henry, whose specimens (Nos. 3,423, 7,130, and 7,695) are preserved in the Kew Herbarium. It was subsequently collected by Mr. E. H. Wilson, Herr A. Von Rosthorn, and Père Farges, in different localities in the provinces of Hupeh, Szechwan, and Kweichou. The wild form, which grows on the cliffs near Ichang, is a small shrub, 2 to 3 feet high, with leaves and fruits smaller than those of the cultivated form, which is grown in the glens of the gorges of the Yangtze. Swingle considers this species to be most closely allied to Citrus histrix, D.C., which has smaller flowers and different seeds. Citrus ichangensis is readily distinguished by its long slender leaves, with broadly-winged petioles, which often exceed the blades in area. Its thick, huge seeds are unlike anything hitherto known in Citrus. The fruits are sub-globose, slightly longer than wide, 3 to 4 inches in diameter, and look like large, short, and thick lemons. Certain specimens from the Khasi hills in Assam, which were collected by Hooker and Thomson in 1850, are considered by Swingle to be closely related to the Ichang species, and are distinguished by him as Citrus ichangensis latipes. It is claimed of the "Ichang Lemon," as the fruit is called by European residents in the Yangtze valley, that it grows wild farther north than any other evergreen species of Citrus, only the deciduous Citrus trifoliata having a more northerly range. It also occurs wild at high altitudes, 4,200 feet in the Hsingshan district, lat. 31 deg. 10 min. Mr. E. H. Wilson is confident that the Ichang Lemon will prove to be one of the hardiest fruits of the Citrus kinds. It will be of value as a substitute in northern countries for the ordinary Lemon. It promises also to be of use in breeding Citrus fruits that will be resistant to frost, and will also serve as a useful stock on which to graft the different varieties of Oranges and Lemons.

* *Journal of Agricultural Research*. Vol. I., pp. 1–14. Plate I. and figs. 1–7. (October, 1913.)

BELGIUM.

THE CULTIVATION OF FRUIT TREES ON WALLS

My object in writing this note is to communicate to the small cultivator how he may utilise to advantage the bare walls of the house and other buildings of his land for the cultivation of fruit trees. Thanks to the work of Professors Burvenich and Dufour, great interest has been aroused in this question in Belgium, and Professor Burvenich's book, *Les Pignons Perdus*, which was published in 1876, has recently stimulated the State to take practical steps to increase this form of cultivation. Every fruit grower must note with regret as he travels about the country so many gables and fronts of houses which might well be covered with fruit trees, altogether bare of these useful orna-

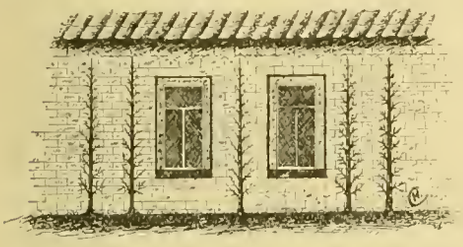

Fig. 139.—SINGLE CORDON FRUIT TREES.

ments. The following will give an idea of the simple instructions which are now being distributed widely throughout Belgium for the benefit of the small cultivator. The advantages gained by cultivating trees against suitable walls are so well known as to scarcely need enumeration. Among these advantages are the raising of the temperature as a consequence of the sun shining on the wall, and hence the production of large crops of good quality. To this is due also the fact that many good winter varieties too delicate to be cultivated in an orchard may be grown to advantage as espalier against a wall; and, in the next place, owing to the shelter afforded, the flowering and setting of fruit are more certain; sheltered from the wind the fruit drops less than in the open. Fruit trees trained as espaliers serve as ornaments to the buildings against which they are placed. In order to achieve satisfactory results, however, careful attention must be paid to the aspect, the height of wall, the varieties to grow, planting, and to the form of training.

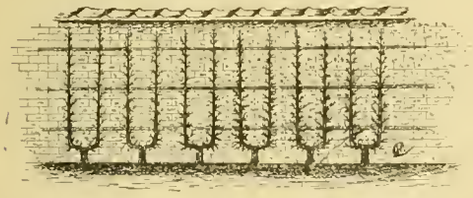

Fig. 140.—DOUBLE CORDON OR U-SHAPED PEAR TREES.

The Pear.—For this form of culture the Pear is the most suitable fruit. Generally, it should be grafted on the Quince; but if it is to be used for a gable or high wall it should be grafted on the Pear stock. With respect to aspect, the wall facing north is, of course, the least suitable, for the very evident reason that such a wall receives but a very small amount of light and heat, the wood does not ripen well, nor do the buds form satisfactorily. Therefore, on a wall with a north aspect Pears should not be planted at all, or, if planted, some of the varieties of easy culture should be selected. Such are Williams's Bon Chrêtien, Beurré d'Amanlis, Louise Bonne of Jersey, and Beurré Durondeau. Instead of Pears, however, Cherries may be grown; for example, Morello Cherries, which produce useful fruit for the kitchen. If the wall be low Currants can be planted.

Western Aspect.—West walls are better than northern. They receive plenty of rain, and some summer or early-autumn varieties of Pear, which do well against them, such as Clapp's Favourite, Williams's Bon Chrêtien, Louise Bonne of Jersey, Beurré Durondeau, Soldat Laboureur, Alexandrine Douillard, Doyenné du Comice, and Beurré Dumont, should be planted.

South.—The south wall provides the best situation, and should be reserved for fine winter Pears, which always make good prices. The following are among those which succeed best: Beurré Diel, Jules d'Airoles, Beurré d'Hardenpont, Le Lectier, Passe Colmar, Joséphine de Malines, Winter Nelis, Olivier de Serres, Passe Crassane, Nec Plus Meuris, Bergamotte Esperen, and Nouvelle Fulvie.

East.—Although not so warm nor so bright as the south wall, fruit grows and colours well on an east wall. Many of the varieties recommended for the southern aspect will do well, and, in addition to those of that list, the following: Beurré Durondeau, Beurré Clairgeau, Doyenné du Comice and Duchesse d'Angoulême.

The Form of Training.—Speaking generally, the simplest forms are the best, and of these the single cordon (Fig. 139) is the easiest. This form of training is suitable for walls of three or four yards in height, and the trees grafted on Quince stocks should be planted from 16 to 20 inches apart.

The U Form or Double Cordon (see Fig. 140).—This form may also be used where space is limited, the trees being planted at 32 inches apart, and a distance of 16 inches being kept between the branches.

Upright-Trained Pears (see Fig. 141).—Pears trained in this style are very ornamental and there is no great difficulty in keeping them in their form. Trees are planted at a yard and three-quarters apart, and the branches are kept at a distance of 16 inches from one another. It is best to keep an even number of branches. In certain situations, upright trained trees with from three to eight branches may be planted, but it must be remembered that the main branch may grow too vigorously, at the expense of the side shoots.

The Single Palmette.—This is a form of training which serves for low walls or for training against gables where a number of vertical branches is impossible. Trained on this system the trees must be kept distant from one another from 4 to 6 yards, according to the variety and vigour of the soil. Figs. 141-142 show how these various types may be fitted on to walls which are made irregular, doors and windows.

Fixing.—The best ties for attaching the branches to the walls or to the trellis are made of raffia or similar material. It is best that the tie should be made to wire stretched to 3 or 4 inches from the wall, the wires being 16 inches

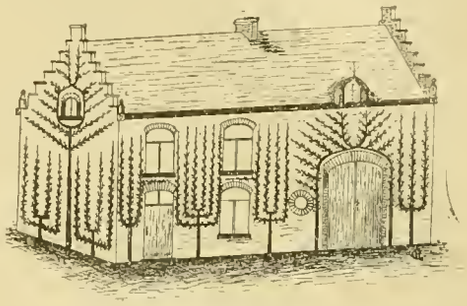

Fig. 142.—METHOD OF TRAINING FRUIT TREES ON BUILDINGS.

apart, and arranged according to the form of the trees which it has been intended to plant. If preferred, a wooden trellis may be fixed to the wall and the trees trained on this.

Soil.—The preparation of the ground for planting, which has been carried on about the present time, should be undertaken towards the end of summer. If the site has been occupied by the tree the soil is likely to be poor; it should be replaced by fresh compost to a distance of 5 or 6 feet from the wall. The compost should consist of good garden soil mixed with road sand, wood ashes, or leaf-mould. If the soil is vacant of crops the ground should be trenched and well-rotted manure should be added.

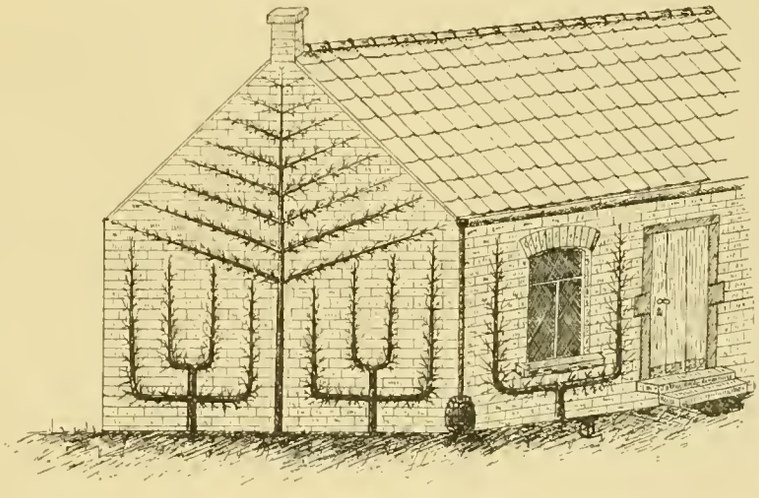

Fig. 141.—SINGLE PALMETTE AND UPRIGHT TRAINED PEAR TREES.

Drainage.—Proper drainage is essential, and if there is not natural drainage it must be supplied, and may consist of from 2 to 2½ feet of broken stones or other coarse material. When planting bruised and broken roots should be trimmed, and any coarse roots growing in a downward direction should be removed. Do not plant too deeply, but, on the contrary, leave the junction between scion and stock uncovered by the soil. At the same time it is also to be remembered that the ground will sink several inches after planting, and allowance must be made for this. Make the soil firm about the roots, and when the planting is finished spread a thin mulch of farmyard manure or leaf mould. This will protect the roots from frost. In the case of farm buildings remember that the trees must be protected from cattle. *Henri Chevalier, Professor of Horticulture, Liége.*

HOME CORRESPONDENCE.

(The Editors do not hold themselves responsible for the opinions expressed by correspondents.)

Œnothera Crosses.—The *Gardeners' Chronicle* for November 29, p. 384, contains a note of the curious phenomena alleged in regard to the reciprocal crosses between Œnotheras biennis and muricata. In view of the interest which the case has excited in genetical circles, and of more recent developments, a somewhat fuller account of the story may be acceptable. Attention was first called to the matter by the statement of de Vries that the cross muricata × biennis gave a hybrid form, which bred true. This fact was adduced in illustration of the principle which he has endeavoured to establish, that such behaviour is characteristic of hybrids between real species (see especially *Species and Varieties*, 1905, p. 259). Later came the announcement (*Biol. Cblt.*, 1911, xxxi., p. 129) that the reciprocal crosses between biennis and muricata gave distinct results; that each hybrid was very like the father ("*stark patroklin*"), though with some differences, and that both breed true, without segregation. Further, calling biennis ♀ × muricata ♂ BM, and the reciprocal MB, these two intercrossed are said to give this result:—

MB × BM

produces nothing but pure muricata; but

BM × MB

produces all pure biennis, the "outside" term alone contributing to the offspring. All this is, of course, very wonderful. De Vries till lately had provided only very imperfect descriptions of his plants, and it was not possible to form clear notions of their characters, but the deduction seemed inevitable that the pollen and ovules of the same individual, whether of each species or of the two hybrid forms, were distinct from each other in their genetic composition, and not alike as they usually are. This is the view of de Vries; but he inclines to an idea which seems to me very improbable, that the missing elements in each sex are represented by the bad pollen grains or by defective ovules respectively. Commenting on the case (*Problems of Genetics*, 1913, p. 109), I have argued that it is more likely that we have here some phenomenon of coupling, in which the sex-factors play a part. However that may be, there is every reason to suppose that the male and female sides of the individual plants are, in some unexplained way, distinct in their properties, a phenomenon of which the Stocks which throw doubles (worked out by Miss Saunders) are the classical illustration. At this stage Goldschmidt intervened, publishing the surprising statement to which last week's note especially referred. He declared (*Arch. f. Zellforschung*, 1912, ix., p. 331) that in the cross between biennis and muricata, the female pronucleus takes no part in the formation of the embryo, but degenerates, leaving the male nucleus in possession of the egg-cell. Goldschmidt stated further that the cells of the embryo had only 7 chromosomes, instead of the 14 which they ought to have if the two parental nuclei, each bearing 7, had combined in fertilisation. After being much exercised as to what this might mean, we now receive a paper by Renner (*Ber. Deut. Bot. Ges.*, 1913, xxxi., p. 334), who has been working in association with Goldschmidt, to the effect that further study has shown the fertilisation processes to be quite normal, and that the sensational account given by Goldschmidt was an illusion. Lastly, de Vries has just published a book (*Gruppenweise Artbildung*, 1913), with descriptions and pictures of all the forms concerned. From these we can at least get clearer impressions as to the nature of the differences concerned, which it must be admitted are still somewhat evasive. *W. Bateson, John Innes Horticultural Institution, Merton, Surrey.*

The Forcing of Spanish Iris (see pp. 357, 385).—My thanks to *A. J. A. B.* for his appreciated criticism of "The Forcing of Spanish Iris." I have forced them in pots, and have come to the conclusion that firm boxes gave the better result. Much space is wasted between the pots, our inveterate enemy the slug is more difficult to capture, and a little inattention to watering on the bright days of April is more quickly disastrous than when boxes are used. There may be some advantage in cutting off the foliage before the buds appear, but I cannot imagine such is the case. In forcing Iris we kill the parent to produce the child—the flower—and when the bud is developing there is a strain on the energies of the plant, which is easily damaged at this stage, and it also shows the effect of any damage which it may have sustained in its earlier life. The number of bulbs to a box 12 inches by 12 inches should be 7 × 7 = 49. The flowers will develop rapidly if they are cut when showing colour and placed in water in a cucumber or other warm house. *T. W.*

Gas Tar and Mealy Bug.—Some 18 years ago, whilst in charge of the gardens at Curraghmore, I was strongly advised to try gas tar and clay as a remedy for mealy bug. I procured some clay and burnt it, and ground it to powder. Nine parts of clay were mixed with one of gas tar, and water was added to make the material of the consistency of thin paint. Vines of Black Hamburgh Grapes in the early vinery were painted in November, after cleansing the house thoroughly with Gishurst Compound, and only scraping the vines moderately. The vines were started gradually in the first week of December, and they broke into needle-like growth, and were a complete failure. The two following years the vines were allowed to break into growth naturally, but they failed to recover. I have never used the mixture again on early vines, but I have dressed the rods in late vineries containing such varieties as Lady Downes and Black Alicante with success. *Thos. Singleton, Great Tew Park Gardens, Oxfordshire.*

Nurserymen's Wages and Hours.—Although it is unfortunate that an agitation should be necessary for working men to secure a rise in wages and a reduction of the hours of labour, it is a pleasure to read of the generous response and settlement of these questions by the firm of Messrs. Bide and Son. As a nursery hand of 35 years, I hope that it will be the means of bringing about a good understanding between employer and employee. Men who are dissatisfied do not do their best for their employer, and it is to the employer's own interest if his business will warrant a fair wage and proper hours of labour to make concessions. Any honourable working man will do his best for a considerate employer; but, unfortunately, some are found who do not appreciate any acts of generosity. I have made it a rule where I have been foreman to relieve myself of men of this description, as they are nearly always the cause of discontent amongst their fellow workmen. The hours of labour fixed by Messrs. Bide are very satisfactory, and should be made compulsory, especially as to the mid-day meal hour. It is monstrous that a man should be made to bolt his food at mid-day after a strenuous morning's work. I was employed years ago by the firm mentioned above, and can speak very highly of their management during my term of service. *Nursery Foreman.*

Silver-Leaf Experiments.—Mr. Taylor falls foul of both *Southern Grower* and myself in respect of the quantity of sulphate of iron used for correcting silver leaf in Apple trees, simply because he suggests the quantity is much too large, and therefore the experiments are inconclusive. Now, if Mr. Taylor had shown by his writing that he had proved the quantities to be excessive, I have no doubt *Southern Grower* and myself would have accepted the correction without a murmur, but because a writer suggests the quantity is too much without adducing an atom of proof, I think we have reached the limit of patience. Mr. Taylor also makes a mistake when he says I apply the sulphate 6 feet from the stem of the tree. If he will correct himself from my note, p. 293, he will see where his error creeps in. From the little I have seen by experiment, observation and conversation, I am inclined to think the silver-leaf disease will not be nearly so difficult to combat in the future as it has been in the past. What we require is some common-sense methods of treatment through the roots of the affected trees instead of pages of writing on the various causes of attack, which is all very well in its way, perhaps, but requires linking up with practical knowledge to make it really efficacious. *E. Molyneux.*

November Flowers in the Alps.—Mr. G. Flemwell has been enjoying superb weather, except for two days of snow, at the Col de la Torclaz in Switzerland (nearly 5,000 feet above the sea), and he found the following plants "in quite nice flower" on November 9:—Gentiana verna, in some quantity; G. excisa, Rhododendron ferrugineum; Geranium sylvaticum, Buttercups, Dandelions, Red Campion, Saxifraga aspera, Cerastium alpinum (probably C. arvense, which is ubiquitous in the Alps), Campanulas barbata, pusilla and rhomboidalis, Centaurea montana, Polygala Chamæbuxus, P. alpestris, Phyteuma orbiculare and P. hemisphericum. Also Strawberries, Raspberries and Red Currants. Mr. Flemwell tells me that the original set of flower studies used in our *Sub-Alpine Plants* has been bought by the Gackwar of Baroda for the college of Baroda, and that seven other paintings which he bought are for his new palace in Kashmir. *H. S. Thompson.*

Apple Nelson's Glory.—This Apple was known as "Stoke Lump Lemon," and I believe it originated in the village of Stoke Gifford, Gloucestershire, about four miles from Bristol. I knew it under this name nearly fifty years ago. About that time Mr. Nelson, a nurseryman of Bristol, obtained grafts of the variety and distributed it under the name of Nelson's Glory. I grafted a tree with it here in 1878, and sent fruits to the Apple Congress at Chiswick in 1883. The committee named it Warner's King. There is very little difference in the two varieties, but I am inclined to believe that Nelson's Glory has a better constitution than Warner's King, and does not canker as that variety invariably does. *Geo. Summers, Sandbeck Park Gardens, Yorkshire.*

Chrysanthemum Bronze McNiece.—By an error I included this variety in my list of singles, whereas it is a decorative variety (see p. 378) of much worth. *E. Molyneux.*

The Trade a Century Ago.—Mr. Roberts (p. 284), at the end of his most interesting article, states: "It would be interesting to know which is the oldest seed firm still existing in London." The extraordinary ramifications so interestingly described by Mr. Dicks, which has led up to the formation of the present business of Cooper, Taber and Co., carries its history back to 1771, when, as he says, John and John Field and Minier and Co. appear in the list quoted by Mr. Roberts. There is, however, in that list of a century ago another firm which is also strongly represented at the present time. I refer to the old firm of Warner and Seaman, of 28, Cornhill, which was the direct forerunner of the present firm of Hurst and Son, of 152, Houndsditch. When Warner and Seaman commenced business I do not know, but as they do not appear in the list of 1771, and they do appear in that of 1812, it may be inferred that they started business between those years, probably about 1790. On the occasion of Messrs. Hurst and Son's jubilee celebration in 1893, marking the fiftieth year of its refoundation in 1843, a statement was issued, from which the following is extracted:—"The house was founded in 1843 by Messrs. Wm. Hurst and W. G. McMullen, who for many years represented the well-known firm of Warner and Co., of Cornhill, London, long since extinct. These gentlemen recommenced business at 6, Leadenhall Street, and both being well known throughout the country and very greatly respected, the business grew fast and rapidly became very important. After some twenty years Mr. McMullen retired from the firm in consequence of ill-health, and Mr. Hurst took his son William into partnership. The style of the firm was then altered to Hurst and Son. Mr. Hurst, senr., died in 1868. The business then devolved on his son and Mr. Sherwood, who married the youngest daughter of Mr. Hurst, senr., and with Mr. Johnson as manager it was carried on until the retirement of the latter in 1890. Since that time Mr. Sherwood has assumed the entire management, and is now sole proprietor." As stated, this was written in 1893, just twenty

years ago. Since that date Mr. Sherwood, senr., has retired. Hence, the history of the business, dating back to the foundation of Warner and Seaman, assumed to be in 1790, showing a period of over 120 years, and without any change for 70 years, except as one partner has succeeded another, is probably unsurpassed in any existing business in the seed trade in London. *T.*

The Abnormal Season.—The following plants were in bloom in my garden, out-of-doors, on November 28:—Helleborus corsicus, H. maximus, Common Primrose, Viburnum Tinus, Cytisus monspessulanus, Double Pyrethrum, Violets, Myosotis dissitiflora, M. Ruth Fischer, Leycesteria formosa, Arabis alpina (double form), Spiræa Anthony Waterer, S. callosa, Antirrhinums, Verbascum olympicum, V. Tall White, V. phœniceum (dwarf), Œnothera biennis, Œ. taraxacifolia, Papaver orientalis, Shirley Poppies, Papaver hyb. Orange Prince, P. hyb. dwarf, crimson (black spots), varieties of shrubby Veronicas, V. Bidwillii, V. repens, Geranium sp. from Argentina, Lychnis diurna, L. coronaria, Spiræa Thunbergii, Hypericum calycinum, H. Moserianum, H. Androsæmum, Berberis Darwinii, B. japonica, Scabious, Kœniga, Borago laxiflora, B. vulgaris, Gentiana acaulis, G. verna, Polygonum affine, P. vaccinifolium, Nymphæa odorata alba, Crocus Heuffelianus, Ionopsidium acaule, Campanula garganica, C. muralis, C. alliariæfolia, C. Medium, Dianthus deltoides, D. Knappii, D. sp. (pinkish), Hydrangea (blue form), Oxalis floribunda, Solanum jasminoides, Ceanothus Gloire de Versailles, C. Indigo, Lobelia compacta, L. cardinalis rosea, Helenium pumilum, H. striatum, Sidalcea (hybrid), pink, Sphæralcea Munroana, Schizostylis coccinea, Pansies, Viola cornuta purpurea, Verbena chamædryfolia, V. tenera (mauve), V. Miss Willmott, Delphinium King of Delphiniums, Rosa multiflora, Roses (H.P.'s), Corydalis lutea, C. fern-leaved variety, Linaria alpina, Plumbago Larpentæ, Potentilla nepalensis, P. alba, Lithospermum prostratum, L. Heavenly Blue, Anemone fulgens, Primula japonica, Aubrietias (several sorts), Polygala Chamæbuxus, Aspilia buphthalmiflora, Osmanthus ilicifolius, Choisya ternata, Erinus alpinus, Jasminum nudiflorum, Lavatera Olbia, Reseda alba, Cheiranthus alpinus, Erigeron mucronatus, Erica carnea alba, E. sp. (pinkish), Daboëcia polifolia (crimson and white), Cyclamen coum, Polyanthus, Welsh Poppy, Nicotiana sylvestris, N. affinis, Fuchsia fulgens, F. garden variety, Salvia Gloire de Zurich, S. coccinea, Teucrium fruticosum, Crinum Moorei, Malva moschata alba, Agathæa cœlestis, Gerbera Jamesonii, Stocks, Anchusa italica and Dropmore var., Salvia Horminum, Marguerite Mrs. F. Sander, Chrysanthemum, Arenaria montana, Vaccinium Vitis-Idæa, Achillea rupestris, Tunica Saxifraga, Anemone japonica, Omphalodis linifolia, Silene sp., Armeria Langeana, Grindelia foliosa, Silene Armeria, Aster Thompsonii, A. purple sp., Alyssum compactum pallidum, Saponaria ocymoides, Leonotis Leonurus, Strawberry, Apple, Phlox decussata, Gypsophila elegans, Ruta graveolens (Rue), Lavender, Aloysia citriodora, Eritrichium strictum, Geum sp., Tree Lupin (yellow), Linum narbonense, L. monogynum, Helianthemum (pink), Iberis Snow Queen, Arnebia echioides, Alonsoa Warscewiczii, Rehmannia angulata, Cotoneaster congesta and Tiarella cordifolia. *S. G. Reid* (*Capt. R.E.*), *Yalding*.

A New American Ash.—A species of Fraxinus bearing the name F. Toumeyi Britton is described by Professor J. C. Th. Uphof, of Tucson, in *Mollers Deutsche Garten Zeitung* (No. 47, 1913). This Ash forms a tree about 25 to 40 feet high, with a trunk of about 8 inches thick. Its bark is grey and rough. The young stems and leaves are generally hairy: the leaves are composed of 5 to 7 leaflets which are lanceolate, pointed and either toothed or entire. The flowers, which are unisexual, appear with the new leaves. The male flowers have a small perianth, the female flowers a larger four-segmented perianth and the fruits are about an inch long. Seeds ripen in September, germinate readily and form small trees in two or three years. Fraxinus Toumeyi occurs in New Mexico and extends to Texas, Tucson and South California.

SOCIETIES.

ROYAL HORTICULTURAL.

December 2.—The meeting held on Tuesday last in the Vincent Square Hall, Westminster, completed the series for 1913, thus bringing to a close a most successful season. The exhibition was one of the brightest and most important shows we have known in December, and the success was partly due to the Carnation show falling on the day following, for many growers of these flowers took the opportunity of staging on the two occasions. A Gold Medal was awarded to Mr. Engelmann for a superb display of perpetual-flowering Carnations, and other growers received Silver-gilt Medals for exhibits of these flowers. Messrs. James Veitch and Sons' Begonias are deserving of special praise, and mention may also be made of the fine exhibits of Chrysanthemums, Poinsettias, Primulas, and Ferns from other exhibitors.

The Floral Committee granted six Awards of Merit to novelties.

The Orchid Committee recommended one first-class Certificate and six Awards of Merit.

The Fruit and Vegetable Committee made no award to a novelty, but they granted three Gold Medals, including the Hogg Memorial Medal in Gold—which has been awarded only once previously—to collections of Apples. Excellent Onions were shown by Lord North, whilst Messrs. Barr and Sons had an interesting exhibit of Kales.

At the three o'clock meeting of the Fellows in the Lecture Room, Mr. Edward White gave an address on "Informal Garden Design."

Floral Committee.

Present: H. B. May, Esq. (in the chair), and Messrs. J. T. Bennett-Poë, C. E. Shea, W. G. Baker, W. Jackson Bean, Charles Blick, John Dickson, C. Dixon, C. T. Druery, C. R. Fielder, G. Gordon, John Green, W. Howe, W. J. James, E. H. Jenkins, J. Jennings, H. J. Jones, J. F. McLeod, J. W. Moorman, R. C. R. Nevill, R. C. Notcutt, C. E. Pearson, R. Hooper Pearson, G. Reuthe, Thos. Stevenson, W. P. Thomson, and J. Hudson.

Mr. C. Engelmann, Saffron Walden, exhibited the finest exhibit of perpetual-flowering Carnations we have seen at a flower show. The collection was a very comprehensive one, and we may specially commend the method of grouping them in distinct colours, as it permits of comparison of varieties of similar colour. Thus, amongst the white sorts, White Wonder stood out conspicuously and may be described as the best variety in its class. White Enchantress is a good winter bloomer and the petals open well. Of the pink varieties, Queen Alexandra was prominent for its fine shade of colour, and is recommended as a good grower. Enchantress Supreme is an improvement on Enchantress, whilst the variety Lady Northcliffe flowers freely and has a robust habit. Mary Allwood was conspicuous amongst the deep pink and cerise-coloured flowers, in which section were also grouped the new Pioneer and Rosette. The scarlet varieties were very numerous. Scarlet Glow is the best of its colour when grown well, and Beacon is still one of the finest in this section. A novelty was seen in Scarlet Carola, a sport from the well-known Clove-coloured variety of that name. Yellow Sunstar and Yellowstone are the two best yellow varieties, whilst Circe and Mikado are two notable flowers in the mauve-coloured section. (Gold Medal.)

Messrs. Stuart Low and Co., Enfield, were awarded a Silver-gilt Flora Medal for an exhibit of Perpetual-flowering Carnations. This imposing group was arranged against the wall, and the blooms were staged on a platform having a half-circular front in the centre, this part being furnished with the variety Gorgeous, interspersed with a few vases of the yellow Sunstar and Benora. The "wings" contained excellent blooms of Satin Robe, Snowstorm, Mrs. C. F. Raphael, Empire Day and others.

C. F. Raphael, Esq., Porter's Park, Shenley (gr. Mr. A. Grubb), showed Carnations for which a Silver-gilt Banksian Medal was awarded. This meritorious collection was comprised of pot plants, principally of the variety C. F. Raphael, with large, rosy-pink blooms.

Mr. A. F. Dutton, Iver, Buckinghamshire, staged a large group of Carnation plants, as exhibiting how well they may be grown in 4½-inch pots.

Messrs. Young and Co., Hatherley, were awarded a Silver Banksian Medal for Carnations of the perpetual-blooming type, whilst another fine exhibit of these flowers, shown by Mr. H. Burnett, Guernsey, was awarded a Silver Flora Medal.

Other exhibitors of these flowers were Messrs. Allwood Bros., Haywards Heath; and Messrs. Wm. Lawrenson, Yarm-on-Tees (Bronze Flora Medal).

Messrs. James Veitch and Sons, Ltd., Chelsea, again showed their novelties in winter-flowering Begonias, raised from B. socotrana and tuberous-rooted varieties. Several plants of the first-named parent were included in the collection; also the first hybrid, John Heal, a pigmy compared to some of the later ones. As exhibiting how well suited these Begonias are for basket plants, Messrs. Veitch showed Julius (soft rose-pink) and Winter Cheer suspended in wire receptacles, the latter plant having been in bloom for some six weeks. (Silver-gilt Flora Medal.)

Messrs. W. Cutbush and Son, Highgate, showed greenhouse Begonias in variety, a collection of Carnations and ornamental-leaved shrubs. Begonia Glory of Cincinnati is the largest and darkest coloured of its type and was shown well. The most conspicuous variety of Carnation was Mrs. Lucy Mackinnon, a large scarlet flower; White Swan, a novelty, is delightfully scented, but the blooms are small. Other good varieties are Lady Ingestre, pink; Mme. Barreto, purple shaded and having scent like the old Clove; and Mrs. L. D. Fullerton, mauve and cerise. (Silver-gilt Banksian Medal.)

Mrs. Millen, Barrow Hills, Long Cross, Surrey, exhibited Begonias of the Gloire de Lorraine type, arranged for effect with Ferns, Asparagus, and other greenery.

Messrs. Sutton and Sons, Reading, showed varieties of Primula obconica in which the weak magenta shade of the type was replaced by rose, lavender, purple, pink and other more pleasing tones. The size of the flowers, too, was much improved in this useful greenhouse plant, which is equally effective for massing as for a border to other indoor flowers on a stage. (Silver Banksian Medal).

Messrs. H. B. May and Sons, Upper Edmonton, filled one corner of the Hall with a group of Euphorbia pulcherrima (Poinsettia), there being two batches of the ordinary scarlet form and a centre group of a new variety named rosea a pale form with rosy bracts, said to be very effective in artificial light. The group was embellished with finely-flowered Ericas and choice Ferns. As a table group this firm showed Begonias of the Gloire de Lorraine type and a number of Heaths. (Silver-gilt Flora Medal.)

Mr. A. H. Cole, Swanley, Kent, showed bunches of zonal-leaved Pelargoniums, Ericas, and Salvia rutilans. New varieties of Pelargoniums were seen in Margaret Cole, soft salmon, with a ring of deeper colour surrounding the white "eye"; Mrs. F. C. Jackson, purplish sheen on pink; and Mrs. Daniels, a compact grower producing its rosy-salmon flowers in profusion.

Messrs. Wills and Segar, South Kensington, arranged their exhibit of Cyclamens, Liliums, Azaleas and other greenhouse flowers with much skill for effect, and were awarded a Silver Banksian Medal. A group of a rose-pink Azalea was much admired.

Col. the Hon. Mark Lockwood, M.P., Bishop's Hall, Romford (gr. Mr. Cradduck), showed numerous plants of Chrysanthemum Maud Jefferies, which received an Award of Merit. Each plant was a perfect little specimen growing in a 4½-inch pot, and furnished with several blooms. (Silver-gilt Banksian Medal.)

Messrs. W. Wells and Co., Ltd., Merstham, Surrey, were awarded a Silver Flora Medal for Chrysanthemums. The variety James Fraser resembles the well-known F. S. Vallis, but is a deeper yellow and has a better stem and habit.

The Misses Price and Fyfe, Grove Park Nursery, Lee, were awarded a Bronze Banksian Medal for an exhibit of Chrysanthemums and Carnations.

Mr. T. Ward, Bishop's Stortford, showed bunches of single Chrysanthemums.

The MANOR HOUSE NURSERIES, LTD., Cardiff, showed Chrysanthemums in variety.

Excellent bunches of the beautiful Princess of Wales Violet were shown by Mr. E. HEATHCOTE, Williton, Somersetshire.

Violets were also shown by Mr. J. J. KETTLE, Wimborne, Dorsetshire.

Messrs. BARR AND SONS, King Street, Covent Garden, exhibited numerous pots of Cyclamen ibericum, well-flowered plants of Iris tingitana; Galanthus Elwesii and Roman Hyacinths. This firm also showed models of Japanese gardens.

Mr. G. REUTHE, Keston, Kent, showed Rhododendron Thomsonii grandiflora, Iris histrio, Escallonia oregona, Berberis Bealii and Berberidopsis corallina.

The WARGRAVE PLANT FARM, LTD., Twyford, showed Senecio Greyi, Coronilla glauca, Dianthus multiflorus Napoleon III. and other plants on a rockery.

Mr. CLARENCE ELLIOTT, Stevenage, had finely-flowered plants of Iris histrio and the white variety alba; also Gentiana acaulis, on his rock-garden exhibit.

Pans of Alpines and dwarf Conifers suitable for Rockeries were shown by Messrs. WHITELEGG AND PAGE, Chislehurst.

The Misses HOPKINS, Shepperton, showed a small rock-garden exhibit.

Mr. S. MORTIMER, Rowledge, Farnham, again showed his White Stock All-the-Year-Round.

Mr. L. R. RUSSELL, Richmond, was awarded a Bronze Banksian Medal for a collection of ornamental shrubs and berried plants.

AWARDS OF MERIT.

Violet Kaiser Wilhelm.—This variety has a large flower, with the colour and fragrance of Princess of Wales, but rounder in outline, fuller and flatter in petal. The largest blooms measured 1¾ inch in diameter. The colour is shade 4 of the light bluish-violet of the *Répertoire de Couleurs*, but there is a small white eye with darker veins on the lower petal. (Shown by Mr. T. JOHNSON, Shafteshury.)

Chrysanthemum Maud Jefferies.—A pure white, recurved Japanese variety which has a special value from its dwarf, floriferous habit. Plants in 4½-inch pots were not more than 2 feet in height, but branched freely to carry seven or eight good blooms. Their good culture also was evidenced by the way in which the foliage was retained. (Shown by Col. LOCKWOOD.)

Chrysanthemum Cardinal.—A velvety, dark crimson, single variety, with three or four rows of petals. The habit is dwarf and floriferous, and the flowers about 3 inches in diameter. The plants shown, however, had not been subjected to any high cultivation. This variety is distinguished from the next by the more velvety gloss of its petals, its brighter colour, and by a narrow ring of yellow around the disc which rather detracts from its merit by increasing the proportion occupied by the yellow centre to the flower. (Shown by Messrs. J. VEITCH AND SONS.)

Chrysanthemum Commodore.—A deep maroon-crimson, single, of a matt or dull surface. The flowers are 4 inches in diameter and gain great substance from the petals being in five or six rows. In the *Répertoire de Couleurs* the nearest shade to this very beautiful and little represented colour is No. 4 (the darkest) of "purple-garnet." (Shown by Mr. T. STEVENSON, Addlestone.)

Primula malacoides plena.—A pretty double form of this graceful greenhouse Primula. Bright lilac was the dominant colour, but the flowers showed considerable variation in shade. (Shown by Messrs. BEES, LTD.)

Begonia Rosalind (B. socotrana × a white, tuberous-rooted variety).—This is the richest and brightest of pinks among the large-flowered, winter-blooming hybrids. The best flowers are 3 inches in diameter and are borne in large terminal trusses. The habit is vigorous, the plants being 12 to 18 inches in height. Like several others of the same type, this is a beautiful variety seen in artificial light. (Shown by Messrs. J. VEITCH AND SONS.)

OTHER NOTABLE PLANTS.

Mr. VICARY GIBBS showed fine plants of Berberis subcaulialata, a new Chinese species. It is a vigorous, freely-branched, erect grower, with leaves and berries somewhat like those of B. Wilsonæ, but the habit is much denser and stronger; the leaves are sub-evergreen and are commonly borne in fours, two larger and two smaller, disposed like the wings of a resting moth. The berries are borne in dense, branched clusters, as many as twenty-five in a bunch. The plant grows 4 feet or more in height.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, D. B. Crawshay, W. Bolton, S. W. Flory, W. H. White, H. G. Alexander, J. E. Shill, W. P. Bound, W. H. Hatcher, J. Cypher, W. Cobb, A. MacBean, T. Armstrong, F. J. Hanbury, R. G. Thwaites, R. A. Rolfe, Stuart Low, Arthur Dye and Sir Harry J. Veitch.

Although the Orchids were confined to the annexe on this occasion, the display was excellent, and many new and interesting plants were placed before the Committee, who awarded one First-class Certificate and six Awards of Merit.

Baron BRUNO SCHRODER, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed a selection of rare Orchids which included the beautiful Odontoglossum crispum Leonard Perfect, with a spike of fifteen magnificent flowers, representing the remarkable variety in better condition than it had previously been seen. The pure white Brasso-Cattleya Queen Alexandra The Dell variety; the pure white Cattleya O'Brieniana alba, with a spike of five flowers, and C. Maggie Raphael The Dell variety, which secured a First-class Certificate. (See Awards.)

Lieut.-Col. Sir Geo. L. HOLFORD, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander), sent a beautiful specimen of Lælio-Cattleya Nella, a very handsome and richly-coloured hybrid, for which Messrs. Jas. Veitch and Sons received a First-class Certificate in 1911; Cypripedium Artemis aureum (nitens × Fairrieanum), yellow, with white tip to the dorsal sepal; and a grand plant of Lælio-Cattleya Golden Beauty, for which a Cultural Commendation was voted.

Sir TREVOR LAWRENCE, Bart, K.C.V.O., Burford (gr. Mr. W. H. White), showed a good example of the rare Angræcum Montieroi, with two sprays of wax-like, white flowers.

Messrs. FLORY AND BLACK, Orchid Nursery, Slough, were awarded a Silver Flora Medal for a very attractive group which included several new hybrids, among those noted being Cypripedium Cassius (T. B. Haywood × niveum), a very distinct, broad-petalled, white flower, with purple dotted lines; C. Floryi (Niobe × Countess of Carnarvon), a very good flower with a showy rose-purple dorsal sepal, with the upper half white and reddish-purple petals and lip; and other unnamed crosses. Messrs. FLORY AND BLACK also showed a grand form of Lælio-Cattleya Nella, a very handsome Veitchian hybrid between L.-C. Dominiana langleyensis and C. labiata; a good selection of hybrid Odontoglossums, the best of which was a new cross between O. Rolfeæ and a finely-blotched O. crispum; several of the showy Cypripedium Idina; and of C. Snowdon, an improvement on the favourite C. insigne Sanderæ; C. Madame Jules Hye, with fine flowers; and other showy hybrids.

Messrs. F. SANDER AND SONS, St. Albans, were awarded a Silver Flora Medal for a good group in which the best-coloured forms of Cattleya Maggie Raphael were well represented. Some good Odontiodas, Cattleya Dusseldorfei Undine and other Cattleyas and Lælio-Cattleyas; Cypripedium insigne Sanderæ, C. nitens, C. Troilus, Cymbidium giganteum, Brasso-Cattleya Thorntonii, and some interesting species were also noted.

Messrs. JAS. CYPHER AND SONS, Cheltenham, were awarded a Silver Flora Medal for a fine representative group of Cypripediums, including good forms of Priam, Thalia, Mrs. Francis Wellesley, Miss Louisa Fowler, Boltonii, F. Sander, varieties of Leeanum, insigne, Gaston Bultel, Actæus, etc. With them were some pretty Masdevallias, including Bocking Hybrid, Muscosa tovarensis and Estradæ.

Messrs. STUART LOW AND CO., Crowborough Nursery, Jarvisbrook, secured a Silver Flora Medal for a group of Vanda cœrulea of very good colour. Phalænopsis Aphrodite, Oncidium varicosum, Cattleyas, including Dowsiana and O'Brieniana alba, Lælio-Cattleya Rubens, Brasso-Cattleyas, Houlletia Brocklehurstiana and an interesting little Phalænopsis shown as P. Irene, but closely resembling the pretty pink P. Veitchiana (Schilleriana × rosea).

Messrs. HASSALL AND CO., Southgate, were awarded a Silver Banksian Medal for an attractive group, chiefly of hybrids. Their new Lælio-Cattleya Moira had a very finely-formed purplish-rose flower with ruby-red lip. L.-C. Rubens was a finely coloured flower; Cattleya Sylvia, a handsome and fragrant hybrid with cream-white flowers having very showy labellums, the different forms varying considerably, and some approaching C. Maggie Raphael alba, which was also shown. Among the Odontoglossums were forms of O. Harryano-crispum, O. McNabianum, good O. crispum, and Cypripediums noted were C. insigne Gladys, a good yellow; C. Fairre-Maude, C. Mines Youngii, C. fulshawense and forms of C. Actæus. Among the most interesting plants were Lycaste Tunstallii, of the true form, with bright rosy-red sepals, white petals and lip, the latter having ruby-red spotting.

Mr. HARRY DIXON, Spencer Park Nursery, Wandsworth Common, was awarded a Silver Banksian Medal for a group of Odontoglossums, Cattleyas, Lælio-Cattleyas, etc., with a fine specimen of Cymbidium Tracyanum at the back.

Messrs. CHARLESWORTH AND CO., Haywards Heath, staged an excellent group of finely-grown Orchids, in which were noted fine specimens of Aërides Lawrenceæ, Lælio-Cattleya Thyone, L.-C. St. Gothard, some good Odontoglossums, among which were O. Ceres, a selection of Cypripediums, good scarlet Sophronitis and Oncidium varicosum.

M. H. GRAIRE, Amiens, showed four hybrids of Odontoglossum nebulosum, for the best of which see Awards.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed Cypripedium Delhi (Earl of Tankerville × insigne Harefield Hall), a very handsome and well-marked flower.

Messrs. J. AND A. MCBEAN, Cooksbridge, staged an effective group, in which their fine Cymbidium Schlegeli and C. Doris were prominent. A good selection of Odontoglossums, Lælia anceps, etc., included the new Lælio-Cattleya autodoin (see Awards).

Mr. E. V. Low, Vale Bridge, sent a very fine specimen of Cypripedium l'Ansoni.

W. HEWETT, Esq., Frenchay, Bristol, showed Cypripedium Frenchay (Bellatulum × Laurebel).

CROFTON BLACK, Esq., Upminster, sent a very handsome form of Odontoglossum grande.

W. R. LEE, Esq., showed a selection of fine hybrid Cypripediums.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya Maggie Raphael, The Dell Variety (*Trianae alba* × *Dowiana aurea*), from Baron BRUNO SCHRODER (gr. Mr. J. E. Shill). A very fine Cattleya with pure-white sepals and petals and showy, rosy-mauve lip with gold veining.

AWARDS OF MERIT.

Cypripedium Goliath (*insigne Harefield Hall* × *Amy Moore*), from W. R. LEE, Esq., Plumpton Hall, Heywood. A fine improvement on C. insigne Harefield Hall, which it much resembles, but has larger and darker spotting on the dorsal sepal.

Cypripedium Strelsa (*insigne Harefield Hall* × *Alcibiades*), from W. R. LEE, Esq. A beautiful flower of fine form, the broad dorsal sepal white with dotted lines of purple from a green base.

Odontioda × *Latona, Goodson's variety* (*O. Harryano-crispum* × *O. Bradshawiae*), from H. S. GOODSON, Esq. (gr. Mr. G. E. Day). Flowers closely approaching some forms of O. Bradshawiæ, bright scarlet with slight white lines across the segments.

Laelio-Cattleya autodoin (*Laelia autumnalis* × *C. Octave Doin*), from Messrs. J. AND A. MCBEAN, Cooksbridge. A very desirable winter-flowering hybrid of the habit of Lælia autumnalis, but much larger. The spike bore eight large, clear, rose flowers.

Laelio-Cattleya Mrs. Temple (*L.-C. Hy. Greenwood* × *C. Mossiae*), from C. J. PHILLIPS, Esq., The Glebe, Sevenoaks. Flower large light rose, with purple mottling on the lip, which has a white tube. Shown at Manchester, 1910, as L.-C. Dreadnought.

Odontoglossum Saturne violaceum (*nebulosum* × *crispo-Harryanum*), from M. H. Graire, Amiens. Flowers evenly spotted with red on rose ground.

Cultural Commendation.

To Mr. H. G. Alexander, Orchid-grower to Lieut.-Col. Sir Geo. L. Holford, K.C.V.O., for a fine plant of Lælio-Cattleya Golden Beauty, with two spikes, one with fifteen flowers.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (in the chair), and Messrs. G. Cheal, C. G. A. Nix, E. Beckett, A. Bullock, A. Grubb, J. Jaques, H. Markham, F. Perkins, W. Pope, P. Debell Tuckett, James Vert, J. G. Weston, and Jesse Willard.

The Hogg Memorial Gold Medal was awarded to Mr. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. Ed. Beckett), for a collection of fruits including Apples, Pears, Grapes, Quinces and Medlars. The Apples were most numerously represented, and these fruits were of superior merit, especially the varieties Peasgood's Nonesuch, Emperor Alexander, Bismarck, Lane's Prince Albert, Stone's Royal Jubilee, Mère de Ménage, Lord Derby, Newtown Wonder, American Mother, Dumelow's Seedling, Gascoyne's and Scarlet Seedling. Pears were represented by dishes of Catillac, Duchesse d'Angoulême, Verulam and Vicar of Winkfield.

Messrs. H. Cannell and Sons, Eynsford, were awarded a Gold Medal for a large exhibit of Apples, representing 80 distinct varieties. The colour, size and general quality of the fruits were remarkably good for a December show. Notable sorts were Baumann's Red Reinette, King of Tompkins County, Blue Pearmain, Chelmsford Wonder, Smart's Prince Arthur, The Queen, Tyler's Kernel, Wadhurst Pippin, Bramley's Seedling, Emperor Alexander, Hollandbury, Mère de Ménage, Rival and Eynsford Seedling, a new culinary sort with greenish-yellow skin flushed with red.

The Government of British Columbia were awarded a Large Gold Medal for an exhibit of Apples, comprising 300 boxes of fruits as packed for the English market. The varieties were mostly different to those grown here, but they were all of remarkably fine appearance, well graded and packed. Certain of the sorts, such as Spitzenberg, Grime's Golden, Winter Banana, Jonathan, Newtown Pippin, Wagner, Seek-no-Further and Wolf River are becoming familiar to consumers in this country.

A Silver-gilt Knightian Medal was awarded to Lord North, Wroxham Abbey, Banbury (gr. Mr. E. R. James), for an exhibit of Onions arranged on a black cloth ground and decorated with single Chrysanthemums. The varieties included most of those in cultivation and the bulbs were of a useful size for culinary purposes.

Messrs. James Carter and Co., Raynes Park, showed varieties of Capsicums, for which a Silver Banksian Medal was awarded. The varieties were Coral Red Bouquet, Chinese Giant, Early Dwarf Yellow, Red Cluster, Giant Red and Chameleon.

PERPETUAL-FLOWERING CARNATION.

December 3.—The fifteenth show of the Perpetual-flowering Carnation Society was held on Wednesday last in the Royal Horticultural Society's Hall, Vincent Square, Westminster. The exhibition was much the best of the series, and visitors were so numerous that an inspection of the exhibits during the afternoon was a matter of difficulty. Several groups of other subjects remained from the Horticultural Society's meeting, including the large exhibit of Apples shown by the Government of British Columbia. The exhibits overflowed into the two annexes, all the available space being utilised. With regard to the competitive classes the entries exceeded by more than one-third those on any previous occasion, the total number being 370, from 54 competitors. The Committee granted seven Awards of Merit to novelties, but none of the new varieties appeared to possess outstanding merit.

Group Class.

There was only one class for a group of plants in which three competed. The schedule called for a semi-circular exhibit occupying a space of 25 square feet. The three exhibits were good, the best being shown by Mrs. Adair, Engelfield Green (gr. Mr. W. Holder), who thus won the "Lord Howard de Walden" Cup offered as the 1st prize. The blooms were large, finely coloured, and borne on healthy plants; 2nd, Mrs. Bischoffsheim, Stanmore; 3rd, Mrs. Fenwick, Hillmorton (gr. Mr. Burbidge).

Cut Blooms.

Open Classes.

The most important class in this section was for a group of cut blooms in not fewer than twelve varieties. The use of decorative foliage plants and cut foliage was permitted. Mr. C. Engelmann, Saffron Walden, was the only competitor, and he was awarded the 1st prize, which included the Silver Cup presented by American florists. The exhibit was exceptionally good; the blooms were splendid, and the method of arrangement excellent.

The chairman, Mr. J. S. Brunton, offered a Challenge Cup for the best three vases of novelties raised in this country since January 1, 1911, each vase to contain twelve blooms. Three competed, and the 1st prize was awarded to Mr. Engelmann for Sunstar, yellow, striped sparsely with rose; Lucy, rosy-cerise; and Fanny, white suffused with rose and striped with deeper rose; 2nd, Messrs. Stuart Low and Co., Enfield, for Satin Robe, rose-pink, Baroness de Brienen, pink, and Empire Day, pink.

A Challenge Cup was presented by the American Carnation Society in a similar class for novelties of American origin, and again Mr. Engelmann excelled, having choice blooms of Northport, rose-cerise, Enchantress Supreme, a deep coloured form of Enchantress, and Wodenethe, white; 2nd, Mr. H. T. Mason, Hampton Hill, with Rosette, rosy-cerise, Enchantress Supreme and White Wonder

Three competed in the class for twelve vases, distinct, each vase to contain 25 blooms, and Mr. Engelmann was again declared the winner, but he was followed very closely by Messrs. Allwood Bros. Mr. Engelmann showed Triumph, Lady Northcliffe, Elektra, White Perfection, Sunstar, Pioneer, Snowstorm, Fanny, Harlequin, Scarlet Carola, Enchantress Supreme and Carola. The 1st prize was a Silver-gilt Cup presented by Mr. Geo. Munro, junr. Messrs. Allwood Bros. were awarded a Gold Medal. This firm showed magnificent flowers of White Wonder, Mary Allwood, Triumph, Rosette, Scarlet Glow and Fairmount.

Nurserymen's Classes.—Numerous prizes were offered by nurserymen, most of the classes being for specialities of the several firms. The most successful exhibitor was Sir Randolf Baker, Bart., who won 1st prizes (a) for six Carnation plants in six varieties, in Mr. W. H. Page's class; (b) Messrs. Stuart Low and Co.'s class for one vase of the firm's novelties; (c) Messrs. Young and Co.'s class for a vase of twelve blooms including the varieties Duchess of Devonshire, Hon. John Boscawen, Mrs. Greswolde Williams, Hon. Lady Audley Neeld, or any other of the firm's novelties; (d) one vase of seedling Carnation unnamed raised in Great Britain, the 1st prize presented by Mrs. Frederick Norman.

In Mr. H. Burnett's class for six blooms of his novelties the 1st prize was awarded to Capt. Wierner, Ewell (gr. Mr. Lloyd).

Colour Classes.

Classes were provided in three sections of the schedule for varieties of Carnations arranged in their respective colours. The largest class was for twenty-five blooms of each variety, and was in open competition; the others were for five and three blooms respectively.

Enchantress, Lady Meyer, R. F. Felton, and similar colours.—(a) For twenty-five blooms: 1st, Lady Meyer, shown by Newport Nurseries, Essex; 2nd, Enchantress, shown by Mr. D. M. Collins, Swanley. (b) For five blooms of these varieties: 1st, R. F. Felton, shown by Capt. Werner, Ewell.

Mrs. H. Burnett, Pink Delight, and similar coloured varieties.—(a) For twenty-five blooms: 1st, Lucy, shown by Mr. Engelmann; 2nd, Baroness de Brienen, shown by Mr. D. Collins. (b) For five blooms: 1st, Baroness de Brienen, shown by Mr. C. W. Hedley, Carbridge-on-Tyne.

Rose Pink Enchantress, Winsor, Dorothy Gordon, and similar colours.—(a) For twenty-five blooms: 1st, Pioneer, shown by Mr. Engelmann; 2nd, Princess Henry, shown by Newport Nurseries. (b) For five blooms: 1st, Rose Pink Enchantress, shown by Lord Burnham, Beaconsfield (gr. Mr. Johnson).

Lawson, Mrs. C. W. Ward, and similar colours.—(a) For twenty-five blooms: 1st, Gorgeous, shown by Messrs. Stuart Low and Co.; 2nd, Rosette, shown by Mr. C. Engelmann. (b) For five blooms: 1st, Rosette, shown by Sir Randolf Baker, Bart.

Any white variety.—(a) For twenty-five blooms: 1st, White Perfection, shown by Mr. H. T. Mason; 2nd, the same variety shown by Messrs. P. Lovell and Co., Ltd. (b) For five blooms: 1st, White Wonder, shown by W. J. Peed, Esq., Sunningdale (gr. Mr. Reed).

Any scarlet variety.—(a) For twenty-five blooms: 1st, Champion, shown by Messrs. W. Wells and Co., Ltd., Merstham (this exhibit was awarded the special Silver-gilt Medal offered for the best vase in classes 8-13); 2nd, Scarlet Glow, shown by Mr. W. A. Sherwood, Hampton Hill. (b) For five blooms: 1st, Scarlet Glow, shown by C. Brodie Henderson, Esq., Little Berkhamsted (gr. Mr. H. Smith).

Crimson or Clove-coloured varieties.—(a) For twenty-five blooms: 1st, Triumph, shown by Newport Nurseries; 2nd, Carola, shown by Mr. C. Engelmann. (b) For five blooms: 1st, Carola, shown by Mr. S. F. Jackson, Epsom.

Any other self-coloured variety.—(a) For twenty-five blooms: 1st, Mary Allwood, shown by Messrs. Allwood Bros., Haywards Heath; 2nd, Mikado, shown by Mr. Engelmann. (b) For five blooms: 1st, Mikado, shown by J. L. Cross, Esq., Calthorp Towers, Rugby (gr. Mr. W. G. Dance).

Fancy variety.—(a) For twenty-five blooms: 1st, Sunstar (yellow), shown by Mr. Engelmann. (b) For five blooms: 1st, Mrs. Dutton, shown by Sir Randolf Baker, Bart.

In the similar classes for three varieties the most successful exhibitor was Mr. T. Loosemore, Weymouth, and other 1st prize winners in these classes were Mr. G. H. Lawrence, Godstone; Mr. Whitworth, Datchet; and Mr. G. Pain, Hornsey. The vase of White Wonder, shown by Mr. Lawrence, was awarded the special prize offered by Messrs. E. A. White, Ltd., Paddock Wood, Kent. The finest varieties in this section were Baroness de Brienen, Mrs. A. F. Dutton, Mrs. C. W. Ward, White Wonder, Scarlet Glow, Triumph, Mary Allwood and Mikado.

Mrs. J. E. Peters, Windlesham, Surrey, offered prizes in a class for one vase of Carnations, six blooms, in not fewer than four varieties. Mr. Loosemore excelled with good blooms of R. F. Felton, Benora, Mary Allwood, White Wonder, and Carola.

The best exhibit in the class for six blooms in three or more varieties—the prizes presented by Mr. A. F. Dutton—was shown by Mr. A. J. Digby, Weymouth.

Decorative Classes.—The best basket of Carnations was shown by Mr. R. F. Felson, florist, Hanover Square, London, who employed the beautiful yellow Sunstar exclusively, the flowers being suitably relieved with greenery.

The best decorated table in the Open Classes was arranged by Mrs. A. R. Bide, Guildford. This was a charming table, the variety Mary Allwood being employed in rustic metal holders. In the Amateurs' and Gentlemen's Gardeners' Classes the 1st prize table decoration was shown by Sir Randolf Baker, Blandford (gr. Mr. Usher), who used pink Carnations and Croton leaves.

Awards to Novelties.

The following varieties of Carnations received Awards of Merit:—

Cinderella, mauve and cerise, shown by Messrs. Fairbairn and Son, Carlisle.

Lady Fuller, salmon, shown by Mr. Chas. Wall, Bath.

Queen Alexandra, salmon-pink, a sport from Scarlet Glow, shown by Mr. Geo. Clark, Leighton Buzzard. (This variety received the R.H.S. Award of Merit on November 4, 1913.

Pioneer, rose-pink, an improvement on Winsor; shown by Mr. Engelmann.

Champion, scarlet, a variety of American origin, shown in Messrs. W. Wells and Co.'s exhibit.

Enchantress Supreme, an improved Enchantress: raised in America and shown in several exhibits.

Gorgeous, cerise approaching scarlet; of American origin, and shown in Messrs. Stuart Low and Co.'s exhibit.

Awards to Non-Competitive Exhibits.

The following Awards were made to non-competitive exhibits of Carnations :—

Large Gold Medal to Mr. C. Engelmann; *Gold Medals* to Mr. C. F. Raphael Shenley and Messrs. Allwood Bros. *Silver-gilt Medal* to Messrs. Young and Co; *Silver Medals* to Mr. Geo. Clarke, Leighton Buzzard; Messrs. W. Cutbush and Son, Mr. H Burnett, and Mr. W. Lawrenson.

ANNUAL MEETING.

The annual general meeting was held in the R.H.S. lecture room, at 6 p.m., under the chairmanship of Mr. J. S. Brunton. After the minutes had been read and confirmed, the annual report was submitted.

The report and financial statement shows that the Society is in a flourishing condition. There is an increase of more than sixty members since last year, whilst the income has increased by nearly £110, the total receipts being £383 9s. 3d., of which £28 6s. 6d. remains as a balance on the year's working. The secretary announced that the sum received for admission to the show was £15 5s., the highest amount for any of the Society's shows. The officers were re-elected, and several new members added to the committee. Two visitors from Belgium, who had acted as judges, gave their impressions of the show, which, they stated, had greatly exceeded their expectations.

LINNEAN.

SIR JOSEPH HOOKER'S HIMALAYAN JOURNEYS.

November 20.—Mr. H. J. Elwes, F.R.S., delivered a lecture before the Linnean Society on November 20 on "The Travels of Sir Joseph Hooker in the Sikkim Himalaya." The lecture was illustrated by specimens, drawings and maps, with lantern-slides of the country, many of the latter from Prof. Garwood's photographs The lecturer first pointed out the exceptional training Hooker had undergone for this expedition in the four years' voyage in H.M. *Erebus* under Sir J. C. Ross, which gave him experience in surveying, meteorology and geology, in addition to his botanical equipment, all of which were turned to account in his Himalayan journey, added to which was his exceptional skill in drawing and indicating the colour of plants in rapid but accurate measure. His personal industry, energy, strength and courage were remarkable. He received in all £1,100 from the Government, and the return was marvellous in comparison with that modest subsidy. The reason for choosing Sikkim may have been derived from Hooker's connection with Dr. Nathaniel Wallich; it was then an unknown country and destitute of roads. He travelled to India in the same ship as the new Governor-General, Lord Dalhousie, and it was probably due to the acquaintance thus formed that Dr. Hooker was able to carry out his plans. After a preliminary trip in East Bengal in 1848 he proceeded to Darjeeling, then a new and comparatively unimportant station, of 7,500 feet altitude. There he became acquainted with Brian Houghton Hodgson (1800-1894), whose roomy house served as headquarters during the investigation of the new regions, and with whom he formed a lifelong friendship, only severed by the death of the elder man. The first year, 1849, was devoted to work in the westward, including a part of Nepal, as far as the Yangma valley, and ending in late autumn; the second year was spent in northward exploration as far as the Tibetan boundary at the Donkia Pass, and on his homeward journey marked by his imprisonment, Dr. Campbell, the British representative, being his companion in these circumstances. Finally they were released upon threat of an armed expedition from Darjeeling for their rescue. The lecturer throughout his discourse dwelt upon the difficulties encountered and overcome by the adventurous traveller. With an attendant train of 56, only one personal servant, and a small tent, he had to encounter difficulties in procuring food from scattered villages, the opposition of the natives and the rigour of the high ranges, passing from the tropical valley of the Tista to more than 18,000 feet in altitude. Besides the collection of a vast number of plants he observed the geology and meteorology of the country traversed, and plotted the map which was published in his *Himalayan Journals*, a map which was shown on the screen compared with the later Government survey map, as a testimony to Hooker's skill as a surveyor, and in the use of instruments in a misty and rainy climate. A subordinate part was the despatch of over 1,000 packets of seeds to the elder Hooker, by whom they were distributed to many private gardens and nurseries, by which means European cultivators became possessed, amongst other things, of the Himalayan Rhododendrons. Of the literary results of these investigations may be mentioned the two volumes of the *Himalayan Journals*, 1854, the splendid *Illustrations of Himalayan Plants*, 1855, and the noble *Rhododendrons of the Sikkim Himalaya*, brought out in 1849-51 by Sir William Hooker during his son's absence in India.

NATIONAL CHRYSANTHEMUM.

ANNUAL DINNER.

November 28.—The annual dinner of this society was held at the Holborn Restaurant on Friday, the 28th ult., when the President, Sir Albert Rollit, LL.D., D.C.L., occupied the chair. After the usual loyal toasts had been given, the President proposed "The National Chrysanthemum Society." He referred to the great increase in the membership during recent years, and stated that at no time in the history of the society had there been a larger number of subscribers. The financial position, therefore, was satisfactory. The exhibitions held during the present year were eminently satisfactory, and some 20,000 visitors had attended the various shows. Mr. Thos. Bevan (chairman of the Executive Committee) replied. He referred to the recent exhibition at Ghent, where English growers had competed under the auspices of the society and scored a signal success.

"The Donors of Special Prizes" was proposed by Mr. John Green, who referred to the great assistance rendered by the several donors. Mr. J. R. Jackson responded. "The Exhibitors and Affiliated Societies" was proposed by Mr. R. J. Frogbrook, and Mr. R. B. Leech responded.

An interesting item in the proceedings was the presentation by the President of the challenge cups, trophies and medals to the winners.

"The Ladies and Visitors" was proposed by Mr. E. F. Hawes (vice-chairman of committee), who occupied the chair during the latter part of the proceedings. The toast of "The Chairman" was given by Mr. D. B. Crane, who referred to the good work done by Mr. Hawes on behalf of the society. The toast was received with musical honours. Mr. Hawes thanked the members for the kind manner in which they received the toast, and expressed the wish that everyone present would help to make the society one of the most flourishing of its kind in the kingdom.

DARLINGTON HORTICULTURAL

November 26.—Notwithstanding the lateness of the date, the autumn flower show of the Darlington Horticultural Society, which was held at the Corn Exchange on the date given above, was an unqualified success. The number of entries was in excess of those of last year, especially in the classes for Single Chrysanthemums. The display of large exhibition blooms was also satisfactory. The classes for school children were very well filled, and so keen was the competition that a large number of extra prizes had to be awarded. In the open classes, the 1st prize for 24 Japanese Chrysanthemums was awarded to the Marquis of Ripon (gr. G. E. Thomas), and the same competitor was placed first for 24 incurved and for 12 incurved varieties. For 12 Japanese blooms, the 1st prize was won by J. H. Pease, Esq. (gr. T. B. Robinson), who also won the National Chrysanthemum Society's Silver Medal offered for the best bloom in the Show. The 1st prize for a vase of Single Chrysanthemums was awarded to J. Brennand, Esq. (gr. J. E. Hathaway), Baldersby Park, Thirsk. For dress sprays of Chrysanthemums, Miss L. Boyd was the prize-winner, and for gentlemen's buttonholes, Mr. Geo. Stairmand. The 1st prize for a centre-piece of Chrysanthemums was awarded to Mr. H. H. Hillier, who also won the 1st prize for a decorated table. The fruit classes were well filled, and some very fine fruit was exhibited. For Black Grapes, Lady Cowell (gr. J. K. Gardiner), Bedale, was awarded the 1st prize, and for White Grapes, J. Brennand, Esq., was placed first. There were several classes for Apples and Pears, which were well contested, the fruit being almost uniformly of good quality. In the amateurs and cottagers classes, the 1st prize for Japanese Chrysanthemum blooms was awarded to Mr. P. Barber, this competitor also excelling in the class for pot plants of the same kind. Ald. T. M. Barron gained the 1st prize for Apples, and Mrs. F. E. Moscrop the 1st prize for Pears. The chief prizewinners in the amateurs' classes for vegetables were Messrs. T. Petty and E. W. Boddy, the former winning two 1st prizes for Potatos and the latter one each for Onions and Leeks.

Non-Competitive Exhibits.—Messrs. Kent and Brydon showed Begonias, Lilium lancifolium and other flowers, relieved by choice Palms. They also arranged an attractive exhibit of fruits and vegetables. Messrs. Mack and Miln, Darlington, exhibited Chrysanthemums and other autumn flowers, as well as a large and varied assortment of choice fruits. Mr. H. H. Hillier contributed a well-arranged group composed of Chrysanthemums, Codiæums (Crotons) and Ferns.

NATIONAL DAHLIA.

December 1.—The annual general meeting of this society was held in the Horticultural Club Room, Hotel Windsor, on Monday last. The President, Mr. G. Gordon, occupied the chair. After the minutes had been read and confirmed the secretary read the committee's report on the proceedings of the past year, which was adopted. The financial statement was held over in order to close the year's accounts. The retiring officers were all re-elected, and Messrs. J. A. Jarrett, Anerley, and W. Scamp, Streatham, were elected members of the committee. A vote of thanks to the president terminated the proceedings.

DEBATING SOCIETIES.

READING GARDENERS'.—The fortnightly meeting of this association was held on Monday, October 27, Mr. J. T. Tubb, vice-chairman, presided over a good attendance of the members. The lecturer for the evening was Mr. A. Harrison, Watford (late of Oneglia, Italy), the subject being "Orchids." The extraordinary form of the reproductive organs and the means whereby insects were attracted, pollination and intercrossing effected, were shown by means of slides. Mr. Harrison gave cultural details of the most useful species, such as might be grown successfully in warm, intermediate or cool greenhouses in association with other plants. He emphasised the importance of the use of rain water for watering purposes, as well as of careful ventilation, stating that while movement of air is absolutely necessary nearly all Orchids are liable to injury from cold draughts. Most of the air admitted, said Mr. Harrison, should come through ventilators below the stages, and not at the stage level. It was pointed out that an excess of ventilation at the top of the house dissipates the moisture and unduly dries the atmosphere, to the detriment of the plants. Among the species of warmer houses of which slides were shown Mr. Harrison included Cattleya Mendelii, C. Trianæ, C. labiata, C. Gaskelliana, C. gigas, C. Hardyana, and C. aurea; Lælia purpurata; Dendrobium nobile, D. crassinode, D. Wardianum; Cypripedium Lœanum, C. Charlesworthii, C. bellatulum, C. Fairreanum, C. callosum Sanderæ, and C. Curtisii. Plates were also shown of some of the new and beautiful hybrids of Lælio-Cattleya, Odontioda, Brasso-Cattleya, and Brasso-Lælia, and the lecturer stated that the great vigour of many of these hybrids made them more amenable to cultivation than some natural species. Among species needing cool treatment, the lecturer showed slides of Odontoglossum crispum, in many varieties, O. Hallii, O. Harryanum, as well as many hybrid Odontoglossums and Cypripedium insigne. Seedling Cypripediums were shown growing on the compost of an established plant, and the various methods of raising Orchid seedlings were described. Orchids were exhibited by the lecturer and eight other members. Mr. G. Tovey, The Gardens, Leighton Park School, showed 18 dishes of Apples, and the other exhibits included three collections

of Chrysanthemums.—On November 10 Mr. F. B. Parfitt presided over a good attendance of members, and a lecture was delivered by Mr. E. Feltham, of the Wargrave Hardy Plant Farm, on "Alpine Plants." Mr. Feltham first dealt with the haunts and habits of Alpine plants, and afterwards imparted useful information as to the culture of these popular flowers, and in conclusion gave full details with regard to the construction of a rock garden, advising those present to carefully think out their plan of operations, remarking that it was easier to think thrice than to move a number of heavy stones three times. Chrysanthemums were exhibited by Mr. J. T. Tubb and Mr. H. G. Cox; vegetables by Mr. G. Tovey and Mr. H. Goodger; and Grapes by Mr. H. Reeves; while Mr. F. Townsend, gardener to the vice-president, was awarded a Certificate for an excellent collection of vegetables.

BIRMINGHAM AND DISTRICT GARDENERS'.—A paper on the "Winter-dressing of Fruit Trees" was read before the members of the above society by Mr. R. T. Parker, gardener to Mrs. Lacey, Westbourne Road, Edgbaston, on the 3rd ult. The lecturer stated that uncleanliness was the primary reason why many fruit trees and bushes afforded a refuge for insect pests, and fungous diseases. Therefore, if the grower wished to ensure himself against the loss of valuable fruit the most effective course was to adopt a systematic annual cleansing of his trees. In the snug seclusion of the crevices of the bark around the trees the insects and their larvæ hide, and it is only by persistent application of suitable washes that they are destroyed. The lecturer alluded to the American Blight, which he had abolished from his trees by the use of a wash compounded from carbonate potash, caustic soda and soft soap dissolved in water. As this solution is liable to burn the skin, a pair of rubber gloves should be worn by the operator. Different insects, he said, require different treatment. Occasionally the biting insects would survive a wash which, if used too strongly, might permanently injure the tree. Paris green, a poison dissolved in water, would be found to be of advantage if used discreetly. Also London Purple, a waste material from dyeworks, furnished an economic destroyer of the winter moth caterpillar. Arsenate of lead, too, made a good spray for destroying biting pests and fungi. Much, he urged, could be done to forward the growth of trees by the use of chemical manures, such as a dressing of basic slag or potash for Black, Red and White Currants.—On the 17th ult. Mr. W. Spinks, Solihull, in pursuance of a plan that he has for many years followed, delivered a lecture entitled "Some Features of the Birmingham Chrysanthemum Show." The lecturer dealt with the predominant features of the exhibition. Many exhibits he discussed individually, either accrediting them with praise or adverse criticism, according to their merits. After complimenting the committee, who had so successfully controlled all the arrangements in connection with the show, he stated that although the show had been unusually successful, there was still much room for improvement.

DUNDEE HORTICULTURAL.—"The Cultivation of Small Fruits" was the subject of a lecture delivered by Mr. J. S. Chisholm, of the Edinburgh and East of Scotland College of Agriculture, at the ordinary monthly meeting held under the presidency of Mr. William Christeson on the 7th ult. The lecturer confined his remarks chiefly to the cultivation of Gooseberries, Black and Red Currants, and in dealing with diseases and pests dwelt at some length on the Black Currant Mite and American Gooseberry mildew. For the former pest he recommended a dry spray of two parts sulphur and one part lime, and for the latter, in addition to the injunction of the Board of Agriculture to cut off and burn affected shoots, he recommended spraying the bushes with 1 oz. sulphide of potassium to 2 gallons of water.

WARGRAVE AND DISTRICT GARDENERS'.—A well-attended meeting took place on November 19, when competitions in vase decoration took place. There were fifteen entries. In the Head Gardeners' and Foremen's Class the prize winners were: 1st, Mr. F. Gray; 2nd, Mr. W. H. Scott; 3rd, Mr. A. Histead; and 4th, Mr. J. Irvin. In the Journeymen's Class they were: 1st, Mr. R. Baker; and 2nd, Mr. T. Butler. Three new members were elected. On the following morning the flowers were forwarded to the Reading Hospital.

MORLEY AND DISTRICT PAXTON.—This society held its ninth annual Chrysanthemum show in the Alexander Hall at the local town hall on the 22nd ult. All previous records for this show, both in the number of exhibitors and the number of exhibits, were passed. In the cut bloom classes Sir Wm. Bass, Bart., won the 1st prize for both Japanese and incurved blooms, and obtained the National Society's Certificate offered for the premier bloom with a specimen of Mrs. G. Drabble. Miss Bennett, of Grimsby, was placed second for Japanese, and Mr. John Thornton, of Drighlington, 2nd for incurved varieties. In the classes for singles, Mr. John Hartley, of the Knowle, Morley, followed up his successes at Leeds and Bradford by winning the first prize in almost every class. A feature of the show was the number (10) of groups exhibited in the local classes. Mr. W. Lassey won outright the "Ward Brook" challenge cup, having won it three times in all. Mr. E. Ambler, who had won this cup on two previous occasions, was a good 2nd. The Borough Gardener added to the attractiveness of the show by a magnificent display of Chrysanthemums and foliage plants arranged in a mass in front of the wide platform, and he also staged miscellaneous plants and Liliums on the platform.

BRITISH GARDENERS' (Edinburgh Branch).—The November meeting of the Edinburgh branch of the British Gardeners' Association was held on the 12th ult. at 5, St. Andrew Square. A paper on "Bog Water and Wild Gardening" was read by Mr. Henry Arnold, Gardener Carron Hall, Falkirk. The next meeting will be held at 5, St. Andrew Square on December 8, at 7.30 p.m., when a paper will be read by Mr. David Anderson, College Garden, Liberton, on "The Study of Nature: its Influence on the Lives of Men."

KILMARNOCK AND DISTRICT GARDENERS'.—The usual monthly meeting was held on the 12th ult., Mr. R. K. Sillars presiding. Mr. Lovejoy, of Messrs. Sutton and Sons, delivered a lecture on "Popular Vegetables for Home and Exhibition, with Notes on Staging." The lecture was illustrated with a comprehensive series of lantern slides. Mr. Lovejoy entered briefly into the cultivation suited to the various vegetables referred to in his paper; pointed out the characteristics of the different varieties and the treatment to which they specially lend themselves; and then dealt with them from an exhibitor's point of view. Some very useful hints were given on the best methods of staging. The manner in which six heads of Cauliflower or Broccoli may be fixed on a triangular piece of board was fully explained. Root crops, such as Parsnips and Carrots, may be retained in position on the exhibition table by driving into the board short headless nails, on which the bottom row of roots may be pressed. Seakale may be held in an erect position by similar means, and vegetables, such as Potatos or Tomatos, can be kept in position by pressing the outside specimens on to nails.

BRITISH GARDENERS' (Watford Branch).—The monthly meeting of the Watford branch of the B.G.A. was held on the 20th ult. Mr. Phillips presided. Mr. T. Aley gave a lecture on "Sweet Peas." The next meeting will be held on December 18, when the subject for debate is "Chrysanthemums," to be opened by Mr. Graham, Colney Park Gardens.

BROUGHTY FERRY HORTICULTURAL.—"Begonias for Winter and Spring" was the subject of a lecture delivered by Mr. William Harper, Cidhmore Gardens, Dundee, at the monthly meeting held on the 18th ult. After dealing exhaustively with the cultivation of Begonia Gloire de Lorraine, and the prevention and cure of rust and thrip pests, the lecturer proceeded to give hints on growing the varieties Winter Cheer and Gloire de Sceaux. A fine specimen of this magnificent winter-flowering Begonia was exhibited, and it was also recommended for spring blooming. Messrs. D. and W. Croll, Dalhousie Nurseries, showed three dozen plants of Begonia Gloire de Lorraine, growing in 3-inch, 4-inch, and 5-inch pots. The monthly prize was awarded to Mr. George Reed, Invertay Gardens, who showed very large specimens of Gloire de Lorraine Begonias.

SOUTHAMPTON AND DISTRICT GARDENERS'.—The monthly meeting of this society was held in the Highfield Institute, on the 27th ult., the president, Mr. H. E. Molyneux, occupied the chair. Mr. J. Elder, of Hursley Park, read a paper on "The Construction and Planting of a Rockery," dealing with the questions of aspect, most suitable stone and soil, and the best plants for a rockery.

DUMFRIES AND GALLOWAY GARDENERS'.—At a meeting of this association held in the Wesley Hall, Dumfries, on the 27th ult., Mr. A. Hosking, of the Glasgow and West of Scotland College of Agriculture gave a lecture on "Plant Breeding." Mr. Hosking was thanked on behalf of the members by the chairman, Mr. S. Arnott.

Obituary.

JOHN LINDSAY, EDINBURGH.—The death took place suddenly the other day of Mr. John Lindsay, a well-known figure in botanical circles in Edinburgh. Mr. Lindsay was one of the earliest members of the Edinburgh Field Naturalists' and Microscopical Society, and he was a voluminous and acceptable contributor to the society, his papers from time to time being published in the *Transactions*. Although seventy years of age, he kept well abreast of modern botanical science, and made a special study of the Mendelian system. Mr. Lindsay was in the employment of the firm of Messrs. Blackwood and Sons, publishers, for the long period of 54 years, and his special duties were as "reader" of the scientific works published by the firm. This brought him into touch with a number of men eminent in their several branches of science. He was much respected by all with whom he came in contact.

LAW NOTE.

SALE OF GARDENING BOOKS.

At the Clerkenwell County Court recently, before His Honour Judge Howland Roberts, a claim was made by a firm of publishers against Ernest G. Gautrey, fruit grower, Holmsleigh Chatteris, for £3 3s. Plaintiffs' case was that they supplied, to defendant's signed order, a work entitled *The Fruit-Grower's Guide*. Defendant said he was very busy when plaintiffs' canvasser called upon him. The canvasser told him that the set would be worth half-a-guinea, and when he agreed to purchase at the price the canvasser, producing a paper, said, "Will you put your name at the bottom here to ensure a safe delivery of the books?" A few days afterwards another man called at his house in his absence and left the books, together with a bill for £3 3s. "I was astounded," added the defendant. "My bargain was for half-a-guinea. I returned the books to Shoe Lane." His Honour: But you have signed this paper? Defendant: I never read it. The canvasser told me it was half-a-guinea. These men come and pester you whilst you are at work. His Honour: I know they do. I have been pestered myself. The only course is to refuse to sign anything. You have a signed paper which says plainly enough, "No order taken unless for the entire set, six volumes at 10s. 6d. each." If I adjourned this case for the attendance of the canvasser he would probably come here and swear that he told you at the time that it was an order for the complete set at 10s. 6d. each. It would be oath against oath, but in support of plaintiffs' case there would be the document you have signed. Your case is hopeless. You have signed without taking the trouble to read a document.

Judgment was entered for plaintiffs for the amount claimed, with costs

GARDENING APPOINTMENTS.

[*Correspondents are requested to* **write the names of persons and places as legibly as possible.** *No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. Charles Matthews, for the past 4½ years Gardener at Zeals House, Wiltshire, as Gardener to Baron ALFONSE DE ROTHSCHILD, Schillersdorf Castle, Preuss, Schlesien, Germany.

Mr. J. H. Keat, for the past 2 years and 3 months Gardener to WM. CLEAVER, Esq., Ballard Coombe, Kingston Hill, as Gardener to A. R. MOTION, Esq., Upton House, Banbury.

Mr. B. Gray, for the past 2 years Gardener to W. H. CARVER, Esq., as Gardener to COLONEL SALTMARSHE, Saltmarshe Hall, near Howden, East Yorkshire.

Mr. W. Williams, for over 4 years Foreman of the Estate, Gardens Bournville, Birmingham, previously at Hartpury House, Gloucester, under Mr. H. PRENTICE, as Gardener to the Right Hon. Mrs. G. E. WOOD, Hengrave Hall, Bury St. Edmunds, Suffolk.

Mr. Beckett, for the past 12 months Gardener to Mr. J. DYMOND, Burntwood Hall, Barnsley, and previously Gardener to Major Stapylton, Myton Hall, York, as Gardener to Sir WILLIAM WILSON TODD, Bart., Halnaby Hall, Darlington.

Mr. J. Hissey, for the past 7½ years Gardener at Brooklands, Lyndhurst, Hampshire, and for 5 years at Beenham Grange Gardens, near Reading, Berkshire, as Gardener to A. H. J. HAMILTON, Esq., Dibden Manor, near Hythe, Southampton.

Mr. A. Tomlinson, for the past 3 years Gardener to the Right Hon. GERTRUDE LADY PENRHYN, Ham Court, Upton-on-Severn, Worcester, as Gardener to the BISHOP OF WINCHESTER, Farnham Castle, Farnham, Surrey.

Mr. Robert Brooks, Gardener for the past 8 years to C. W. RALSTON, Esq., Dabton, Thornhill, Dumfriesshire, as Gardener to G. CRAIG-SELLAR, Esq., Ardtornish Tower, Morvern, Argyllshire.

Mr. J. Harris, Gardener to J. H. BALFOUR-BROWNE, Esq., K.C., D.L., at Goldielea, Kirkcudbrightshire, as Gardener to C. W. RALSTON, Esq., Dabton, Thornhill, Dumfriesshire.

Mr. George F. Hoye, for the past year and four months Inside Foreman at Langleybury, King's Langley, Hertfordshire, and previously at Lamb Close House, Eastwood, Nottinghamshire, as Gardener to J. H. WOODINGTON, Esq., Sunbill, Cleveden, Somersetshire.

Mr. Colin Ruse, late Gardener to the Hon. CECIL BARING, Lambay Castle, Co. Dublin, as Head Gardener to Mrs. MERTON, Folly Farm Gardens, Sulhamstead, near Reading.

Mr J. Watson, for the past 7 years Gardener to A. TROWER, Esq., Hampstead, as Gardener to Mrs. DINGLEY, Elm Bank, Camden Road, London.

Mr. J. C. Stewart, for 2½ years Foreman at Ardtornish Gardens, Morvern, Argyllshire, as Gardener to Major GEMMELL, Peatling Hall, Peatling Parva, Lutterworth.

Mr. R. D. Greenham, previously Gardener to A. R. MOTION, Esq., Upton House, Banbury, as Gardener to Sir CHARLES KNIGHTLEY, Bart., Fawsley Park, Daventry.

Mr. George Hawkins, for the past 6½ years in the Gardens at Denton Court, near Canterbury, as Gardener to the Misses WILLATS, at the same place.

Mr. R Emmons, previously 4 years and 3 months Gardener to G. E. TURNER, Esq., East Lodge, Needwood, Burton-on-Trent, as Gardener to J. B. WILLOWS, Esq., Horsegate, Lees, Scarborough.

Mr. A. Eagles, for the past four years Foreman at Holly Lodge Gardens, Highgate, as Gardener at Bethlem Royal Hospital, St. George's Road, Southwark. [Thanks for 2s. 6d. for R.G.O.F. box.—EDS.]

Answers to Correspondents

AMERICAN BLIGHT ON APPLE TREES : *Dublin.* It is highly desirable to employ a caustic wash in winter not only to destroy the woolly aphis where it exists but also to clear the trees of moss and lichen. But any wash caustic enough for these purposes would injure vegetables or flowers that may be growing among the trees unless the former were covered over during the operation, in which case 2 lbs. of caustic soda to 10 gallons of water may be applied, the trees being thoroughly wetted all over. The spray should be applied with force to ensure the fluid entering the crevices. More than one spraying would be necessary for trees badly affected, and after the first application it would be desirable to scrape the trunks and branches before applying the second. This wash can be used without injury only when the trees are dormant. For a summer wash a strong solution of soft soap and quassia, 1 lb. of each to 10 gallons of water, the ingredients being boiled together and the mixture strained, should be sprayed forcibly, the trees being well drenched. This would not harm vegetables or flowers To save boiling quassia chips it may be more convenient to use Quassia Extract in the strength advised by sellers. But it is not nearly so effective as neat methylated spirit, applied with a stiff paint brush, and scrubbed into the affected places. This will kill every aphis that it touches. But more than one summer application is necessary, not only because some aphides are certain to be missed, but also because there may be eggs present at certain periods of the season. The caustic winter washing would greatly help summer treatment by causing moss and lichen, which shelter the insects, to drop from the trees.

ANTS IN PEACH HOUSE : *H. W.* Sometimes the nests of ants are made in places where boiling water can safely be poured over them, which is sufficient to destroy these pests. If this is not effective, inject a little bisulphide of carbon or vaporite into their burrows, and the fumes will kill the ants. The "Ballikinrain Ant Destroyer," prepared by Messrs. Alex. Cross and Son, Glasgow, is another effective and poisonous remedy.

BEGONIA LEAVES UNHEALTHY : *H. K.* The appearance suggests eelworm at the root, and if so the infestation is likely to spread to other plants. The only means of determining this point is to wash the root of an injured plant and look for the presence of knots caused by the eelworm. Infested plants should be destroyed by burning.

BRAMBLES : *J. A. C.* The Loganberry is the best of the Brambles for market culture.

BROWN TURKEY FIG : *R. R. G.* The Figs are injured by rust caused by mites earlier in the season. Spray the trees now with a solution of quassia, and repeat the spraying next spring.

CAPE GOOSEBERRY : *Canon.* Physalis peruviana (P. edulis), known as the Cape Gooseberry, is a native of South America, but is now naturalised in many warm countries. There are several varieties of the plant, some with dark violet, purplish, and yellow fruits.

CARNATIONS SPOTTED : *C. H.* The plants are attacked by the rust disease, which is only capable of spreading when the air is excessively moist. Spray the plants with liver of sulphur, 1 oz. in 6 gallons of water, and admit as much air as possible.

CHRYSANTHEMUM POLLEN AND "HAY FEVER" : *L.* The suggestion that the pollen from single Chrysanthemums has any tendency to produce has any tendency to produce "Hay fever"—which is merely a form of influenza—is, so far as we know, a novel one. Single-flowered forms of Chrysanthemums have an extremely large disc from which is emitted strong fragrance, owing to the quantity of pollen that is produced, and this fragrance is more marked in this section than in any other of the whole Chrysanthemum family. It is extremely doubtful, though, if the slightest harm can be attributed to an excess of pollen.

CHRYSANTHEMUMS : *Arthur Bone.* There is no need to stop Chrysanthemums unless you desire to forward or retard them so that they will flower at a certain date. Assuming that you require to have the plants in bloom during the first or second week in November, treat them as follows :—Lady Talbot : Root the cutting late in January, and take the natural first crown bud or stop the plants on June 10. Fred Green : Root the early cuttings, and stop the plants during the 1st week in May. Lady Letchworth : Stop the plants on June 16. This variety is not worth growing in small collections. Bob Pulling : This variety should be stopped during the first fortnight in May. D. B. Crane : Strike the cuttings late in January, and take the first crown bud or stop the plants on June 16. Walter Jinks : Root the cuttings in January, and take the first crown bud. William Turner : Take the natural first crown bud or stop the plants on June 11. Thorpe's Beauty : This variety should be bloomed on the first natural crown bud. Rose Pockett : Take the second natural crown bud or stop the plants on June 16. Miss A. E. Roope : Stop the plants at about the middle of May, and take the first crown bud.

GAS TAR : *G. F. H.* The following is a recipe for making gas tar : To one gallon of finely-sifted dry soil add half a pint of pure gas tar (tar varnish should not be used) ; mix this in an iron pot and place over a steady fire, adding boiling water sufficient to bring it to the consistency of paint. When cool the mixture is ready for use.

GRAPES : *A. H.* Dust flowers of sulphur on the shoots at intervals, mixing a small quantity of quicklime on the second application, and repeat the dressing until the amounts of lime and sulphur are nearly equal with the sulphate of iron solution.

MUSHROOMS : *A. W.* We suspect that the failure of your Mushrooms is owing to adding the water and outside manure. The droppings can hardly be kept too dry. Use plenty of short litter for making the bed, and turn it frequently, making the material very firm after it has been well sweetened by fermentation.

NAMES OF FRUITS : *C. R.* 1, Annie Elizabeth ; 2, not recognised ; 3, Prince Bismarck ; 4, Round Winter Nonesuch ; 5, Lady Henniker ; 6, Royal Snow ; 7, Claygate Pearmain ; 8, Blenheim Pippin ; 9, Queen Caroline ; 10, Wyken Pippin syn. Warwickshire Pippin. —*Robin Hood.* 1, Gooseberry Apple ; 2, Small's Admirable ; 3, Roundway's Magnum Bonum ; 4, Colonel Vaughan ; 5, Beauty of Kent ; 6, Northern Dumpling ; 7 and 10, Lady Henniker ; 8, Malster ; 9, Baldwin ; 11, Blenheim Pippin ; 12, Claygate Pearmain ; 13, Queen Caroline.

NAMES OF PLANTS : *O. S.* 1, Liparis longipes ; 2, Bulbophyllum auricomum ; 3, Pleurothallis lateritea ; 4, Stenoglottis fimbriata.—*C. F. S.* Dendrobium Pierardii.—*W. H.* 1, Andromeda floribunda ; 2, Zephyranthes carinata ; 3, Crinum capense ; 4, Cypella Herbertii.—*W. C., Berks.* 1, 2, 3, white, rose, and red-berried forms of Pernettya mucronata ; 4, Nephrolepis todæoides ; 5, may be the same, but is not in character. Both forms often appear on the same plant.—*C. G. A.* Chrysanthemum segetum.—*Rev. J. P. L.* Helxine Soleirolii.

ORANGE RUST ON ROSES : *G. A. B., Stranraer.* Orange rust is caused by the fungus, Uredo rosæ. The infested leaves and shoots should be collected and burned and the plants sprayed with potassium sulphide.

PARSNIP DISEASED : *T. D. S., Ireland.* The injury is caused by a minute white worm, Fridericia bisetosa. Treat the land with lime, and grow crops of Cabbages or Potatos on the site for one or two seasons.

PEACH TREES UNDER GLASS : *Dublin.* Horse droppings are preferable to any other kind of nitrogenous manure as a surface-dressing for Peach or vine borders, in that it retains its efficacy much longer than well-decomposed stable or farmyard manure. Fresh dung should be used when a sufficient quantity for the purpose has been separated from the saturated straw. If horse droppings are not available half-rotted stable manure may be employed for the purpose. A light surface-dressing of cow manure placed on the border when the fruit is swelling, and immediately before water is applied, will prove beneficial in developing large fruit of fine quality.

PLANTS FOR CARPET BEDDING : *E. L.* There is not a great variety of plants that can be raised from seed suitable for carpet bedding, but the following should give sufficient variety to work out the letters, and they can all be raised during the spring and be ready for planting out at the proper season. They include the compact forms of Lobelia erinus, in blue and white, Pyrethrum aureum (Golden Feather) and Alyssum maritimum var. nanum (Sweet Alyssum), with white flowers. Many of the perennial plants used for carpet bedding can be grown from seed, but they require to be raised the previous year ; although the silvery-leaved Cerastium tomentosum, if sown in heat, is ready to put out the same season. There is a great variety of plants that can be used for working out the armorial bearing ; but without knowing the colours of it, it is impossible to place them correctly. Antennaria tomentosum, Cerastium tomentosum, Thymus lanuginosus and Veronica incana all have grey or silvery foliage ; Pyrethrum (Golden Feather), Stellaria graminea aurea and Spergula pilifera aurea, golden foliage ; while green plants that can be used are Herniaria glabra, several Saxifrages, such as S. hypnoides and S. hirta ; Sedums, including S. Acre, S. lydium (green), and S. dasyphyllum and S. glaucum, have glaucous foliage. All the above are hardy. Tender plants suitable for this work include Alternantheras, of which there are numerous varieties ; Echeverias, such as E. secunda glauca and E. Peacockii. Kleinia repens, Leucophyta Brownii, Mesembryanthemum cordifolium variegatum, Sedum sarmentosum variegatum and Iresines, which require constant pinching to keep them dwarf. The base of the crown might be worked out with a dark Alternanthera, such as grandis, with dot plants of Echeveria Peacockii, while the tips might be formed with silver and golden foliage. The blade of the sword might be made with silver Antennaria, outlined with green Herniaria, while the guard could be done with Golden Feather, and the hilt dark Alternanthera, or Ajuga reptans purpurea (hardy), outlined with green or gold. The clasped hand, if represented with a gauntlet, should be worked out with silver, green and gold ; if a naked hand, use some warmer colour, such as Alternanthera amæna, in part. What appears to be an arm should be done with the same Alternanthera, outlined with white, green or silvery foliage, or the whole design may be on a groundwork of green. But if the crest is in colours it must, of course, be worked out in them.

POINSETTIA : *S. P.* There is no disease due to fungus present in the specimens received for examination.

ROSE ROOTS : *Tyehurst.* The white growth is part of the Rose root, and is formed when soil is sodden, thus preventing the air from entering. Break up the clay and mulch, and endeavour to get roots to grow near to the surface.

TREE CARNATION FOLIAGE : *F. W. E. P.* The marks on the tree Carnations are punctures made by green fly. The presence of the mining maggot can be prevented by sprinkling a little guano on the soil, which drives away the insects, and thus preventing eggs being laid on the leaves.

VINES FAILING : *W. B.* The rod has almost rotted through at the ground level ; in all probability the "eye" was diseased when first planted, or became diseased soon afterwards.

Communications Received—H. S. T.—Y. K. M. L. F.—Y. F. M.—Y. S., Fife—G. W. H.—T. G. W. H.—R. P. B.—R. W. C.—H. B. M. & Sons—I. Y.—A. A. D. S. —I. M., Market Drayton—Y. A. J. B.—C. F. C.—W. R. —E. W. P.—P. U. R.—T. S., N.—B. Collins.

View in the Gardens at Huntercombe Manor, the residence of the Hon. Mrs. Boyle.

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CONTENTS.

ILLUSTRATIONS.

WINTER FLORAL DISPLAY AT ASCOTT.

MR. LEOPOLD DE ROTHSCHILD holds that the first essential in successful gardening is for the owner to decide what he wants and the time and season at which he requires the chief display, to select the proper subjects for flowering at that season, and to grow them up to their best.

This plan is adopted in all the famous gardens of this enthusiastic amateur horticulturist, and although flowers are plentiful at all seasons of the year the main show in each garden is timed for the season at which it is most required. Ascott Gardens, Leighton Buzzard, for many years under the management of Mr. John Jennings, has become famous for its display of winter flowers. We were privileged to inspect the show recently, and it would indeed be difficult to imagine a more remarkable and varied display of bright flowers. As we have said already flowers are present in profusion at all seasons. In the earliest days of spring the beds and borders of spring flowers and the bright tints of the bulbous plants light up the grassy glades, and before winter is quite past the forced Roses in the immense Rosary of several spans produce a wealth of flowers; later, the showy perennials appear even in the distant parts of the garden, and the many rockeries, with their Alpine flora, each contributes a fresh interest, whilst the effect at every season is enhanced by the wonderful collection of trees and shrubs. But, elaborate as the scheme of gardening at Ascott undoubtedly is, it is made to harmonise with the character of the fine old mansion, the oak-studded main portion of which dates from the year 1606.

At the present time one of the glass-houses is filled with the bright carmine-rose sprays of Plumbago rosea, an old garden plant which has been occasionally used as a pillar plant, but which makes an excellent subject for growing in quantity. The house at Ascott is a mass of colour, each plant bearing from ten to fifteen stems, two-thirds of which is flower, only the basal part showing the bright green leaves. Unless grown systematically the species flowers at odd times, and for those who require it for winter it will be well to tell the simple method of culture adopted by Mr. Jennings. After flowering the plants are cut down and removed to a cool-heated frame, where they remain until they start into growth again, when they are returned to the house to perfect their flowering shoots. This method induces uniformity of growth, all the stems being capable of producing flowers, and it ensures their flowering at the same time. The next house is one of Begonia Gloire de Lorraine, one side being of the variety Mrs. Leopold de Rothschild, and here again the bright pink flowers fill the house, and the foliage is only sufficiently visible to show up the bloom. At Ascott the plants never suffer from "rust," and Mr. Jennings attributes his success to keeping the plants drier and better ventilated than is the case in some collections, and to abstaining from watering overhead during the flowering and resting seasons.

Carnations are amongst the greatest successes at Ascott, where they are grown on two plans, several large, well-ventilated span-roofed houses being devoted to them. Two of the houses have the Carnations planted out in beds, one house being later than the other. The other houses have the plants in pots, and in both cases they are furnished with a great profusion of flowers and buds in all stages.

The cuttings are rooted in January in sand, and it is remarkable evidence of fine culture that they should attain such size and bear such heavy crops of bloom within the year. Only the best varieties are grown, and these in considerable numbers; the massed flowers of each variety showing it at its best.

Some of the most beautiful are Enchantress deep pink and White Enchantress: the latter, together with White Wonder, are the principal whites grown. Good pink tints are given by Lady Northcliffe, Winsor, Baroness de Brienen and Gloriosa. Britannia and Scarlet Glow are brilliant scarlet; Triumph is the best deep crimson variety; Carola is a fine flower of the old Clove tint; and among others noted were the special form of bright cerise-rose, Lawson, cultivated here; Mikado, a large lavender-tinted flower; Lady Meyer, deeper in colour than Enchantress, and Mary Allwood, of a pleasing salmon-red colour.

Carnation Souvenir de la Malmaison is grown in great quantity, and the stock in all sizes is in fine condition. The main flowering occurs in summer, and it used to be thought that the Malmaison Carnation could not be grown for winter bloom, but the Rothschild type with its deep rose-pink flowers succeeds well, and in one of the houses there is quite a show of its fine blooms.

The next two houses are of Zonal Pelargoniums, the plants giving a fine display of blooms. These are principally grown as dwarf pot plants, but in several of the cool houses standard plants on tall stems add much to the decorative effect of the other plants. In one mass Maxime Kavalevski gives a profusion of orange-scarlet trusses. Lady E. Mallett forms a bank of white blooms, the older flowers having rose margins; Fratella Ferraria on the centre stage is brilliant scarlet, with, on each side, Mrs. P. Routh, salmon and white, and Helen Countess of Radnor.

In the adjoining house specimens of Statice profusa furnish a display of blue colour. This plant, when properly grown, is a fine winter flower, as it lasts in bloom for a considerable time. One side is of the newer form of Primula obconica of various tints of white, lilac, and purple; and drooping around the edge of the stage are the grey-green sprays of Lotus peliorhynchus, which will soon be studded with scarlet flowers.

A house of Begonia Gloire de Sceaux, with its heads of pink flowers above the fine bronzy leaves, is a fine sight, the beauty of the plants being enhanced by the sprays of the clear sky-blue of Ipomæa cærulea which are run up each of the rafters.

The old Begonia socotrana, which has played such an important part in the hands of Messrs. Jas. Veitch and Sons in producing so many fine winter-blooming Begonias, is still grown in quantity, and with its fleshy orbicular green leaves is always attractive, and from now onward it will produce a mass of pretty flowers. Arranged with it are B. John Heal, B. Mrs. Heal, B. elatior, B. Ensign, B. Winter Cheer, of various tints of red, and B. Fascination, with a profusion of salmon-yellow flowers.

A house of blue Coleus thyrsoideus, another of Cyclamen latifolium just coming into bloom; a house filled chiefly with Cypripedium insigne, each plant bearing ten to fifteen flowers, looking very attractive beside the Fern-clad end of the house; a large batch of Arum Lilies, and long stretches of Chrysanthemums with patches of scarlet Salvias, blue Heliotropes, fragrant Mignonette and other flowers are to be seen in the various houses, and on the back wall of one of the corridors are some large specimens of Citron, bearing fruits of large size. *B.*

THE INDEX KEWENSIS.*

THE appearance of the fourth supplement to the *Index Kewensis* suggests a brief retrospect. This colossal work—colossal rather in the sense of the labour entailed in its compilation than in the bulk of the volumes—was begun in January, 1882, by Mr. (now Dr.) B. Daydon Jackson and assistants, at the expense of Charles Darwin, and under the superintendence of Sir Joseph Hooker. The plan and scope of the work was to include all published botanical names, from the foundation of the binominal system of Linnæus (about 1735) but more especially from 1752, the date of the first edition of his *Species Plantarum*) to the end of 1884. Only those persons engaged on similar works can realise what it meant to index the botanical literature of a century and a half, and no one would be surprised that there were omissions of names which appeared in rare and obscure works, and often hidden in the text of a long discussion. An important part of the plan of the main work was synonymy on what may be termed a Kew basis. Of course, at the best this could only be of a very imperfect and incomplete character, and often the result of individual views. This feature, of necessity, gradually disappeared from the successive supplements, and the fourth supplement is almost reduced to an index to names. Some explanation of the causes is given below. The main work of the *Index Kewensis* was completed in 1895, and contained, approximately, references to the medium of publication of 300,000 names. Thereupon Professor Durand and Dr. Jackson started on what proved to be a very laborious task; the compilation of a supplement containing the additional names from the beginning of 1885 to the end of 1895, and such omissions of earlier names as had been discovered. Due largely to Professor Durand's bad health, delays were encountered, and completion almost despaired of; but the end was reached in 1906. This first supplement added some 62,000 new names and new combinations. Meanwhile, Sir William Thiselton-Dyer, the Director of Kew, had a second supplement in preparation by the Herbarium Staff. This covered the period from the beginning of 1896 to the end of 1900, was actually completed in 1905, before the last part of the first supplement had appeared, and contains, approximately, 24,500 names. Sir David Prain continued the work of his predecessor, and the third, somewhat smaller supplement, embracing the period from 1901 to 1905, followed in 1908. Now we have the fourth supplement for use, bringing the Index up to the end of 1910, with some 39,000 further names and combinations. A new combination, it may be explained, is an old species under a new or different genus. Altogether, the Kew Index contains references to about 450,000 names of plants, together with the native countries of the plants and the families (natural orders) to which they belong. Meanwhile, Kew is proceeding with the fifth supplement. Yet this is not enough for the horticulturists, whose wants and requirements are not satisfied, though much has been done in this direction in the later supplements, which include at least some of the generic hybrids and garden species with Latin names. But nothing short of a separate index can fully meet the requirements of the horticulturist. This should be an index to the early floricultural publications, especially to the figures, and, in short, should cover the literature not taken up by the *Index Kewensis*. Of course, there is much to be said on this and other points which would be out of place here; but some observations on the evolution of the Kew Index may be of interest. Equally with other sciences, botany has made vast strides during the last fifty years, and more especially during the last twenty-five years. The cultivation of plants is just as much a branch of botany as the distribution of plants, and no true botanist neglects the teachings of horticulture. Research has led to more critical subdivision in classification, alike in families, genera, and species, and in lower subdivisions—the species of one writer often being no more than varieties of another, or even of less status. In the new supplement quite a large number of additional family (ordinal) designations appear. These are partly revivals of groups recognised by earlier botanists as distinct families (orders); partly of proposed new families, invariably based on previously described genera. With regard to genera, those which may be termed segregates of older genera probably preponderate over those based on plants previously unknown. An example of the former is afforded by a North American botanist, who founds nine genera on species usually referred to the genus Oxalis. Hieracium is an instance of the excessive multiplication of species: upwards of 2,100 names are recorded in the present supplement, largely, it should be explained, purposely omitted from previous supplements. Cratægus is another instance of the developments of the highly critical botanist. The estimate of the total number of species of this genus accepted by Bentham and Hooker and other botanists twenty-five years ago was about thirty. North American botanists have increased this number to upwards of a thousand! This is not the place to discuss the validity of these sub-divisions; the object being to show how far they go to fill up the successive supplements to the Kew Index. All students of plant life are, however, greatly indebted to Kew for these continuations of the Index, which are executed under the great pressure of the ever-increasing public demands on the assistance of the establishment. Needless to say that the printing of the new supplement is of the high standard which the Clarendon Press has taught us to expect in the books which it publishes. *W. B. Hemsley.*

* *Index Kewensis Plantarum Phanerogamarum.* Supplementum quartum. Nomina et synonyma omnium generum et specierum ab initio, anni MDCCCCVI. usque ad finem anni MDCCCX. nonnulla etiam antea edita complectens. (Oxford: Clarendon Press, 1913.)

THE PARIS FOREST CONGRESS AND BRITISH FORESTRY.

(*Concluded from* p. 395.)

A Plea for State Forestry in the South-East of England.

We have seen that the recently-issued report of the Advisory Committee on Forestry makes no mention of suburban State forests, with their peculiar social and educational advantages, nor does it propose to locate any State forests in the south-east of England, though this is the part of England most resembling in climate the Continent of Europe where State Forestry has been universally accepted. Elwes and Henry, in *Trees of Great Britain and Ireland*, state that the tallest leaf-shedding tree in the British Isles is an Ash at Cobham Park, Kent, one of a group of many fine trees. Here also some years back was the champion Chestnut of these islands.

According to Sir William Schlich's returns there are 36,502 acres of heath (or other waste land) in Surrey, Kent and Sussex. Scotch foresters have to think of the climatic limit and peat troubles when they go above 800 or 1,000 feet elevation. The peat trouble increases as one goes westwards towards the heavier rainfall areas of the British Isles. In the south-east of England there is no land above the climatic limit, and practically no peat. Let us bear in mind, too, that when we go from the North of Scotland to the South of England, we go half-way to sunny Spain and Southern Italy, countries where the sun-power gives those enormous possibilities of timber yield per acre with which foresters are only now becoming familiar—700 *cubic feet per acre per year, or an equivalent of* 20 *tons of dry wood per acre per year.* As I pointed out some time back (*Nature,* March 20, 1902), it is to this enormous and easy production of wood fuel that we have to look in the future as coal becomes dearer. The calculation I then made was that if 25 per cent. of the suitable areas in the tropics and extra-tropics were planted with existing quick-growing trees, there would be yearly produced *fuel of a heat-giving value equal to* 15 *times the world's coal consumption in* 1902. When the busy industrial regions of temperate climates have exhausted their coal they will have to depend on fuel brought from the sunnier latitudes which now supply palm oil and mahogany; latitudes where man works less and the forest works more! Of this, those foresters who, like myself, have long grown fuel at maximum rates of 20 tons per acre per year, stand absolutely convinced. The fuel will arrive probably in the form of charcoal briquettes with a heating value rather over that of the best Welsh coal.

Naturally, more trouble and expense are involved in forming a State forest in the south-east of England than, say, on a Yorkshire or Scotch moor, where one may sometimes walk a dozen miles without meeting a soul! But the forest in the south-east will be more valuable in its timber, and in its human amenities. Land will cost more in the first instance, but with the drawback from building sites perhaps less in the end. The forest area will be more broken, but that is an advantage from several points of view, though a disadvantage from others. A broken forest area lends itself best to scenic effect, to the rise in value of neighbouring building sites, and to protection from fire, insect, or fungous epidemics. These are all important points. In the fine forest of Fontainebleau, near Paris, fires have been very serious, and are still giving much trouble.

On the other hand a broken forest area is generally more costly to fence, to work, and to manage than a compact one. But these objections have little force in a well-settled and populous neighbourhood. Fences become few and mostly temporary, as there are few stray cattle, and rabbits are more easily kept down. Of course, in a State forest men, women and chil-

dren wander without let nearly everywhere. In a populous country with good roads the broken forest may be more economical to work, because labour is abundant, and there are no long expensive forest roads to make.

On the whole, in the populous parts of England the advantages seem mostly in favour of broken forest in small neighbouring areas; a fortunate circumstance, since there is no chance of securing large compact areas for State forests. In France there is a great quantity of State forest in small detached areas. Such forest is often the most useful and instructive to the inhabitants.

Conclusion.

We have in this country to develop State, municipal and private Forestry. After the procrastination and delays of forty years there is much leeway to make up! Other countries aid the private forest owner with grants of forest trees, seed, and in some cases, money. We tax him heavily, and give him good advice! The Development Commission has decided to increase the good advice, and that is all, so far! The Development Fund, after running for over three years, has, as we have seen, done nothing for practical Forestry in Britain, and not much in Ireland.

There are, says Fernow, 12 million acres of waste land, heath and poor grazing in these islands suited for the profitable growth of trees, and another 12 million acres doubtfully so. Altogether waste land occupies about one-third the total area of the British Isles. With State Forestry we can, so to speak, make fifteen blades of grass grow where one grew before, and that, too, over 12 million acres. State Forestry can do this, private forestry cannot, on account of the long time to wait for a return—at least eighty years.

No public measure in recent times has stood so much for the solid benefit of every class of the community. The country gentleman gets that assistance in Forestry to which he is entitled in the interest of the community at large. The middle class gets public forests scattered over the land and brought to their doors—a new feature in outdoor life. It gets building sites and residence in a land restored to its old-time beauty! The working-class gets employment for 15 men in forestry where one was employed on grazing land

We may look for some improvement in climate as the forest grows up and covers, say, one-fifth of the area of the country. It is reasonable to expect some return to the old-time seasons of tradition before the forests were destroyed. The general (as apart from the local) effect of forest may be looked for in the draining of marshy land and the interception of one-third or one quarter of the rainfall, its more rapid evaporation from the crowns of the trees producing colder winters, drier, warmer summers, and generally brighter summer weather.

Minor general advantages, or local benefits, are these:—A lessening of bog and swamps as the forest gradually resumes its old draining action; some help in national defence, more particularly when the defenders are pitted against a more highly-trained Continental invader; and lastly, less pollution of the atmosphere as cheap firewood wins it way back to the domestic hearth. This last in the future will be quite an important consideration. During the past winter two rooms in my house have been heated (and well heated) entirely by an *open* wood-burning stove. This fire was the cleanest and brightest in the house! It was also the most easily regulated. It was nearly smokeless. The firewood cost me a good deal less than coal. In this stove the average consumption of firewood was 4 lb. per hour. No great proportion of heat was lost in the chimney draught. The fire was always in view, and was bright, cheerful, and nearly smokeless. The market price of coal even here, close to the woods, is per heat unit somewhat less than firewood. But the latter is more economical to use, as with firewood the heat can be more easily regulated. In the best timber forest there must always be a proportion of branch-wood, slabs, and waste wood, only fit for firewood. This proportion of firewood will vary from about one-seventh in the best timber forest to about one-half in such trees as park Oaks and Beeches. At the Paris Forest Congress, the Secretary of the "Syndicats du commerce des bois de France" stated that "the use of firewood instead of coal or its products is not merely a luxury, it is more hygienic, and at the same time cleaner and more convenient to use."

It is all very well to be an insular people, but to cut ourselves off from one of the conspicuous benefits of modern civilisation—State Forestry, is to imitate the Japanese exclusiveness of fifty years ago, and to leave ourselves very far behind the Japan of to-day. *D. E. Hutchins, Cobham, Kent.*

LYCASTE TUNSTILLII.

Our illustration representing this pretty natural hybrid was taken from a plant in the group staged by Messrs. Hassall and Co., Southgate, at the Royal Horticultural Society's meeting on the 2nd inst. The plant is part of the original specimen for which the late Robert Tunstill, of Monkholme, Burnley, received an Award of Merit on December 17, 1901, as described in the *Gardeners' Chronicle*, December 21, 1901, p. 462, where its differences from the allied L. Balliæ were indicated. The flowers have bright rose-red sepals and white petals; the lip also is white, with ruby-red spots. It is an excellent decorative plant, capable of lasting a very considerable time in bloom.

[Photograph by R. A. Malby.

Fig. 143.—Lycaste Tunstillii: sepals rosy-red, petals white, lip white with ruby-red spots.

Agricultural Returns.—The preliminary statement of Produce of Crops issued by the Board of Agriculture gives the estimated total yield of Potatos (England and Wales) as 2,894,655 tons, as against 2,241,039 tons in 1912; the acreage in 1913 as 442,035, as compared with 462,903 in 1912; and the average estimated yield per acre at 6.55 tons, as compared with 4.84 tons in 1912. The yield for 1913 is well above the average per acre of the past 10 years, which is 5.98 tons, and is about the same as in 1910 and 1911.

CANADA.

CYPRIPEDIUM SPECTABILE.

Of the many native plants, none excel in interest Cypripedium spectabile, which haunts those mossy, shady retreats where the soil is moist without being saturated. A huge colony of pink and white was discovered, and one's feelings were akin to those of Linnæus, who knelt down in thankfulness that he was spared to feast his eyes on a Gorse-covered English common in the fullness of its golden splendour.

Cypripedium spectabile varies in the same way as at home, some varieties having a darker shade of pink and more of it than others, and there is a richer display of flowers. A photograph was taken, but unfortunately it has proved too indistinct for reproduction, otherwise I would have sent it to you. I hope to have the good fortune next year to obtain a clear impression. This lovely Orchid is disappearing within walking distance of the city, sharing the fate of the Trilliums and other wildings. *E. T. Cook.*

AMERICAN APPLES.

The Wolf River Apple is a seedling (see pp. 300, 398) raised from the variety Alexander about fifty years ago at Wolf River, Wisconsin. It is a large Apple, coloured red, not striped but blushed, except generally a yellowish spot on one side; it is round, the blossom end being short and even. It grows well wherever the Apple succeeds, and there seems no particular locality where it does especially well. It grows to an enormous size in both the irrigated and non-irrigated sections of the West. The Apple has no particular commercial value, but is well known because of its large size and deep red colour; its flavour is not pleasing, and it is considered an undesirable variety to grow. The tree grows rather large and bushy.

As to the variety Gravenstein, mentioned by another correspondent, in the far western part of our country, from which I write, it is regarded as one of our choicest Apples. The fruits are very fine in flavour and perfect in their crimson and gold colouring. It does wonderfully well under irrigation. Other very fine varieties with us are the Jonathan, Wealthy, Delicious, and choicest of all in its waxy beauty with delicate pink cheeks is the Winter Banana, the name describing its flavour. *Subscriber, Honeysuckle Hill, Hayden Lake, Idaho, U.S.A.*

LÆLIO-CATTLEYA NELLA WESTONBIRT VARIETY.

At the Royal Horticultural Society's meeting on the 2nd inst., Lieut.-Col. Sir George Holford, K.C.V.O. (gr. Mr. H. G. Alexander) showed a fine form of the handsome and richly-coloured hybrid L.-C. Nella (L.-C. Dominiana langleyensis × C. labiata), originally raised by Messrs. Jas. Veitch and Sons, who received an Award of Merit for it on December 19, 1911. The variety now illustrated (fig. 144) was raised at Westonbirt. The form of L.-C. Dominiana is much improved in the hybrid, and the use of C. labiata has brought a very desirable plant into the winter-flowering class. The flowers are of a deep purplish-rose colour, but the lip is claret-red, with fine gold lines running from the base.

[Photograph by R. A. Malby.

Fig. 144.—Lælio-cattleya nella: sepals and petals bright rose, lip ruby-red with thin yellow lines.

THE MARKET FRUIT GARDEN.

The last week of November was the only week since the end of September in which in my district there were six days without rain. Previously during the autumn there had been only once so many as four consecutive days free from rain, and on only two occasions so many as three dry days together. My total rainfall for the three autumn months was 13.45in., a quantity in excess of the total for any of the large districts of England given in the weekly reports of the Meteorological Office. It was exceeded only in Scotland North and Ireland South. December has begun with gloomy weather, strong wind and a little rain. The temperature has fallen, but is still above the normal for the period of the year.

Apples Not Paying for Keeping.

In consequence of the unfavourable conditions for keeping Apples, the temperature having been much too high, all the trouble taken to store as many as possible in a large and properly constructed fruit-room resulted only in loss. Cox's Orange Pippin had to be marketed in the middle of October, because the fruit was spotting badly. Early in November Lane's Prince Albert was found to be rotting, and all of the variety were marketed by the middle of that month. Bismarcks kept better, but began to rot towards the end of November. At the same time Allingtons began to become specked. It was intended to keep all these varieties until January or February, but it was necessary to sell them before prices rose, and there was waste of weight, as well as loss in rotting to some extent. This is the second season in succession in which an attempt to keep Apples over Christmas has failed. In 1911-12, on the contrary, keeping paid well. The only varieties now left in the fruit-room are Bramley's Seedling, Newton Wonder, Chelmsford Wonder, Dumelow's Seedling, and a few dessert Apples grown only for private use. These are keeping well at present; but out of 450 bushels stored only 140 bushels remain. When storing Apples for long keeping, it is necessary to reject every one that has any important defect, such as a scab mark or even a slight bruise. It was noticed that most of the Apples which showed rotten portions began to go around the stalk. It would be interesting to know why this was the case. Bitter Pit undoubtedly developed in the fruit-room, particularly among fruits of Allington Pippin.

Long-keeping Dessert Apples.

Very few varieties of dessert Apples which, under fair circumstances, will keep till January, and some up to March or even April, are grown for market. Cox's Orange and Allington Pippins should keep till January. Some of the latter reserved for home consumption are now in perfect condition, beauti-

fully coloured, quite ripe, and of really good flavour. Allington Pippin should not be marketed before November, as it does not develop its best flavour earlier. Excepting Cox's Orange, I do not know any Apple largely grown for market now in season that I prefer to Allington. To my taste it is superior to Blenheim Pippin. Claygate Pearmain, now in good order, is superior, however, but it cankers too readily to be recommended for growing on a large scale. Duke of Devonshire might be tried, as it is a good grower and bearer, and has a pleasantly spicy flavour when ripe. Still better is D'Arcy Spice, which, in my opinion, should not be called Baddow Pippin or Spring Ribston, because the re-christening of an Apple should not be encouraged. The variety was first noticed publicly as growing at Tolleshunt D'Arcy, in Essex. It will keep till April, and is not in its prime yet. When fully ripe, as it is at any time after Christmas, it is, in my opinion, the best dessert Apple after Cox's Orange. But with me it does not fruit well nor bear fruit of full size. Unless pruned severely the tree sends out tall and bald branches, which fruit only near their tops. Another late dessert Apple, not so well known as it should be, is Roundway Magnum Bonum. It is nearly as good as D'Arcy Spice, but is large for dessert and one of the ugliest of Apples. Probably it is not a good enough bearer to be grown for market to advantage, and, at any rate, its unattractive appearance would be against it. Cornish Aromatic is not quite as good, in my opinion, and it does not keep well long after Christmas. Mannington's Pearmain, which will keep till March, is extremely sweet, but, to my taste, not equal to any of the equally late dessert Apples named above. With me the trees are stunted and the fruit is small. Sturmer Pippin, which is said to keep till June, I have never grown. It ranks high among late dessert Apples.

A Substitute for the Victoria Plum.

Unless Silver Leaf can be got under control many fruit growers will be chary of planting the Victoria Plum. Mr. F. T. Brooks, of the Botany School, Cambridge, who contributes an excellent illustrated article upon the disease to the November number of the *Journal* of the Board of Agriculture, states that no certain remedy has yet been found. Whether or not sulphate of iron will be proved ultimately to be a remedy, it is certain that oxide of iron is useless, because the soil of the field in which I had a widespread attack on Victorias in full vigour last summer contains a quite extraordinary proportion of iron. A good substitute for the Victoria is Belle de Louvain, ripe at about the same time. The variety is a remarkably sturdy grower, and would be symmetrical if it were not for its habit of producing some branches much more gross than others. It is not immune to silver leaf, but it is not named by Mr. Brooks as having been found affected, and at present none of my trees of the variety have shown the malady.

Mr. E. Molyneux, who asked on page 385 what artificials I used, will have seen his question answered in the same issue of the *Gardeners' Chronicle*. The quantity applied was 7lb. to a tree. I attribute the recovery of the only tree which has fully recovered mainly, if not entirely, to the artificial manures, because trees treated with 3lb. to 6lb. of sulphate of iron, with or without farmyard manure, though apparently benefited at first, have relapsed and have been dug up. The tree that recovered had 6lb. of iron sulphate alone in 1910, with 7lb. of complete artificial manures in 1911 and 1912.

Catkins on Cobnuts.

There is an enormous number of catkins on my cobnuts this season, a hundred times as many as are needed for pollination. Such a profusion might be supposed to involve a waste of the energies of the trees; but in 1912, when the Cobnut crop was a great one, the number of catkins was very large, though not as enormous as it is now. The continued mildness of the weather is disquieting in relation to the catkins and the buds alike, as both are likely to get too forward and hence to become liable to destruction by frost. Last season both catkins and female blossoms were cut badly, which accounted for the extremely short crop of nuts.

The Droitwich Experimental Garden.

There is a mass of interesting detail in Mr. Udale's report on this garden for 1912, which appears to have been only recently issued. The greatest average weight of Apples per tree per annum in thirteen years of bearing out of a great number of varieties is 90.4lb., recorded for one of three Ecklinville Seedlings; but the two others yielded 75.5lb. and 45.3lb. respectively, while a Bramley's Seedling gave 88.7lb. as the average for ten years. As the latter was three years younger than the Ecklinville, it stands first as a bearer; but if there was only one Bramley in the trial there is no conclusive evidence of superiority. In another trial Betty Geeson took the lead, but it had no Bramley to compete with it. In the pruning experiments slightly-pruned Apple trees gave the greatest average weight of fruit per tree in seven years, unpruned trees being second, and "carefully pruned" trees third. But the finest grade of fruit was produced by the "carefully-pruned" trees, and the lowest by the unpruned trees. The term just used is vague, as slightly-pruned trees may be as carefully pruned as those which are dealt with severely. The weak point in the experiments is in relation to the manuring of fruit trees. Only two trees of Apples and Pears respectively were tried with each manurial treatment, and, with all respect for Mr. Udale, it must be said that trials on such a small scale are as likely as not to be misleading. Moreover, the quantities and varieties of the artificial manures used and the quantity of stable manure or garden refuse are not given; nor is it stated whether the fertilisers were applied only once or annually.

Fruit Growers and the Census of Production.

In starting an inquiry into statistics on so elaborate a subject as fruit production, it would have been wise to consult a few experts as to the questions to be asked. If this had been done schedules which probably not one in a hundred of fruit growers can fill with any approach to accuracy would not have been sent out. First, information is asked for use in the second Census of Production as to the number of casual males and females under 18 years and over that age respectively who were employed in fruit picking in 1913. On a large fruit farm, it may be supposed, the answer as to number might be from one to five hundred at different times, if the employer ever knows the actual number in a gang of strawberry pickers, for example. As to the ages of the pickers, it is quite certain that no employer of a large gang could answer the question. Questions as to acreage of the several kinds of fruit are all right; but when the number of trees is asked for, many growers will have to guess if they reply. Next the grower is asked to state the quantity, unit of measurement, and total value of each kind of fruit gathered in 1913. Possibly a few elaborate bookkeepers could give the required information without very much trouble, but the great majority of growers could not supply it without going through their invoice counterfoils for the whole season, involving a great expenditure of time, especially when it is usual to sell hundreds of very small lots, chiefly of inferior fruit, on the premises. Besides, of what use would be gross quantities and values of a given acreage of orchards, including some too young to yield more than a few bushels per acre and others old enough to produce several tons per acre? Again, bush fruit among trees does not occupy all the acreage of the field, and yet the area is given as that under small fruit, so that the yield per acre comes out less than it should be. More useful returns could be obtained by asking for the quantity and money receipts from example orchards and plantations of small fruit of stated ages from the time of planting. A number of such returns would give useful averages, especially if the form of the trees and number per acre in each case were added. The statistics of the first Census of Production in relation to yields and money returns of fruit are ridiculous, and it is to be assumed that those of the second will not be otherwise.

Cox's Orange Pippin.

The inquirer who wanted to know why this Apple is always scarce (see p. 392) and dear would have realised the reason if he could have seen, before they were pruned, some trees of that variety in a field planted five years ago. Until this year the trees were healthy and highly promising, but the extremely wet season of 1912-13 proved fatal to them, and they are now poisoned with scab. Most of the trees had to have their miserable little leaders cut back to fruit-buds or nearly so, because they were covered with scab. As the field was in poor condition, although liberal dressings of artificial manure had been used for two crops of Potatos, it was well dressed with cow manure before the planting. This season it has had another dressing of the same kind of manure, and possibly some improvement may take place. *A Southern Grower.*

DESTRUCTIVE INSECTS AND PESTS
SCHEDULED BY THE BOARD OF AGRICULTURE AND FISHERIES.

XVIII.*—TOMATO LEAF SPOT.

A disease of Tomatos to which the name Tomato "Leaf Spot" or "Leaf Blight" has come to be applied, is caused by the fungus Septoria lycopersici, Spegazzini. It has been known for many years as attacking Tomatos in North America, Argentina, Australia, France and Germany, and also Italy, where Briosi and Cavara have described a variety which they name europæa. In 1907 the disease was discovered in England in Gloucestershire, where it entirely destroyed a crop of outdoor Tomatos, re-appearing in 1908. As it seemed likely to prove very harmful, it was scheduled by the Board of Agriculture and Fisheries as a precautionary measure. Since that time it does not appear to have caused much damage in Britain. An illustrated account of this fungus was contributed by Güssow to the *Gardeners' Chronicle* (August 15, 1908). A leaflet dealing with the disease has been issued by the Board of Agriculture, the specific name being taken as Septoria lycopersici, var. europæa, Briosi et Cavara. As it may still attack Tomatos, growers should keep a look-out for it and duly report it, if found, as required under the Destructive Insects and Pests Order of 1910.

Foliage, stem and fruit may all be attacked, but chiefly the leaves, and if precautions are not taken to deal with affected plants as soon as the first signs of the disease are observed, the whole plant may be killed within a week. Small, blackish-green spots appear on the leaves (fig. 145, *a*, *b*), rapidly increase and run one into the other, and the foliage shrivels and dies. If these dark spots are examined with a lens, large numbers of minute black spots will be seen, these being the fruiting conceptacles or pycnidia. From these black fruiting bodies light-brownish collections of curled, thread-like, segmented spores arise. The spores are very minute, being 1-450th of an inch long and 1-12500th of an inch broad, and are divided into from three to eleven segments (see fig. 145, *c*, *d*). On the drying up of the foliage these spores are distributed in various ways. They lie dormant during the winter, and germinate in the next spring under glass or in the open during June and July.

* The previous articles appeared on September 27, October 12, November 2, and December 7, 1912; and on February 1, March 1, March 15, April 26, May 3, May 24, June 7, August 16, September 6, September 13, October 4 October 18, and November 8, 1913.

The germinating spores give rise to a mycelium which pierces the leaf surface, throws out branches, and causes the discoloured spots on which the fruiting conceptacles described above eventually appear. Such in brief is the life-history of the disease.

In so far as preventive and remedial measures are concerned, the greatest care should be taken to prevent the distribution of the spores, and to check the disease by early observation of infestation and prompt measures subsequently. The measures recommended in the leaflet referred to above are those which should be followed, and include spraying with Bordeaux mixture (3 copper sulphate, 2 quicklime, 100 water) in the form of a fine, mist-like spray, directly the first signs of the disease are observed; using Tomato seed from uninfected areas only; scattering pulverised lime round young plants when planting; cutting back, or removing and burning badly attacked plants; drawing possibly infected wires and props slowly through fire, to kill spores; and mixing the top spit of infected soil with fresh lime in the proportion of 1 to 5. Vigilance and the prompt adoption of remedial measures are recommended to all growers of the Tomato, for although this "leaf blight" has not, so far as is known, done great damage in this country, it is stated by Dugger (*Fungous Diseases of Plants*, p. 362) to be the disease "most injurious throughout the range of Tomato culture." *H. C. Long.*

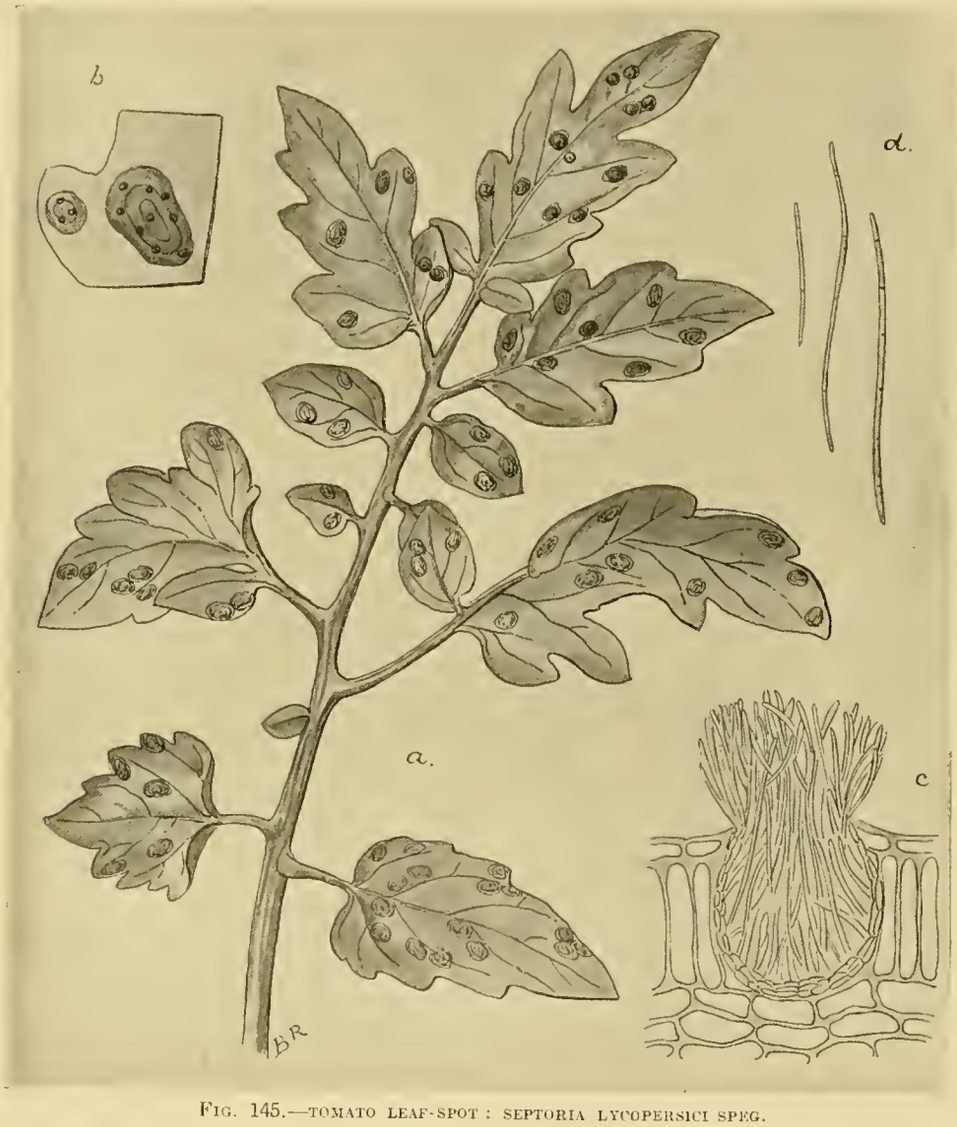

FIG. 145.—TOMATO LEAF-SPOT: SEPTORIA LYCOPERSICI SPEG.

a, diseased leaf showing spots; *b*, a diseased spot (magnified); *c*, fruiting conceptacle (pycnidium) seen in cross section through the leaf (magnified); *d*, spores (much enlarged).

FLORISTS' FLOWERS.

TRIAL OF DECORATIVE GARDEN DAHLIAS.

THE Rev. W. Wilks, secretary, R.H.S., has furnished us with the following report on the trial of decorative Dahlias at Duffryn, Cardiff, which Mr. Reginald Cory carried out on behalf of the Royal Horticultural Society and the National Dahlia Society. Mr. Wilks informs us that the magnitude of the trial, and the fact that numbers of the late-flowering varieties were not inspected until mid-October, have made the preparation of the report a laborious piece of work, which, however, has been executed with all possible despatch.

By the kindness of Mr. Reginald Cory these trials were held in the charming grounds at Duffryn for the purpose of demonstrating the value of the Dahlia as a decorative garden subject, and with this end in view all the raisers in this country, and some on the Continent, were invited to send plants of every section of the flower they deemed to be valuable as decorative garden plants. The response was far in excess of all anticipations, for nearly a thousand distinct varieties were sent in, some as pot roots, others as green plants, the whole number mustering between seven and eight thousand plants, truly a gigantic total; and when it is remembered what a strong point it is to make an early start and grow on without a check, so as to ensure early flowering, one can imagine how this vast number must have taxed even the resources of Duffryn, especially as the majority of the plants were potted on as they required it into six, seven, and eight inch pots. The trial was quite unique, inasmuch as it differed from the row-after-row type of trial, for the Dahlias were planted in a series of gardens, in beds, on borders, as bank plants, and even as "dot" plants for summer bedding. The various sections were planted together as far as possible, while the shades of colouring were also associated harmoniously; the varying height of the plants was also studied, the whole producing an effect absolutely different from the usual trials of such plants. The cultural details were more simple, for the soil was a good holding loam, which had been deeply cultivated, a light dressing of pit manure applied, and at planting time each plant was placed in a station of sifted potting mould. The necessary support to the plant was a single stake, to which the growths were looped up; thinning out or disbudding was strictly forbidden, so that all the varieties in their respective sections were on the same plane. This briefly sums up the cultivation of the plants in this trial, except, of course, the watering of the plants necessitated by the dry season during their growing period, which was never neglected, needless to add, with the result that when visited by the Joint Committee of the two Societies on September 3 and 4 they presented a glorious display, which called for unanimous thanks to Mr. Cory and for unstinted admiration of the excellent results achieved.

The Cactus section was the largest in point of numbers, there being approximately two hundred and fifty varieties. They were, however, in the opinion of the committee the least satisfactory section, for numbers of them did not possess the faintest claim to be decorative garden plants. As a consequence, only thirty-three were considered worthy of award. It should be added, however, that other varieties would no doubt improve at a later date.

Next in importance, so far as numbers are concerned, were the Pæony-flowered varieties. These were represented by about two hundred varieties, and as a mass of colouring they were exquisite, but their unequal heights rather told against them, so far as the general effect was concerned. This could be avoided if the seasons could only be gauged, as the growth of individual varieties depends so much on the weather. This trial, however, demonstrated quite clearly that the newer forms possess better stems and more lasting flowers than the earlier varieties. Thirty-two varieties secured the approval of the committee.

The Collerette section was represented by about one hundred and fifty varieties, a formidable list for such a late aspirant to public favour; still, at the date of inspection they produced the greatest impression, for they were literally masses of flower, due doubtless to their free-flowering propensities, shy varieties being quite rare in their ranks. However, only twenty-three varieties were honoured.

The decorative section is very difficult to define, consisting as it does at the present time of all those varieties which cannot be placed in any other recognised section, and in this trial many large-flowering varieties had been sent, which would be handsome for vase decoration, but, as garden decorative plants, belied their description. Many were evidently late-flowering varieties, and quite unsuitable for such a trial. Nearly a hundred varieties were represented, but only twelve met with approval.

The single section produced a fine effect with about a hundred varieties, and at the time of inspection were quite in their best form. Sixteen varieties were recommended by the committee.

The Pompon varieties were represented by about sixty varieties, and were much admired for their decorative effect. These Lilliputians

had, however, overgrown their allotted space, and, unlike the other sections, were somewhat crowded. Nevertheless, they secured twenty-six recommendations, the highest percentage in the whole trial, except in quite minor sections.

The Show and Fancy varieties totalled fifty, and some of them, though somewhat formal when compared with other sections, were undoubtedly highly decorative as garden plants, and ten varieties (most of them old ones) secured the necessary number of marks for an award.

The Pompon or Miniature Cactus varieties found the soil at Duffryn much too congenial for their requirements, and in most cases produced flowers beyond their normal size. Five varieties, however, were recommended out of a total of twenty-five entrants.

The section entered as Bedding varieties was rather misleading, as it included nearly all the types; the five, however, selected by the committee were all excellent in their respective classes, though there were plenty of forms in the other sections that would be equally well placed under this category.

The Mignon section was quite a small collection, but a very noteworthy one, the flowers single, and growing about eighteen inches high, with bright, well-defined colours, each flower carried erect, a very fine section for bedding or massing purposes.

The Giant Single varieties did not meet with favour, for, although their individual flowers are handsome, they appear to lack the freedom so essential to decorative garden plants.

Although the Star Dahlias did not on this occasion secure the support of the committee, they certainly produced a blaze of colour in the garden, albeit of a somewhat bizarre character.

The Parisian Singles and Anemone types were not, as a whole, sufficiently advanced in growth to judge of their merits, with one exception. The Continental varieties arrived so late that they had made little growth, and were not in flower on September 3.

The following varieties were chosen as most worthy of notice for garden decoration :—

List of Varieties most desirable for Garden Decoration.

Cactus Varieties.

Amos Perry (R. Cory).—Velvety crimson, very free-flowering, 3 feet.
Arthur Pickard (Dobbie).—Pale pinkish-salmon, fine habit, 5 feet.
Bridal Crown (S. Mortimer).—Yellow shaded pink, 4 feet.
Conquest (Campbell).—Deep crimson-maroon, very erect, 4 feet.
Duchess of Marlborough (Cheal).—Delicate silvery-pink, fine habit, 4 feet.
Edith Carter (Shoesmith).—Yellow, heavily suffused rosy carmine, 4 feet.
Effective (Hobbies).—Amber with rose centre, 4 feet.
Floradora (Hobbies).—Rich crimson, long wiry stems, 3 feet.
Glow (Hobbies).—Yellow tipped apricot, 3 feet.
Hon. Mrs. Greville (Cheal).—Orange-yellow, suffused salmon, 4½ feet.
Jeanne Hardy (Cayeux and Le Clerc).
Mabel Needs (Mortimer).—Orange scarlet, shaded plum, 3½ feet.
Mrs. J. Barker (Mortimer).—Salmon-pink, 2½ feet.
Mrs. J. S. Brunton (Mortimer).—Deep yellow, 4 feet.
Mrs. D. Fleming (Stredwick).—Fine white, 3½ feet.
Mrs. Chas. Foster (Cheal).—Rich rose-pink, 3½ feet.
Mrs. J. Goddard (Cheal).—Glowing crimson, 3½ feet.
Mrs. Landale (Cheal).—Yellow, suffused and edged bright rose, 4 feet.
Mrs. Macmillan (Dickson's).—Centre white, deepening to mauve, 4 feet.
Mrs. F. Paton (Cheal).—Brilliant crimson-scarlet, 4 feet.
Nimrod (Mortimer).—Bright pink, tinted lemon, 2½ feet.
René Cayeux (Cayeux and Le Clerc).
Rev. M. Limon (Treseder).—Rich bronzy-yellow, 3 feet.
Snowdon (Campbell).—Pure white, 5 feet.
Sportsman (Shoesmith).—Fine scarlet, 5 feet.
Stability (Stredwick).—Rose-pink, 3 feet.
Star (Carter Page and Co.).—Bright bronze-yellow, 4 feet.
Sweet Briar (Stredwick and Carter Page).—Clear pink, 4 feet.
Sweetheart (Dickson's).—Salmon-pink, 4 feet.
Thos. Parkin (Hobbies).—Bright orange, 3 feet.
Victory (Cheal).—Rich coral.
Vivid (T. S. Ware).—Orange-scarlet.
West Hall Scarlet (Mortimer).—Bright scarlet, 3 feet.
W. H. Treseder (Treseder).—Pale yellow, shading to pink at ends of petals.

Pompon Cactus Varieties.

Coronation (Carter Page and Dobbie).—Glowing red, very free, 3 feet.
Firefly (Cheal).—Brilliant scarlet, tipped yellow.
Gracie (Cory and Dicksons).—Yellow and amber, tipped white, 3 feet.
Magenta Queen (Dickson and Robinson).—Deep magenta, 3 feet.
Miss Hicks (Dickson and Robinson).—Rich crimson, 3 feet.
Selma (Cheal).—Rich rosy purple, 3 feet.

Single Varieties.

Brilliant (Cheal).—Rich crimson-scarlet, yellow zone, 4 feet.
Cardinal (Cheal)—Rich cardinal red, yellow disc, 3½ feet.
Circe (Cayeux and Le Clerc).—Centre of petals white, broadly margined pink, 2 feet.
Crimson King (Dickson's).—Rich crimson, 3 feet.
Elsie (Cheal).—Purplish-crimson, edged white, 3½ feet.
Fuji San (Dobbie).—Rich orange-yellow, crimson zone, 3½ feet.
Kitty (Cheal).—Rosy mauve, chocolate disc, 3 feet.
Little Othello (Cory).—Crimson, black centre, with ring of prominent yellow stamens, 2 feet.
Mary (Dickson and Robinson).—Salmon with crimson ring, 2 feet.
Mikado (Dickson's).—Scarlet centre, heavily margined, clear yellow, 3 feet.
Mrs. W. Hood (Dobbie).—Pure yellow, 3 feet.
Ouida (Dickson's).—Orange-salmon, shaded rose-pink, 3 feet.
Owen Thomas (Cheal).—Crimson-scarlet, heavily tipped golden-yellow, 4 feet.
Rosy Gem (Dickson and Robinson).—Pure rose with crimson ring, 3 feet.
Rosemary Bridge (Cheal).—Deep rich rose, lighter shade on margin, 3 feet.
Union Jack (Turner).—White-striped scarlet, 2 feet.
Winona (Cheal).—Deep maroon, 3 feet.

Bedding Varieties.

Barlow's Bedder (Ware's).—Glowing orange-scarlet, 2½ feet.
Cloth of Gold (Turner).—Clear yellow, show type.
Gluchaut (Dobbie and Carter Page).—Bright orange-scarlet, 2½ feet.
Rising Sun (Cory).—Double scarlet, show form, 2 feet.
Zwergsonne (Dobbie and Carter Page).—Canary-yellow, cactus-shaped flowers, 1½ feet.

Pompon Varieties.

Ace of Diamonds (Keynes).—Bright scarlet-crimson, 3 feet.
Annie Holton (Cheal).—Rich crimson, tipped silver, 3 feet.
Bacchus (Cory).—Crimson-scarlet, 3 feet.
Beauty (Dickson and Robinson).—Terra-cotta, shading to orange at base, 2½ feet.
Blush Gem (Cory).—Mauve-pink, light centre, 3 feet.
Bonella (Cory).—Deep rosy pink, shady rose, 2½ feet.
Crimson Beauty (Cory).—Bright crimson, 3 feet.
Crusoe (Cheal).—Blush, edged rose-pink, 4 feet.
Daisy (Dobbie).—Amber, shaded salmon, 3 feet.
Darkest of All (Cory).—Blackish maroon, 3 feet.
Dewdrop (Cory).—White with lavender edges, 3 feet.
Douglas (Turner).—Deep maroon, shaded crimson, 3 feet.
Emily Hopper (Dobbie).—Clear yellow, 3 feet.
Evelyn (Cory).—Bright crimson, 1½ feet.
Firebrand (Dickson and Robinson).—Bright flame-colour, 2 feet.
Glow (Dobbie).—Rich coral, 3 feet.
Ideal (Cory).—Pure yellow, 3 feet.
Irene (Cheal).—Pale, rosy mauve, 3 feet.
Mars (Turner).—Bright scarlet, 3 feet.
Neatness (Cory).—Pale amber, 3 feet.
Queen of Hearts (Dobbie).—Pure white, 3 feet.
Rodney (Dobbie).—Fawn, shaded yellow, 3 feet.
Tommy Keith (Cory).—Red, tipped white, 2½ feet.
Tommy Laing (Dobbie).—Purple maroon, tipped white, 2½ feet.
Virginia (Turner).—Pure white, 3 feet.
White Aster (Dobbie).—Pure white, quilled florets, 3 feet.

Paeony-flowered Varieties.

Alecto (Turner).—Yellow, suffused crimson, 5 feet.
Balak (West).—Bright rosy crimson, 5 feet.
Burne Jones (Dobbie).—Fawn, suffused rose, 3½ feet.
Codsall Gem (Dobbie).—Deep yellow, 4 feet.
Dormouse (West).—Velvety-crimson, 3 feet.
Elfrida (Hobbies).—Pink, shading white, 4 feet.
Frau Anna Galster (Dobbie).—Amber-yellow, tinted red, 2½ feet.
Hall Caine (Carter Page).—Yellow with chestnut shadings, 4 feet.
Hebe (West).—Pearly mauve, 2½ feet.
Hermosa (Turner).—Shading from medium to pale mauve, 5 feet.
H. J. Lovinck (Hobbies).—White, shaded mauve, 4 feet.
Holman Hunt (Cory).—Rich dark crimson, 5 feet.
John Green (Stredwick).—Yellow, edged bright red, 4 feet.
Kakadee (Dobbie).—Lemon-yellow, passing to white at tips, 2 feet.
Katherine (Hobbies).—Yellow, shaded brick red.
Kevington (Cannell).—Salmon, shaded fawn.
Kimberley (Cory).—Rosy carmine, yellow centre.
King Leopold (Cory).—Pale yellow, 5 feet.
Ladysmith (Cory).—Violet-rose, 3½ feet.
Lemberg (Turner).—Red with yellow base.
Liberty (Baker's).—Salmon-scarlet, 4 feet.
London (Hobbies).—Crimson-scarlet, 4 feet.
Lord Milner (West).—Yellow, edged white, 4 feet.
Mafeking (Cory).—Fawn, suffused rose, 3 feet.
May Day (Hobbies).—Yellow, shaded pink, 4 feet.
Miss Dora Wilson (Cannell).—Rosy vermilion shadings on yellow ground, 4 feet.
Miss Watson (Cory).—Creamy white, striped and heavily marked rose, 3 feet.
Mrs. J. Chamberlain (Cory).—Salmon, yellow at base, 4 feet.
Mrs. Kerr (Cory).—Pale pink, suffused rose, 4 feet.
Mrs. T. G. Baker (Cory).—Pure white, 4 feet.
Nymphæ (Turner).—White with yellow base, 3 feet.
Pantaloon (Cheal).—Deep crimson, tipped white, 4 feet.
Paul Kruger (Cory).—Rose and white, 3 feet.
Phidias (West).—Lovely shade bright salmon-pink, 4 feet.
Porcupine (Hobbies).—White and rose, 4 feet.
Primrose Queen (Dobbie).—Clear yellow, 3½ feet.
Princess Ida (Turner).—White, yellow centre, 4½ feet.
Queen Mary (Ware's).—Pure white.
Reynolds (West).—Deep crimson, 4 feet.
Rubens (Dobbie).—Rose pink, 4 feet.
Salome (Turner).—Bright orange, shaded buff, 3 feet.
Sheila (Turner).—Bright pink.
Sunset (Cory).—Vermilion, 4 feet.
Sunstar (Carter Page).—Rosy carmine, suffused yellow, 4 feet.
The Geisha (Cory).—Yellow, suffused red, 4 feet.
Titian (West).—Beautiful shade of rose-purple, 5 feet.
Turner (Treseder and Dobbie).—Lovely pink, very large, 4 feet.
Viscountess Newport (Cory).—Orange-red, shaded buff, 4 feet.
Warrior (Cory).—Deep red, 4 feet.

Mignon Varieties.

Agnes (Cheal).—Purple, distinct, 18 inches.
Daphne (Cheal) Maroon, good habit, 18 inches.
Lancer (Cheal).—Scarlet, bushy habit, 18 inches.
Olive (Cheal).—Orange, very free, 18 inches.

Parisian Singles.

Notre Dame (Riding).—White, broad picotee banding of amber, 2 feet.
Paris (Riding).—White, broad picotee banding of scarlet, 2 feet.

Collerette Varieties.

Cantick (Dobbie).—Pale yellow ground and tips, heavily marked rosy red, collar pale yellow, 4 feet.
Countess I. Hardegg (Dobbie).—Purple passing to rose, white collar, 3 feet.
Countess Dugon (Riding).—White ground, splashed rosy purple, white collar, 3 feet.
Cumbræ (Dobbie).—Deep rose-pink, shaded purple, white collar, 3 feet.
Diadem (Dobbie).—Rose, with white collar, 3 feet.
Exposition de Lyon (Riding).—Beautiful rosy red, 3 feet.
Frogmore (Dobbie).—Vermilion with yellow collar, 3 feet.
Gunfleet (Dobbie).—Ruby, golden tips, 3 feet.
Henri Farman (Dobbie and Dickson's).—Bright vermilion, edged primrose, 3½ feet.
Holyrood (Cory).—Ruby red, golden tips, 3½ feet.
Lynas (Dobbie).—Orange-salmon, collerette pale yellow.
Madame J. Buyssens (Dobbie).—Dark crimson, edged rosy carmine, 3 feet.
Maurice Rivoire (Cory).—Rosy carmine, white collar.
Negro (Dobbie).—Dark maroon, collar white, 3½ feet.
Prince de Venosa (Dobbie).—Crimson, shaded violet, white collar, 3½ feet.
Prince of Orange (Dobbie).—Beautiful orange self, collar tipped yellow, 3 feet.
Princess Louise (Dobbie).—Rich crimson, white collar.
Queen Bess (Dobbie).—Orange-scarlet, yellow collar, 4 feet.
Regularity (Stredwick).—Purple, with white collar.
St. Abb's (Dobbie).—Crimson, petals tipped yellow, straw collar, 3 feet.
Sunburgh (Dobbie).—Purplish mauve, heavily suffused white, 3 feet.
Tarbat Ness (Dobbie).—Deep wine-crimson, tipped white, collar pale yellow, 4 feet.
Tuscar (Dobbie).—Wine-crimson petals, tipped white, collar white, 3 feet.

Decorative Varieties.

Brentwood Yellow (West).—Golden yellow, 2 feet.
Charming (Keynes).—Clear pink, flowers of medium size, 4 feet.
Ch. Ducrot (Riding).—Vivid scarlet, long pointed petals, erect stems, 3 feet.
Délice (Dickson and Robinson).—Bright rose-pink, 4 feet.
Harmony (Keynes).—Silvery pink, satiny, 3 feet.
Hon. R. Borden (Cannell).—Golden yellow, shading old gold, 4 feet.
Jeanne Charmet (Cory).—Lilac-pink, shading white, 3 feet.
Kaiserin A. Victoria (Carter Page).—Pure white, 3 feet.
Le Grand Manitou (Carter Page).—Lilac-rose, spotted bright purple, 3 feet.
Loveliness (Cory).—Lovely shade of rose-pink, 3 feet.
Madame M. Collet (Cayeux and Le Clerc).—Deep salmon, shading to yellow centre, large, 4 feet.
Mammoth (Cayeux and Le Clerc).—Intense crimson scarlet, flowers large, 5 feet.
Mont Rose (Riding).—Deep rose, 3 feet.
Sea-shell (Cory).—Shell pink and amber, small-flowered variety.
Souv. de G. Douzon (Cory).—Bright, scarlet, immense flowers, 5 feet, 3 feet.

Show and Fancy Varieties.

David Johnson (Dickson's).—Salmon, shaded rose, 3 feet.
Duchess (Dobbie).—Orange-scarlet, 3 feet.
Edward Mawley (Turner).—Crimson, very erect, 3 feet.
J. Bennett (Turner).—Yellow, tipped red, 3 feet.
Mariner (Cory).—Lilac ground, splashed purple, 3 feet.
Merlin (Turner).—Orange-scarlet, 3 feet.
Mrs. Ormrod (Dobbie).—Rosy peach, 3 feet.
Peacock (Treseder).—Maroon, tipped white, 4 feet.
Queen of the Belgians (Turner).—Cream, tinted pink, 4 feet.
Sunbeam (Treseder).—Clear buff, 2½ feet.

THE POLLINATION OF FRUIT TREES AND ITS BEARING ON PLANTING.

(*Concluded from page* 394.)

PEARS.—The following cross pollinations have yielded good results in the open:—Conference × General Todleben; General Todleben × Conference; Vicar of Winkfield × Winter Crasanne; Williams' Bon Chrêtien × Fertility; Pitmaston Duchess × Williams' Bon Chrêtien; Colmar d'Eté × Doyenné d'Eté.

Mr. Jordan tells me he finds for Pears under glass Magnat Clapp's Favourite, and Beurré d'Amanlis to be good pollenisers.

PLUMS.—I have had good results with the following crosses:—Victoria × Czar; Pond's Seedling × Czar; Victoria × Jefferson; Rivers' Early Prolific × Victoria; Victoria × Rivers' Early Prolific; Rivers' Early Prolific × Monarch; Admiral × Monarch; Czar × Early Orleans; Czar × Victoria; Rivers' Early Prolific is found by Mr. J. C. Berry to fruit particularly well where interplanted with Prince of Wales.

Coe's Golden Drop is considered by growers as the most difficult Plum to get to fruit. For choice yellow Plums grown under glass Mr. Jordan finds Pond's Seedling and Czar to be good pollenisers for the Old Greengage, Transparent Gage, and Coe's Golden Drop.

CHERRIES:—I have had good results from the following cross pollinations:—Knight's Black × Black Eagle; Amber Bigarreau × Turk; Amber Bigarreau × Black Heart; Elton Heart × Frogmore; Turk × Napoleon; Turk × Early Rivers; Florence × Early Rivers. I have been trying to find a good polleniser for Early Rivers, an excellent large Cherry, but very irregular cropper; it flowers early. It will apparently set its fruit with pollen of Amber Bigarreau, but I want to find a variety that blossoms early that would be a good polleniser. Mr. J. C. Berry tells me of one orchard planted entirely with Amber Bigarreau which was practically barren, whereas in another orchard, near by, of Amber Bigarreau interplanted with Frogmore the trees are very productive, showing the importance of intermixing varieties in Cherries. Mr. Jordan tells me that for Cherries grown under glass Elton is a good polleniser, also Governor Wood, the latter being long in flower.

SUMMARY OF POLLINATION TRIALS MADE AT WYE IN 1911 AND 1912.

	Insects excluded.		Pollinated with own pollen.		Pollinated with foreign pollen.	
—	Number of varieties tried.	Number in which fruit matured.	Number of varieties tried.	Number in which fruit matured.	Number of varieties tried.	Number in which fruit matured.
Cherry..	13	0	12	5	12	8
Plum ..	11	2	12	6	10	7
Apple ..	67	2	67	11	65	48
Pear ..	30	0	30	2	5	5

THE POLLINATION OF FRUIT BLOSSOMS BY WIND.

In order to test to what extent fruit tree pollen is carried by wind, Professor C. I. Lewis, in Oregon, tested Apple trees in full bloom by hanging up microscope slides at different distances painted with glycerine. Mr. F. Chittenden, at Wisley, has in like manner done with glass painted with vaseline, but on microscopic examination it is found that only a small proportion of the pollen is carried by the wind, and that there is nothing like enough pollen carried to pollinate even a tree immediately adjoining. I think Mr. Backhouse came to the same conclusion with regard to Plums. Observations show that very little if any fruit of Apples, Pears, Plums and Cherries is due to wind-carriage of pollen from tree to tree, but that insects are the chief transport agents.

INSECT VISITORS TO FRUIT BLOSSOMS.

During 1912 and 1913, I made note on the number of insects seen at the various blossoms, which is of some interest, especially as the record of insects seen on Apples by Major Scott, at Kennington, this year was very similar in proportion of the different insects to my records:—

Fruit.	Hive Bees.	Bumble Bees.	Other Wild Bees.	Other Insects.	Notes.
	%	%	%	%	
Gooseberry ..	69	29	0	2	
Black Currant	59	30	9	2	
Red Currant ..	74	16	5	5	
Cherry.. ..	70	31	6	3	
Plum	29	41	11	19	More records wanted.
Apple	70	25	6	22	These other insects include 3% flies, 6½% ants, 8½% beetles, 4% midges, earwigs, thrips.
Pear	81	1½	3	14½	Nearly half were bluebottle flies.
Quince ..	100	—	—	—	More records wanted.

Out of 2,285 insects visiting Raspberries and Loganberries, recorded by Mr. H. C. Chapelow at Wye, the following is the proportion of different insects:—

—	Hive Bees.	Bumble and Other Wild Bees.	Other Insects.
Raspberry	93 %	4 %	3 %
Loganberry	90 %	4½ %	5½ %

Judging from these two years' observations at Wye, the insect visitors to fruit would seem to be about 73 per cent. hive bees, 21 per cent. bumble and other wild bees, and 6 per cent. other insects; probably the proportion of hive bees will decrease if remedy is not found for the Isle of Wight bee disease. The hive and bumble bees are by far the most valuable visitors, as from their habits they go from bloom to bloom of the same description of fruit, and having fluffy bodies they carry much pollen.

In conclusion I have to acknowledge the kindness of Mr. W. S. Earle-Drax, J.P., for placing at my disposal for trial and observation his beautiful fruit garden at Olantigh Towers, and to Mr. Robert Amos for allowing me the same privilege in his extensive orchards at Perry Court, Wye. I have also to thank Mr. Fred Chittenden, Director of the Royal Horticultural Research Laboratory, for showing me and telling me his results, and allowing me to embody them in this article. *Cecil H. Hooper, M.R.A.C.*

SWEET PEAS TRAINED ON WIRE NETTING.—For the past three years we have trained our Sweet Peas on wire netting with good results. Trenches are made 3 feet wide and 4 feet deep. Posts are inserted at 9 feet apart and about 12 feet high. They are rammed firmly in the soil, and a wire put on the top, running the whole length of the trench. Ordinary wire netting (4-inch mesh) 10 feet wide is nailed to the posts, made fast to the top wire, and pegged to the ground with wooden pegs. The trenches are filled in November with farmyard manure, turf, leaves, wood-ashes and soil well mixed together, and left until the spring, when the compost is again forked over before planting the Sweet Peas. The seed is sown in pots before Christmas, and the seedlings grown in cold frames until March, when they are planted at 1 foot apart in the trench. Two or three leading growths are trained in from each plant, according to the strength of the specimen. All side or lateral growth is removed as required, and when the plants are in flower the seed pods are gathered before the seeds form. Two rows are grown in this way with a grass path between. *E. R. Tuck, Stopleton Gardens, Blandford.*

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

ZYGOPETALUM.—Z. maxillare is a handsome species, the flowers possessing splendid form, colour, and size. The labellum of the best varieties is of a rich violet-blue colour, which shows well against the green and brown of the sepals and petals. The rare variety Sanderianum has larger flowers than the type, and a pure white lip. Z. maxillare grows wild on stems of Tree Ferns, and in some newly-imported plants the last growth is immediately under the crown of fronds. It is remarkable that the Orchid and Fern develop at about the same rate, so that the former receives a subdued light. The plant should remain attached to the Tree Fern on which it was imported until it has made its first growth, when both should be attached either to the trunk of a living Fern or a long portion of dead Fern stem. Suspend the plants in a shady position in the intermediate house and never allow them to become dry at the roots, but spray them lightly overhead every morning, even during winter, and on several occasions each day in summer. Mealy Bug is nearly always present on imported plants, and must be sought for and destroyed. Thrips also are extremely fond of the young leaves, therefore it is good practice, whether thrips be present or not, to bring the plants in to any glass-house that is being vaporised. Z. Mackaii generally grows well in the warm plant stove, and produces strong flower-spikes, which are now at their best condition. After the flower-spikes are cut, the plant may be top-dressed or repotted as may be considered necessary. Z. Mackaii is a strong, free-rooting species, and requires plenty of root-room. Place a large, oval piece of crock over the drainage hole, cover this with smaller crocks, and these again with a thin layer of moss. A suitable compost consists of a mixture of turfy loam, fibrous peat, or Osmunda-fibre, cut up rather finely, a moderate quantity of Sphagnum-moss, and plenty of small crocks, the whole of the materials mixed well together. Afford the plants plenty of moisture at the roots until their growth is completed, after which they should be kept on the dry side. The rare Z. Ballii is in bloom, and requires the temperature of the intermediate house. Z. rostratum and Z. Roeblingianum thrive well in the warmer temperature of the Cattleya house, where they can be kept moist at all times. At Burford we have fastened a plant of Z. Roeblingianum to a piece of Tree Fern, and it is succeeding well. Z. crinitum, Z. Perrenoudii, Z. intermedium, Z. Murrayanum, Z. Sanderianum, Z. brachypetalum, Z. leucochilum, Z. Gottianum, and the rare Z. Lindenii all thrive best in a cool, shady corner of the intermediate house. They should be repotted in the same manner and in similar compost as that advised for Z. Mackaii.

THE FLOWER GARDEN.

By EDWARD HARRISS, Gardener to Lady WANTAGE, Lockinge, Berkshire.

ANNUALS IN THE FLOWER GARDEN.—Readers will soon be arranging their flower schemes for next year, and a note on the use of annuals in the flower garden may be helpful to those who have not hitherto made the best use of some of the more beautiful of these. A well-arranged border composed entirely of annuals is not only interesting, but exceedingly showy. Many beautiful annuals may be sown direct where they are intended to flower. The soil should be prepared by digging and manuring, and this work should be done now if the site is vacant. A liberal quantity of soot and lime should be incorporated with the soil. Turn up the ground and leave it as rough as possible for the present. Lavatera rosea splendens and L. rosea alba both grow to a height of about 4 feet, and the flowers are very useful for cutting. The

Stock-flowered Larkspurs should be planted freely in the borders, whilst a mixed bed of these flowers is attractive. The seed must not be sown too early if the plants are required in bloom in autumn. Phlox Drummondii and Dwarf Nasturtium afford a wide range of brilliant colours. The soil must not be too rich for the latter plants, or the foliage will grow rank, and few flowers develop. Phacelia campanularia and Browallia elata are two choice annuals having bright blue flowers. Others which should be sown are Clarkias, Coreopsis, Cosmea, Cornflowers, Dimorphotheca aurantiaca hybrids, Dianthus Heddewigii and Eschscholtzia. Gaillardias may be treated as annuals, but the seed must be sown under glass in February to produce plants that will flower the same year. The Godetia is one of the most useful and effective of annuals, with flowers possessing a wide range of brilliant colours. Brachycome iberidifolia, the Swan River Daisy, is a dwarf plant of very pleasing habit. Linarias in mixed colours are very attractive and useful for furnishing cut blooms. Groups of Linum grandiflorum rubrum and annual Lupins should be included in the border. Hybrid Nemesias afford brilliant patches of colour. Salvia Fireball, if raised under glass in February, is quite equal to the well-known Glory of Zurich variety. Blue Beard is a showy Salvia, its bright purple bracts lasting till late in the autumn. Nigella Miss Jekyll, Salpiglossis, Scabious, Kochia, Gypsophila elegans, Arctotis and annual Chrysanthemums are all worthy of a place in the annual or mixed border. The mistake is often made of growing annuals too thickly, which not only detracts from their natural beauty, but also is the cause of a short season of flowering. I was pleased to see a note in the *Gardeners' Chronicle* for November 29 (p. 385) on Artemisia sacrorum viridis, with which I had no experience until this season, but I can bear out all that Mr. Edwards states in regard to its usefulness. It has been most useful for arranging in vases of large Chrysanthemums. Groups of it which were planted in the wild garden are at the present time very interesting objects.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Peaches and Nectarines.—Before these fruits can be forced very early it is necessary to have started the trees a little earlier on each occasion in three or four previous seasons to accustom them to early growth. Assuming that the trees are planted out and trained to a trellis, the best varieties for the purpose are Early Alexander, Duke of York, and Hale's Early. If ripe fruits are required early in May a start may be made now. Having made all preparations by getting the trees and the house in readiness, merely closing the latter will suffice for the present, as artificial warmth will not be required until the buds swell considerably, and at no time until the fruits have set is much fire heat needed. Admit a little fresh air at the top of the house during the day time when the weather is favourable and take advantage of the sun's heat to maintain an atmospheric temperature of 60°. Keep the air in circulation, and as the buds expand, promote sufficient warmth to prevent a close, damp atmosphere, as this condition would be very harmful to the fruit buds. Syringe the trees early in the day, but guard against wetting the branches in the afternoons unless the weather is sufficiently bright to dry the trees before night time. The night temperature should not be lower than 45°, and it may be necessary to utilise the hot-water system to maintain this amount of warmth. Later, when the flowers expand, the night temperature may be raised to 50°, or even 55°, according to the weather. When the blossoms are expanded it is necessary to keep the air buoyant so that it is in constant circulation, as the flowers set best in such conditions—almost every blossom will set if the air is kept moving and the blossoms sprayed very lightly at mid-day during times when the sun is shining. Examine the inside border to see if moisture is necessary. If the soil is dry, soak the border sufficiently to wet every particle of soil, and this must be done before the flowers open. Old trees that are planted in outside borders will be benefited by a layer of leaves spread over the roots to the depth of two feet.

Peaches and Nectarines for Succession.—No time should be lost in completing the work in successional houses, either in planting fresh trees or lifting and replanting those that have not given satisfaction. Trees that are fairly vigorous and not too old may be lifted and replanted with every success. We have lifted a tree of Nectarine in these gardens when in full flower, and have planted it in a different house, where it set and matured a light crop of fruit the same season. The house that will be started still later should be cleansed thoroughly, the trees treated with an insecticide and afterwards trained, taking care not to tie the shoots too tightly. Examine the borders to see if moisture is necessary, and where the soil is found to be dry soak it thoroughly. Large established trees may be afforded a top-dressing of artificial manure, as well as an application of farmyard manure. Have everything in readiness to commence forcing early in the New Year.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Cucumbers.—Make a sowing of Cucumber seed to furnish strong plants for setting out in January; this batch should furnish a few fruits in March. Sow the seeds singly in small, clean pots and germinate them over a brisk hotbed. Mice should be guarded against by placing a few sheets of clean glass over the pots, leaving sufficient space between the pots and the glass for the escape of condensed moisture. The soil may consist of fine, sandy loam and leaf-mould in equal parts, and if the materials are moist no water will be necessary until the young plants appear. Plants in bearing should be watered frequently with liquid manure and the bed top-dressed with light, rich soil as often as the young roots appear through the surface. An atmospheric temperature of 70° may be permitted at night, and from 80° to 85° by day with sun-heat. Air should be admitted with caution as plants grown in a hot, moist atmosphere are readily injured by cold draughts.

Tomatos.—Plants with fruits at the ripening stage require a temperature of 60°, and the ventilators should be left open a little at night to prevent the atmosphere getting over moist. The fruits should be gathered before they are quite ripe, whether required for immediate use or not; they may be kept for ten days in a cool fruit-room if necessary. A fair amount of growth may be permitted on each plant, as this will favour root action. Young plants intended for fruiting early in the spring should be placed close to the roof-glass in order to promote stocky growth. Air should be admitted freely during mild weather with the same object in view. Seeds may be sown now for a successional batch. Make a thin sowing in pans filled with finely-sifted soil, covering the seeds lightly. When the seedlings appear place the pans close to the roof-glass in a house having an atmospheric temperature of 60°.

Mushrooms.—The warmth in the houses from which Mushrooms are being gathered should be kept as near to 60° as possible during mild weather, but the temperature may be allowed to drop to 55° in cold weather. Examine the beds and if the materials appear to be dry moisten them by a gentle application of rain-water. Prepare new beds at intervals of three or four weeks, according to the demand. It is important that the materials for this purpose should be prepared thoroughly before being brought into the Mushroom house. Place the manure in an open shed, where it can be turned every second day for a fortnight, for if it becomes sour or overheated the crop may prove unsatisfactory.

Radishes.—Sow seeds of Radish in a pit provided with a gentle bottom heat, making the seed-bed to within 1 foot of the roof-glass. Sow thinly and cover the seeds lightly with fine soil. Keep the pit closed until the plants are growing freely, when air should be admitted by day. Arrange for a covering of some protective material to be placed over the glass where there is a danger from frost.

PLANTS UNDER GLASS.

By F. Jennings, Gardener to the Duke of Devonshire, Chatsworth, Derbyshire.

Chrysanthemums.—Cuttings of large exhibition varieties should be inserted singly in thumb pots at once, or as soon as they are available. The best growths for the purpose are those that develop at the base of the plants, and they should be free from flower-buds. Certain varieties, however, do not produce many good cuttings from their lower parts, and in their case it is necessary to rely on shoots higher up the stem. The soil for potting should consist of equal parts of rich, sifted loam and leaf-mould mixed with a good quantity of sand. Make the soil firm in the pots and see that each cutting rests on the soil at the bottom of the hole, otherwise it may fail. The soil should be soaked with water before placing the pots under a hand-light or propagating frame in a cool house or cold frame. The cuttings should be examined each morning for damping, removing the hand-light and wiping the glass free from condensed moisture.

The Plant Houses.—During damp, close nights at this period of the year the atmosphere in the plant-houses must not be stagnant, especially where Carnations are grown. With a little artificial warmth the blooms will develop better, and practically all flowering plants will be benefited and remain longer in bloom, especially in gardens situated in damp, foggy districts.

THE HARDY FRUIT GARDEN.

By B. Goodacre, Gardener to Sir Ernest Cassel, Moulton Paddocks, Newmarket.

Manuring Fruit Trees.—Market-growers never neglect to manure their fruit trees annually, but in many private establishments the kitchen garden crops receive all the manure available, whilst the fruit trees are treated with neglect. Well-established trees that are in full bearing should receive an annual dressing of rich manure if superior crops are desired. Old wall trees of Peach, Apricot, Plum and Pear are frequently to be seen growing in impoverished ground, and moreover they are usually planted on higher ground than the surrounding border, with the result that they receive insufficient moisture in summer. If farmyard manure is procurable the best system of treating such trees is to remove the soil on the surface to the depth of a few inches, to expose the feeding roots, and apply liquid manure, not only around the base of the tree but as far as the roots extend. When this stimulant is well soaked into the ground the soil may be replaced, or, better still, a top-dressing of fresh compost applied and the whole covered with a mulch of half-decayed animal manure. If liquid manure is not procurable, bone meal mixed with fresh loam may be applied and afterwards watered. Old trees that have been treated in this manner will break into strong growth next spring, the flowers will form more perfectly, and the result will be a freer set of well-developed fruits. Orchard trees will also benefit by a good soaking of liquid stimulant. A good plan is to place a tub near to the trees and soak the manure well, afterwards tipping the whole of the contents of the tub about the roots of the trees. Small fruits, such as Currants, Gooseberries, Raspberries and other brambles should also receive a soaking of the manure water. Advantage should be taken of times of frost, whilst the ground is dry and clean, to wheel manure amongst the fruit trees and bushes. The manure can be spread at any time most convenient. Where the object is to supply the tree with food and not a mulch, the best plan is to fork the manure just under the surface almost as soon as it is applied. It is never wise to practise deep digging amongst fruit trees, as the surface roots are thereby disturbed and the whole process causes considerable injury. Whilst this work is in progress the borders in which wall trees are planted may be widened if necessary, for whereas a narrow border was best whilst the tree was young and unfruitful, when in full bearing the cropping of vegetables close up to the wall must be discontinued.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

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APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, DECEMBER 15—
Surveyors' Institution Meet. Lecture by Prof. Ainsworth Davis on "Modern Science and Modern Agriculture."
Nat. Chrys. Soc. Executive Com. meet.
WEDNESDAY, DECEMBER 17—
Roy. Meteorological Soc. meet.
THURSDAY, DECEMBER 18—
Linnean Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 40.3°.

ACTUAL TEMPERATURES :—
LONDON, *Wednesday, December* 10 (6 p.m.): Max. 53°; Min. 43°.
Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, December* 11 (10 a.m.): Bar., 29°; Temp. 47°. *Weather.*—Fine.
PROVINCES.—*Wednesday, December* 10; Max. 53°, Aberdeen; Min. 47°, Valencia.

SALES FOR THE ENSUING WEEK.

MONDAY—
Bulbs, Herbaceous Plants, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 12.
MONDAY AND WEDNESDAY—
Rose Trees, Shrubs, Lilies, Begonias, etc., at Stevens's Rooms, 38, King Street, Covent Garden, W.C., at 12.30.
TUESDAY—
3,326 c/s Japanese Liliums, at 2.30. Miscellaneous Bulbs and Roots at 12. At Protheroe and Morris's rooms.
WEDNESDAY—
Bulbs, Border, and other Plants, at 12. Palms, Azaleas, etc., at 5. At Protheroe and Morris's rooms.
Orchids from the collection of J. J. Holden, Esq., at the Coal Exchange, Manchester, by Protheroe and Morris, at 1.
Clearance Sale of 7,000 Fruit Trees and other stock at Garaway's Nurseries, Keynsham, near Bristol, by Protheroe and Morris, at 11.45.
THURSDAY—
Roses at Protheroe and Morris's rooms, at 1.
FRIDAY—
Orchids, by order of His Grace the Duke of Marlborough; also imported Orchids, at 12.45. Bulbs, Perennials, Roses, etc., at 1. At Protheroe and Morris's rooms.

A Pilgrimage of British Farming.

The series of articles which appeared recently in the *Times* under the title of "A Pilgrimage of British Farming" created widespread interest, and produced notable effects. People asked with no idle curiosity who might the pilgrim be whose tales of British farming were told with such persuasion and authority. Those who are aware of the small part which a cultivation of style plays in modern scientific education had no great difficulty in discovering, by the process of elimination, the man whose pilgrimage marked him out as a worthy successor of "those two masters of the double craft of farming and writing"—Arthur Young and William Cobbett.

Now, the intuition of the curious and charmed readers of this twentieth century pilgrimage is proved to be just, the thin disguise of scrip and scallop-shell is discarded, and Mr. A. D. Hall acknowledges that it was indeed he who led this cheery pilgrimage and described the events of the journey. We are grateful to Mr. Hall for republishing in more permanent form his studies of British farming, and recommend all of our readers who care for acute observation and good English to procure from Mr. Murray this profoundly interesting volume. This is one of those books to the reading of which applies the advice given by another observant and earlier pilgrim: Read not to contradict and confute, nor to believe and take for granted, but—to weigh and consider. For in the peculiar circumstances of the present time it behoves everybody interested in the problems of the land to acquire a knowledge of the facts and status of British agriculture.

The most vital conclusion reached by Mr. Hall is that we have reason to be proud of the present quality of the farming in these islands. His most acute observation is with respect to the part which education should play in improving the industry. Mr. Hall urges—and we agree absolutely—that the education most needed is that calculated to render the farmer more wide-minded, more accessible to new ideas and methods. He finds that the old suspicious attitude—not always an unreasonable one—towards science is fast disappearing, and that the farmer of to-day is becoming more and more ready to accept such assistance as colleges and other agricultural institutions are able to give him.

It must by no means be inferred that Mr. Hall preaches the comfortable doctrine that there is no room for improvement in agriculture and agricultural methods. He saw poor farming as well as good. He noted the dearth of cottages, the insufficiency of labourers' wages, the heaviness of the rates which farmers labour under, and the reluctance with which farmers co-operate. Yet we gather from Mr. Hall's pages, though, perhaps, in this respect we may have read into them our own views, that he looks for improvements in these matters to natural and economic readjustments rather than to the all-pervasive beneficence of gigantic departments of State. If the Briton were not such an intransigently political creature it would be not too late to hope that these pressing problems connected with agriculture might, at all events, be discussed between political parties, so that reforms might embody the best ideas of both. Certain of the problems confronting agriculture do not admit of solution by dogmatism. They are problems which, though they must be solved, and solved speedily, can only be solved by the method of experiment. These, however, are reflections which must not be ascribed to Mr. Hall, whose pilgrimage is marked no less by discretion than by insight; nevertheless, they must occur to anyone who weighs and considers the mass of evidence which he produces as to the state of the many kinds of British farming. Of these kinds horticulturists will be interested chiefly in those which impinge on their own domain—for example, the Hops and fruit crops of Kent and Sussex, the Essex seed farms, the crops of the Vale of Evesham and of the Valley of the Teme, Irish Tobacco, Potato and Hemp cultivation, Ayrshire's early Potatos, and Midland market gardening. On all these topics the gardener will find much that is instructive, and will be driven to the reflection that it would be a good thing if some equally acute observer could arise who would do for us what Mr. Hall has done so admirably for Agriculture—that is, set in national perspective in a finished picture the present state of Horticulture. To only one general statement in Mr. Hall's book are we disposed to demur. "Fruit, vegetables, Hops, pedigree stock, the growing of seeds, bulbs, poultry . . . are, and must remain, the fringes of the great industry which is fundamentally concerned with corn and meat." As a statement of the world's agriculture this admits of no dispute; but we are not convinced that "corn and meat" are destined to maintain their supremacy in British Agriculture. We see signs that the fringes are becoming more and more important parts of the fabric of the agriculture of these islands.

Our Almanac.—We shall shortly issue a *Gardeners' Chronicle* Almanac for the year 1914. *In order to make it as useful as possible for reference we shall be obliged if Secretaries of Horticultural, Botanical, and Allied Societies, or any of our correspondents, will send us* IMMEDIATE INTIMATION *of all fixtures for the coming year.*

Coloured Supplement – The Water-lily illustrated in the coloured plate is Nymphæa Galatée, a hybrid raised by M. LETOUR MARLIAC. For the opportunity of illustrating the flower we are indebted to Mr. LEOPOLD DE ROTHSCHILD, in whose collection at Gunnersbury House Gardens our photograph was obtained.

THE FLAGSTAFF AT KEW.—The fine spar of Douglas Fir which has done duty as a flagstaff at Kew Gardens for over fifty years shows decay in several places, and it has been deemed advisable to lower it for purposes of a more critical examination of its condition. The spar was presented to Kew Gardens in 1861 by Mr. EDWARD GREY, a timber merchant in the Canadian trade. It came from Vancouver Island, and was then 250 years old. In 1896 it was found that the butt was decaying, and it was then taken down and a new butt spliced on.

THE LAWES AND GILBERT CENTENARY FUND (see p. 403). — The following donations in aid of the new laboratory at the Rothamsted Experiment Station had been received up to December 9 :—The Right Hon. Sir John Brunner, Bart., and the Goldsmiths' Company, £500 each; the Marquess of Salisbury, and Chilian Nitrate Committee, £200 each; Sir R. A. Cooper, Bart., £105; W. M. Morrison, Esq., M. R. Pryor, Esq., T. H. Riches, Esq., Dr. Rudolf Messel, F.R.S., the Right Hon. Lord Rothschild, Otto Beit, Esq., Fertiliser Manufacturers' Association, Robert Mond, Esq., and the Potash Syndicate, £100 each; the Right Hon. Viscount Hambleden,

Sulphate of Ammonia Committee, T. Hodgson, Esq., J. F. Mason, Esq., M.P., the Duke of Devonshire, P.C., and Alfred Palmer, Esq., £50 each; the Right Hon. the Earl of Leicester, Lord Hythe, W. A. Albright, Esq., Chemical Works (late H. and E. Albert), the Right Hon. Earl of Radnor, Hugh Morrison, Esq., Lady Wernher, Alexander Crossman, Esq., the Right Hon. Lord Fitzhardinge, and Albert Brassey, Esq., £25 each; Alfred Smetham, Esq., £21; the Hon. Herbert C. Gibbs, the Right Hon. Earl of Ducie, and Vernon J. Watney, Esq., £20 each; Sir Hildred Carlile, M.P., G. Barling, Esq., Charles Bathurst, Esq., M.P., J. H. Buxton, Esq., F. Crawley, Esq., J. Martin White, Esq., C. A. Cain, Esq., Miss G. Cotton Browne, Garrard, Wolfe, Gaze and Clarke, S. J. A. Voelcker, Esq., and Isaac Sharpley, Esq., £10 10s. each; the Right Hon. the Viscount Hampden, J. Archer, Esq., Henry Bubb, Esq., Dr Longstaff, Dr. H. T. Brown, F.R.S., A. D. Acland, Esq., S. H. Whitebread, Esq., the Right Hon. Lord Lucas, Captain R. B. Brassey, Ernest de la Rue, Esq., F. H. Norman, Esq., Ansey Bailey Hawkins, Esq., Capt. the Hon. G. B. Portman, and E. J. Wythes, Esq., £10 each. These sums, together with other subscriptions, amounted to the total £3,534 2s. 6d. All interested in the scheme are requested to write to Dr. E. J. Russell, Rothamsted Experimental Station, Harpenden.

Leaf Fall in Oak and Beech.—It is a matter of common knowledge that, unlike the deciduous trees in general, certain Oaks (Quercus pedunculata and Q. sessiliflora), as well as the Beech, retain their old leaves into the new year. Individual trees show considerable variations in this habit, and Q. sessiliflora tends to retain its leaves longer than does Q. pedunculata. Professor Magnus (*Biol. Cbl.*, 33, 1913), suggests that the explanation of this habit is to be sought in the history of the species which exhibit it, and that they are descendants of evergreen species. Plant-geography lends some sanction to this view in the case of the Oaks, and the Beech has an evergreen ally in Nothofagus.

The Late Dr. A. Russel Wallace.—The proposal made some time ago to present a portrait of Alfred Russel Wallace to the Royal Society is to be proceeded with, and an appeal for subscriptions has been issued. In the event of the fund proving sufficient, the following memorials will be established:—(1) A medallion to be offered to the Dean and Chapter of Westminster Abbey; (2) a portrait, a copy of which will be presented to the nation; and (3) a statue to be erected in the Natural History Museum. For these purposes a sum of £750 is required. Subscriptions have been received already from many prominent men, and it is believed that the numbers of those who desire to do honour to Wallace is so great that the comparatively small sum of £750 will be raised immediately.

Horticulture at the Panama Exhibition, 1915.—It is anticipated that horticultural produce will form an important feature of this great American Exposition, and a special building is in course of construction to accommodate the exhibits of this section. It will be known as The Palace of Horticulture, and those responsible intend to make it the most magnificent building of the kind in which horticulture has been housed at any exposition. It will be situated immediately to the left of the main entrance, facing what is known as the South Gardens, which will afford the principal landscape gardening effects. The palace will be crowned by the largest glass dome ever erected. The building will be divided into two sections, the conservatory and that in which will be installed exhibits pertaining to practical horticulture.

Christmas Trees.—It is anticipated that the demand for Christmas trees will be greater this year than ever before: and this not only at home, but also in America. Indeed, the demand for "Christmas trees and greens" in the latter country has reached gigantic proportions. According to the *Florists' Exchange* no less than 1,500,000 dollars were spent in New York alone on these essential appanages of Christmas festivities. The journal just cited offers a timely rebuke to those over-careful folk who see in the widespread use of the Christmas tree a menace to forest conservation. Indiscriminate rooting up or cutting of young trees is no doubt to be deprecated, but when "thinnings" are employed the forests benefit no less than the children's parties. With their genius for organisation the Americans engaged in forestry are doing their best to encourage the proper development of the industry, and the New York State College of Forestry at Syracuse is taking a prominent part in the organisation of the Christmas tree trade within the State. In America the Balsam Fir is *the* Christmas tree, and next in order of appreciation is Spruce. Failing these, Hemlock, Pine, and even Cedar play this genial part in the festivities of Christmas.

Forestry at Cambridge.—In the sixth annual report of the Forestry Committee, the committee reports that, under Treasury grants, important additional research and advisory work has been undertaken. Mr. A. Henry, who occupied the position of Reader in Forestry for six years, resigned on March 31, on his appointment to the Professorship in Forestry in the Royal College of Science in Dublin, and Mr. William Dawson, Lecturer in Forestry, Aberdeen University, was appointed to the vacant readership. Research Work.—Under a general scheme for research work in forestry, the Board of Agriculture, in a letter of July 12, 1912, offered a grant of £500 for two years to the University. On November 4 a scheme of research work was submitted to and approved by the Board of Agriculture. The main points of the scheme are as follows:—(1) A comparative study of home-grown Pine and Spruce, and of foreign timber of the same classes, with the object of ascertaining to what extent the former, when grown under proper conditions, might be substituted for the latter. (2) An inquiry as to the capabilities of home-grown timber for use as pit props, railway sleepers, paving blocks, etc. (3) A special study of certain trees as Elm, Poplar, Chestnut, which are of importance in the Eastern Counties. (4) A survey of wood-using industries in the eastern counties. The committee appointed Mr. Burdon as investigator and Mr. A. P. Long as assistant investigator. The work commenced on January 1 and rapid progress has been made. In addition to two interim "Progress Reports," a bulletin—the first of a series—on "Scots Pine in Great Britain" has already been issued by the University Press, while a second bulletin is now in the press. These bulletins give the result of investigations in Pine woods at Woburn and King's Lynn. Further investigations are at present in progress, and it is hoped that an additional bulletin dealing with woods of both Scots Pine and Corsican Pine, at Highclere, will be published shortly. In April last the Great Northern Railway Company asked the investigator to undertake certain inquiries relative to the preservation of sleepers and their subsequent immunity from fungal attacks. An experiment with some thirty sleepers is now in progress. Some of the sleepers have been laid on the line between Royston and Cambridge, while others are being tested under various conditions at Cambridge. Mr. F. T. Brooks, of the Botany School, is co-operating in this work. The Great Northern Railway Company has also offered facilities for experiments with sleepers on a bigger scale with different classes of timber. Another offer for facilities to test different timbers and preservative processes in street paving was volunteered by Mr. Arthur Collins, City Engineer, Norwich, with the consent and approval of the City Council. The investigator has also been in communication with the Royal Institute of British Architects, which is anxious that certain investigations relative to building timber be undertaken. Ready co-operation has been given by a number of landowners in the way of offers of supplies of timber. Special thanks are due to the Duke of Bedford, the Earl of Leicester, the Earl of Carnarvon, and to Capt. Bagge for generously supplying the timber required for these investigations and experiments. Advisory Work.—Under the grant of £500 a year from the Board of Agriculture for advisory work (mentioned in last report) the committee have, in accordance with the conditions of the grant, appointed a full-time officer for the work, who will act under the direction of the Reader. Mr. Charles Hankins, who was appointed, took up duties on April 1 of this year. There has already been a large demand for advice on the management of woodlands from landowners in the eastern counties. A total area of about 1,600 acres has already been reported on on twelve different estates. Buildings.—The whole of the necessary £5,500 has now been subscribed, and a commencement was made with the new building in the spring. Finance.—In addition to the Board of Agriculture grant of £250, the forestry account has received grants from the County Councils of Northamptonshire, Norfolk, Cambridgeshire and West Suffolk. Nine colleges—Trinity, Gonville and Caius, King's, Clare, Emmanuel, Pembroke, Queens', St. John's and Christ's—have also subscribed. Liberal assistance has also been received from Sir Dorabji J. Tata, who has offered £100 a year for five years to provide instruction in forestry which will be of use to India.

A New Sweet Pea Society.—In a catalogue just issued to the public Miss Hemus refers to the rejection by the annual meeting of members of her proposals for the reconstitution of the National Sweet Pea Society, and announces her intention to form a new society. We extract the following paragraphs:—"Since there is no postal vote and no possibility of real reform in the present society, it is necessary to form a new one, and I venture to propose this and also to give the following idea of what would seem to be the objects most worthy of its activity: (*a*) To grow every alleged variety in existence and reduce the list to a comparatively short one; (*b*) Thereafter yearly to grow all approved varieties against new challengers; (*c*) to dominate nomenclature. These objects can be carried out more easily than with most other flowers, because Sweet Peas are, of course, grown from seed to flower within a few months. Both for the sake of the Sweet Pea and of their pockets, I urge all to join to make the new society a success. Apathy alone is the enemy to be feared. Until the society takes shape and decides upon its rules it is proposed that the subscription shall be 3s. 6d. per annum, the first payment qualifying for a year from the first general meeting. It is thought that this sum may be enough, but if not all who join at first will be given the option of having their money back. Names, subscriptions, and expressions of opinion may be sent to me in the first instance. I shall, of course, hand everything over to the new society as soon as formed, and thereafter have no more say in matters than any other trade member. In the meantime my active interest will take the form of advertising it, no charge being made against the new society hereafter on that account."

The Anglo-American Exposition, 1914.—The Anglo-American Exposition which will be held at Shepherd's Bush next year has for its object the celebration of the hundred years of peace and progress between the English-speaking peoples since the Treaty of Ghent in 1814. Demonstrations of both American and British horticulture are being arranged on a comprehen-

sive scale. This section of the Exposition is being organised by various committees, which include many of the foremost horticulturists, arboriculturists and forestry experts. Adequate provision has been made for the display of rock and water gardening. A large area on the western side of the grounds will be utilised for gardens of this type. Hardy herbaceous plants will not be less liberally provided for, as evidenced by the spacious Court of Progress allotted to them and to English formal gardens and Rhododendrons. The Elite Gardens will be almost wholly occupied with Roses. Ornamental trees and shrubs will also constitute a feature of interest. Forestry is receiving attention, and the scheme that is now engaging the attention of a special committee, it is fully believed, will ensure an adequate representation of the varied aspects of this industry. Conferences on matters relating to horticulture will be held in the course of the summer. These conferences are: Perpetual Carnation Conference at the end of May; Hardy Plants Conference at the middle of June; Rose Conference at the end of June; Carnation and Sweet Pea Conference towards the end of July; and Fruit Conference in September.

Narcissus Disease.—A disease of Narcissus bulbs, which is apparently increasing to a serious extent, is described by Mr. Massee in the *Kew Bulletin* (No. 8, 1913). The first signs of the disease are small yellowish spots on the leaves. The spots increase in size, dry, and turn brown. Salmon-coloured specks appear on the brown areas, which are at first somewhat gelatinous and later horny. The coloured spots consist of masses of fungus spores, and from the character of these spores the parasite causing the disease has been indentified with Fusarium bulbigenum Cook and Massee, a fungus described first in 1887, but not recognised then as a parasite. The spores may be carried to and infect neighbouring Narcissus plants. The mycelium occurs not only in the green leaf, but also in the fleshy bulb-scales. In the earlier stages the tips of the scales exhibit symptoms of disease, but later the fungus reaches the cushion of the bulb and spreads rapidly from that centre, till finally the whole bulb becomes brown. In this later stage mycelium occurs in whitish sheets between the bulb-scales and produces resting spores (chlamydospores), which are globose, colourless, thick-walled, and borne in the tips, or in chains along the course, of the hyphæ. The browning of the bulb is soon followed by decay, and as a result the soil becomes infected by the resting-spores. These spores germinate and produce secondary spores, which infect young Narcissus leaves in the following spring. Mr. Massee recommends working into the soil in early spring kainit or sulphate of potash, the object being to destroy the secondary spores. The disease is apt to be carried on from year to year by slightly infected bulbs, and it is to be remarked that it is known to occur in Holland as well as in this country.

Lawrence Medal for 1913.—At their meeting on Tuesday, December 2, the President and Council of the Royal Horticultural Society unanimously awarded the Lawrence Medal for 1913 to Mr. G. F. Moore, of "Chardwar," Bourton-on-the-Water, for his exhibit of Orchids at Vincent Square on January 7, 1913. In 1910 this Medal was awarded for the first time, when it was given to Sir George Holford, K.C.V.O., C.I.E. In 1911 it was won by Messrs. Jas. Veitch and Sons, and in 1912 by Messrs. H. B. May and Sons.

National Diploma in Horticulture.—At a meeting of the Diploma Committee of the R.H.S. recently it was decided to hold the first preliminary examination in connection with the National Diploma in Horticulture during the week June 22 to 27, 1914. Intending candidates, who must have attained the age of twenty-one years, are required to register themselves four months in advance—*i.e.*, by February 22. Forms for the purpose of registration may be obtained from the Secretary, Royal Horticultural Society, Vin-

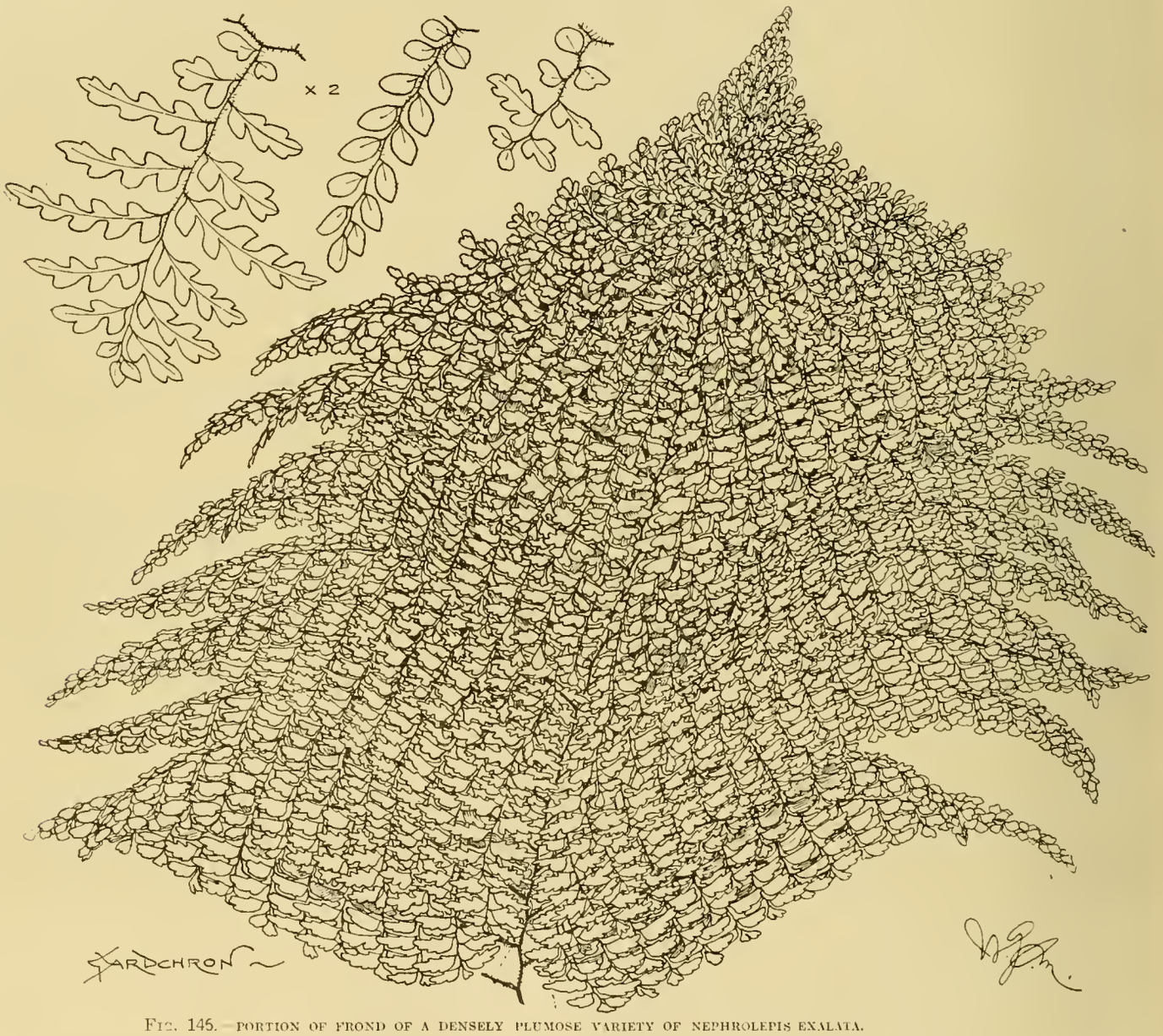

Fig. 145.—portion of frond of a densely plumose variety of nephrolepis exalata.

(See p. 425.)

cent Square, S.W., and the committee will be glad if all intending candidates would lose no time in registering themselves, as it is wished to advance preparations, which are of a distinctly complicated nature, and, for the first year especially, they will require very careful organisation. *W. Wilks, Secretary.*

——An account of the scope and objects of the new National Diploma in Horticulture was published in these columns (p. 156, Aug. 30), and in the same issue we gave a summary of the syllabus of the Diploma examinations. We would remind our readers that the purpose of the Diploma is to prove an essentially practical test of skill in gardening.

NEPHROLEPIS EXALTATA.

In recent years Nephrolepis exaltata has furnished an extraordinary number of beautiful varieties remarkable for their extremely plumose character. The type has long, once-divided pinnate fronds, and the pinnæ smooth-edged, the plant having no resemblance whatever to the new forms illustrated in fig. 147, in which the pinnæ are so sub-divided that in such varieties as Marshallii compacta and Willmottæ the fronds have quite a moss-like appearance. American raisers have introduced many good varieties, and the first of the series, a bi-pinnate form named N. e. Piersonii and known as the Boston Fern, originated in America. Subsequently Messrs. H. B. May and Sons and other English cultivators have contributed some exceedingly choice varieties, obtained, not by spore raising, but by selection from young plants produced by the long, thin stolons. The varieties are well adapted for the decoration of dwelling-rooms; indeed, they are capable of withstanding the unfavourable conditions even equally with the hardier palms. The illustration in fig. 147 represents a selection of fronds exhibited at one of the meetings of the R.H.S. by Messrs. H. B. May and Sons, and is interesting as showing the great amount of variation the species has produced.

HOME CORRESPONDENCE.

Royal Horticultural Society.—While the Royal Horticultural Society has done, and is doing, a great service in promoting the knowledge of horticulture generally, I believe the time has come when the society might take another step forward by endeavouring to put in order what it has to a great degree already accomplished. The society is supported by scientific and semi-scientific members, as well as by the trade, and a vast number of people who join the society mainly on account of its excellent exhibitions of pretty flowers. Now, if the society are going to wait for the latter to form an expression of their wishes towards advancement, the society will probably continue in its present groove. The trade form the real stability to the society in that they for the most part produce the pretty flowers, and thereby gain a large part of their livelihood through the society; but beyond this I fear they have little or no respect for the scientific naming or grouping of the plants they exhibit. Sufficient unto the day to them is to produce a "heavenly" variety, which they can sell to the public. These two types of members by far outweigh those with a scientific intent, but it is to the latter and the Council that a move towards progress must mainly be looked for. In scanning the answers to the original correspondent No. 3,986 in *Country Life* there is plenty of enthusiasm for the lead in the suggestion which is made, but scarcely a word in recommendation of anything else. The question is: Are the members prepared to swallow the names of anything the trade like to give them? If they are not—and I strongly believe from personal experience that they are not—then the interests of the public must be guarded by a scientist, and one appointed with an assistant to determine the name of a plant in question when called upon to do so, provided the request is made through proper channels. In order to further safeguard the public, I would strongly urge the suspension of any trade firm from exhibiting at the shows for a limited time who, after fair warning, persisted in exhibiting plants under the wrong generic or specific name. At present cases of this kind are very flagrant. These, I believe, are the first and most urgent reforms needed at the present time, and in continuation of this work the society could appoint certain people, not necessarily members, who would undertake the nomenclature of certain species of plants, such, for example, as Saxifrages and their multitudinous crosses and varieties, noting down each species with its varieties and hybrids in a comprehensive work, to which new varieties could be added and published from time to time. If something of this kind could be done it would really be a great work, and something which the members could be proud of. It is a proposition which I believe would commend itself to the Council, and one to which they could readily allocate funds. Reference was also made by No. 3,986 to the vegetable trial grounds at Wisley, and I know it voices the opinion of a great part of the members. To the ordinary mortal it does seem a great waste of the society's funds, and I feel that myself; but I look upon it as one of great interest to the trade, and the society is carrying on a work which is of real benefit to them in helping them to determine what is or is not worth growing, by which means all have fair play for their productions; and, further, it prevents the duplication of names for the same vegetable, and thereby safeguards the general public. If this were not carried on the little man would soon be swamped by the big, and would stand small chance of being able to put his "finds" on the market. It is obvious that the Council cannot adopt every suggestion made, for it would soon lead to financial ruin, but I believe the time has come when they can, and will, decide on a beginning towards research of a more extended kind, and having started on certain lines will be prepared to follow them up. As regards a collector, I do not see what good he is going to do at present. There are an abundance of beautiful species of plants already introduced to these islands which are sufficient to keep most people busy. I would suggest that the rubbish in gardens generally be weeded out to make room for those plants which owners can well obtain for themselves in this country if they care to keep their eyes open. *A. A. Dorrien-Smith, Capt.*

Fig. 147.—varieties of nephrolepis exaltata. [*Photograph by John Gregory.*

1, Type; 2, Fosteri; 3, Piersonii; 4, Barrowsii; 5, todeoides; 6, Whitmanii; 7, magnifica; 8, Sckolzelii; 9, lycopodioides; 10, elegantissima; 11, elegantissima compacta; 12, Amerpohlii; 13, superbissima; 14, Marshallii; 15, Marshallii compacta.

Conference on Saxifrages.—From a reference to the proposed Saxifrage Conference, in Mr. Dykes's letter to the *Gard. Chron.* of November 29, on p. 387, it appears to me that he

misrepresents the facts of the case, and at the same time does not realise the value that can be obtained from such conferences. Mr. Wilks announced, in the *Gard. Chron.* of June 21, 1913, p. 425, that the R.H.S. proposed to hold a conference on Saxifrages in the spring or early summer of 1915, and that the notice was given early that those interested in this particular family of plants might have time to prepare material. There is no doubt that they will require the time, for, of course, the genus Saxifraga is a very large one, containing some hundreds of species, hybrids and varieties, and the nomenclature is in many cases very involved. By the early summer of 1915 growers of these plants will have had nearly two years (instead of the two or three days, as inferred by Mr. Dykes), in which to unravel some of the many intricacies which abound in the culture and nomenclature of this genus. *Geo. B. Milne-Redhead, Millard's Hill, Frome.*

THE ABNORMAL SEASON.—A number of Strawberry plants of the variety Royal Sovereign in pots, intended for forcing in the New Year, flowered here early in October. As an experiment we forced a few plants in the usual way, with satisfactory results, each plant bearing five or six good-sized and excellently-flavoured fruits. Had we forced another batch later doubtless we should have had ripe berries at Christmas. Bulbs of Freesia refracta alba that were potted on August 10 are now in flower. *Foreman, Barham Court Gardens, Maidstone.*

——I enclose a plant of Royal Sovereign Strawberry, one I have chosen from a batch of many grown in pots for forcing. The reason I send it for your inspection is for you to notice that the flower-truss is already showing. I find 25 per cent. of the plants are in a similar condition, some even more advanced, although these were pinched out some time since. The plants in the kitchen gardens show the same abnormal condition. Our pot plants have been treated the same as in previous years, but never before have I noticed them throw up so many trusses at this season. I have mentioned the fact to other gardeners in the locality, and they have noticed the same precocity in their plants. *Chas. F. Coates, Manor Park Gardens, Bedfordshire.*

ORIENTAL LILIES (see p. 365).—It is gratifying to learn from Mr. A. T. Paskett's interesting observations, in which he gives us the results of his culture of some of the finest Lilies in cultivation, that, like Mr. A. Grove, he has been so eminently successful with Lilium sulphureum. But, then, it must be remembered that he lives in Kent, whereas I reside in humid and, comparatively speaking, sunless Wigtownshire, which receives too many contributions, especially at this important period of the year (when Lilies and other susceptible bulbs with infinite possibilities are planted) from "the great Atlantic main." Also, your correspondent, on his own showing, had 50 bulbs of the luminous Lily of Wallich; whereas I made my venture with one. With the former number of respectable bulbs of Lilium sulphureum success is quite possible, especially in Kent, under favourable conditions of atmosphere and soil. I think that consummate authority upon such subjects, the late Dr. Wallace, of Colchester, once informed me that while this beautiful and distinctive Lily might succeed admirably in the south of England, he was less assured of its cultural success in Scotland. In my own estimation it is not frost—of which we have perhaps the minimum in Scotland, owing to the vast influence of the mitigating Gulf Stream—but excessive moisture, the inevitable result of our nearness to the Atlantic, that makes such Oriental treasures as Lilium sulphureum and Lilium nepalense so exceedingly short-lived. I fully intend, however, to give the Burmese Lily another trial, planted, to ensure adequate drainage (no unimportant consideration), in fibrous soil, enriched with leaf-mould. Nor will I confine myself to one solitary bulb, which would imply too little consideration for the susceptibilities of a Lily which, when you plant it, however carefully, in the early autumn, refuses to "rise to the occasion" in late spring, and in virtue of the influence of our saddening Scottish climate, wholly disappears. *David R. Williamson.*

FAILURE WITH CHRYSANTHEMUMS.—I have cultivated a large number of Chrysanthemums for many years, and look to this crop as being a profitable one to finish up the year. This season, however, it is far from being a remunerative one, for the flowers are poor and deformed, and in the case of a number of plants there was no sign of a bud developing. I mixed the soil myself, using freshly-dug loam, rotten manure, decayed leaf-mould, burnt wood-ash and a little soot—in fact, everything that should make a suitable compost. The soil not being over-rich I placed a small quantity of manure on the crocks. The plants were housed during September, and no fire-heat was employed until November, and the temperature since has never been higher than 65° to 70°. They have been fed regularly since with manure water; the strangest thing is that for the past three years three growers have failed to produce blooms in the same nursery, each one having the best of testimonials. Could any reader enlighten me, for I am puzzled. *W. E. Kearn, Kirkstall Road, Leeds.*

SILVER-LEAF EXPERIMENTS. — The recent correspondence on sulphate of iron as a cure for silver leaf in Apple trees is most interesting. About six years ago a tree of Victoria Nectarine growing in a Peach house here was attacked with the disease; in the third year it was killed outright and removed, being replaced with an established tree about ten years old, of the variety Pineapple. The first summer silver leaf made an appearance, and I was advised to try sulphate of iron as a remedy, which I did in the following manner:—1 lb. of the crystals were dissolved overnight in water, and the next day sufficient water was added to fill a 40 gallon water barrel. The preparation was then applied to the roots of the tree, which were afterwards mulched with a thick layer of farmyard manure. This treatment was repeated once during the summer, but to outward appearance with but little effect on the object in view. Before the tree was started into growth the following season, the worst affected branches were removed, and the previous treatment applied about three times during the summer, when a marked decrease in silver leaf was noticed, and the growth was much more robust. A slight silvering of the first leaves was in evidence this season, but as the roots became active this disappeared, and gave place to perfectly healthy growth, also the tree furnished a good crop of fruit. Unfortunately, a Peach growing next the affected tree has developed the disease slightly, but the above remedy will be applied. "Le Frutier" was applied between the waterings with iron sulphate. *H. Lazell, Beech Hurst Gardens, Haywards Heath.*

——Is silver leaf caused by dryness, over-feeding, or stable manure? During the past few days I have seen trees of Victoria and other Plums destroyed in a well-kept garden that had been overdone with manures. In orchards or gardens where under crops are not planted I have never seen silver leaf, nor where dung has never been used as a top-dressing. It is well known that iron in the soil causes the leaves to be greener and remain longer on the trees in the autumn, but I have noticed that trees on a wall and under the same treatment as trees in an orchard close by are different in the colour of their leaves, more so when the wall-trees are dressed on the top annually with dung, as is usually the case in garden borders. Is silver leaf more prevalent in cultivated ground than in common orchards, or in dry situations than in moist ground? In former times Rose growers believed that the roots of Roses should be well covered with dung to protect them from frost, but this practice often resulted in failure in the spring, and it may be we are over-feeding our fruit trees. *J. F. N.*

——Our thanks are due to Mr. Molyneux for recording his experiments with this malady, and thus giving us food for reflection, and I may say that an interested and impartial onlooker, who, like myself, has no chance of experimenting owing to the absence of the subject to be experimented on, may sometimes be able to detect a flaw which the experimenter, in his pardonable eagerness to prove his theory, may have overlooked. I have referred to the article on p. 293, as advised by Mr. Molyneux, and he must forgive me when I say that he has not written the paragraph in question with his usual explicitness, and I can only guess now that he means he employed the 6lb. of sulphate of iron within a circle of 12 feet in diameter. I must also be pardoned for saying that sufficient evidence has not yet been adduced to warrant the belief that iron will cure silver leaf. In cases where improvements have been noticed they may have been caused by other agents. *Southern Grower* says his land where silver leaf occurs contains "a good deal of iron," which would indicate that a lack of that metal is not the cause of the malady, and applications of the sulphate in his case do not appear to have effected any permanent good. As regards quantity, Dr. J. P. Stewart (see p. 380) found that an acre of Apples took up from the soil less than 3lb. of iron. We may presume that the trees were healthy and would assimilate more iron than sickly ones. Dark colour and thick texture are not always sure indications of increased health, as is frequently proved by those who give an overdose of nitrate of soda. If, as recent experiments have tended to indicate, the malady is due to a fungus which works somewhere in the interior of the bark and fructifies outside under certain conditions, and moreover that silver leaf can be produced on young, healthy trees by inoculating them with these fructifications, it would appear that it may be the sulphur contained in sulphate of iron which causes any amelioration which may have been noticed. This being so, it might be worth while trying the effect of other compounds containing sulphur—such as gypsum, sulphate of ammonia, sulphate of potash, and superphosphate—and the experiments by *Southern Grower* seem to point in this direction; or the old-fashioned remedy for mildew, lime and sulphur boiled together, might be tried Although flowers of sulphur have been recommended for mixing with the soil for certain plants I am not aware of any proof that the roots can take up sulphur in this form. The artificial compounds mentioned above will form a complete fertiliser for the trees, and should be applied in small quantities at intervals. One year is not sufficient for a test, because all the ingredients are quickly exhausted. A large quantity of iron applied to any soil will do more harm than good, and it certainly is not required on land which grows good Oak timber. *Wm. Taylor.*

CHRYSANTHEMUMS CAUSING HAY FEVER.—On one or two occasions I have heard that the pollen of Single Chrysanthemums has adversely affected people who are subject to the complaint known as hay fever, though not to such an extent as to make it necessary to debar the flowers from being used for indoor decorations. It is only in bright, sunny weather that the pollen becomes sufficiently distributed to cause harm; generally the pollen grains are in masses—glued together, as it were, with moisture or some glutinous substance. I am aware, however, that the spores from badly-mildewed plants are troublesome in this respect, and it might be that this *was* the true cause of the complaint. *Grower.*

——I have had the same experience as your correspondent *L.* (see p. 412), for whilst working in a large house of Chrysanthemums I was seized by a bad attack of sneezing, which passed off almost directly after I came out of the greenhouse. In my case there were only about twenty plants of single-flowered varieties in a house containing about 250 specimens. *J. Mayne, Hedgerley Rectory Gardens, Farnham Royal.*

JOURNEYMEN GARDENERS AND LOW WAGES.—May I be allowed to call attention to the unfair conditions of labour of journeymen gardeners compared with nursery workers? In your issue of the 6th inst., p. 403, the concessions granted to the employees of Messrs. Jackman and Mr. W. C. Slocock, of Woking, are announced. Is it not time that something was done to improve the wages and conditions of private gardeners? The journeyman gardener works longer hours than most nursery workers for less money. I will give an instance. In a nursery not many miles from here there are plenty of young men about the age of 21 that get from 18s. to 22s. a week for an average of 57

hours, with overtime paid extra, and when they leave off work on Saturday they have finished until Monday morning. Compare this with the lot of a journeyman of the same age in a private garden. He gets 14s. to 16s. a week with Bothy, which at the most is only worth 3s. or 4s. a week. His hours average 60 a week, and he has to take a turn of duty, for which only in exceptional cases he is paid. *A. M., Surrey.*

Gas Tar and Mealy Bug.—I have been somewhat surprised on reading the remarks of your correspondents on this subject to learn that there are gardeners who still cling to the old, dangerous and dirty method of smearing the vines with gas tar and other mixtures when there is a far more efficacious, simple, safe, less troublesome and less expensive method in vaporising with hydrocyanic acid gas. I have proved beyond doubt that this gas at the proper strength and properly applied means certain death to mealy bug and any other insects without injury to plant life. Hydrocyanic acid gas is inexpensive and is as easily applied as any fumigant. Possibly some are afraid to use the gas owing to its poisonous effects, also they think it entails much trouble and requires a special machine. But a special appliance is not at all necessary, nor is there the least danger to the operator if proper precautions are taken. For example, we will suppose a greenhouse is to be vaporised with this gas. The cubic space must first be ascertained to determine what quantity of cyanide is required and how many vessels will be wanted for the proper distribution of the gas. If three receptacles are necessary they should be placed at equal distances along the path of the house with the proper proportions of water and sulphuric acid in each. The quantity of cyanide for each having been weighed and placed in pieces of paper, the operator takes these in his hand to the vessel at the farther end of the house, into which he drops one of the pieces, then walks quickly away and drops a piece in each of the other vessels as he passes them, and then makes for the outside as quickly as possible, closing the door behind him. If this is done there is not the least danger to the person who does it, as the gas or vapour cannot spread or travel (and this is the point) as fast as a man can walk. I have cyanided many houses in this way without receiving the slightest injury. Care should of course be taken to ventilate the house thoroughly before entering it. Vineries and other houses containing fruit must not on any account be cyanided, but a vinery which has been cleared of its bunches may be treated and the house kept sufficiently warm for a few days for the eggs of the mealy bug to hatch, when it must again be vaporised. I may say I have cleared mealy bug from fruit and plant houses (including plant stoves) without injury to person or any kind of plant, except Tradescantias, which I found would not stand the gas owing to the leaves containing much moisture. I have also found the gas equally successful for killing brown scale on Peach trees, which were thoroughly cleared of this pest. *J. H. Y.*

Musa Cavendishii at Branksome Hall.—Musa Cavendishii succeeds very well here and fruits freely. We cultivate it in a large, span-roofed house, where a brick pit has been built in a central position to accommodate these plants. They are grown in good turfy loam and sand with an addition of cow manure. Those plants that have fruited are cut down, being soon replaced by suckers, which usually bear fruit in the second year. To obtain delicious fruits I find a top dressing of fowl manure placed round those plants that are bearing half ripened pods is useful, for the fruits come to maturity quicker and are much improved in flavour. Last summer many bunches were cut, and at the time of writing there is a splendid display of these plants with their oblong pods, which are borne in large clusters. *Charles H. Harris, Branksome Hall, Darlington.* [Our correspondent enclosed a photograph of a plant in fruit.—Eds.]

Winter-flowering Sweet Peas.—I was much interested on reading the article on Winter-Flowering Sweet Peas by your Australian correspondent (see p. 375), and to know that he has been so successful in raising such vigorous, early-flowering Spencer varieties. When the Telemly varieties were first introduced to this country by the Rev. Edwyn Arkwright I took an interest in them, and was very successful in their cultivation. The Telemly Peas were useful as early-flowering Sweet Peas, both under glass and outside, at least that was my experience of them. The only drawback was that they would not break away from the base; in a great many cases there was practically but one stem and few side growths. In selecting and breeding for the past six years my experience coincides with that of your correspondent as to their vigour and height of growth. I have now a race of Spencers which grow more vigorously than any of our summer varieties. I had last winter three dozen single plants in 12½ inch pots under glass, growing 10 to 15 feet high and as bushy as any clump of Sweet Peas out-of-doors. I had 20 arches 7 feet high and 4 feet wide put up through the kitchen garden here, and in April plunged one pot in the ground on each side; tied the growths over the arches, which were covered straightaway, and made a Sweet Pea avenue, which was a unique and pleasing sight in May and June. This season I have had a more extended trial in a selected spot on the Home Farm. I had 20 rows, each 60 yards long. I am hoping with patience and perseverance to get some of the best varieties fixed. *William Wallace, The Gardens, Wrotham Hill Park, Kent.*

New Carnations.—On page 409 of the *Gardeners' Chronicle*, of December 6, in your report of the P.F.C.S. Show, I note the following sentence:—"The committee granted seven Awards of Merit to novelties, but none of the new varieties appeared to possess outstanding merit." I take exception to these remarks as being unwarranted and calculated to mislead readers of your valuable paper; the sentence may also appear to question the integrity and capacity of my committee, although I do not for a moment think it was so intended. You are doubtless aware that all English-raised novelties placed before the Floral Committee are judged on points of which the following is the maximum:—Colour, 20; size, 20; fragrance, 10; substance, 10; calyx, 5; habit of plant and stem, 20; form, 15; a total of 100, and a variety must obtain 75 points to gain an Award of Merit. To obtain a first-class certificate, a variety must be inspected by the Floral Committee where it is growing, and get at least 85 points. Only one variety gained that distinction this year. I assure you the committee are always most careful and conscientious in giving awards, and they are of opinion that several of the varieties that gained awards on December 3 are of first-class merit, and that they will be grown largely for some time to come. I may add that three or four members of the committee have seen most of the varieties in question growing in quantity. In conclusion, I wish to thank you for the almost invariable fairness, fulness, and accuracy of your reports of the Perpetual Flowering Carnation Society's shows. *W. H. Page, Chairman of the Floral Committee, Perpetual-Flowering Carnation Society.*

Radiographic Experiments.—Various investigators have endeavoured to employ X-rays for the purpose of investigating plant structures; but hitherto the experiments have not led to results of conspicuous value. According to a note in the *Times* (December 6) Dr. Hall-Edwards, of Birmingham, is now experimenting with a new radiographic process of German origin, which appears likely to lead to interesting developments. By the new process it is possible to obtain images of transparent structures which previously could not be obtained, and it is suggested that the process may supply mycologists with a new method whereby they may trace the course of parasitic fungi in the host plants. *K.*

Lilium Henryi (see p. 398).—It may interest Mr. Müller to know that I planted a dozen bulbs of Lilium Henryi a year ago in a Rhododendron bed, and when lifted this autumn there were numerous bulbils on the stems—I should estimate about 30 altogether. I have planted the bulbs again intact. Will Mr. Müller inform me when these bulbils may be expected to flower, and the best way of treating the species? *J. W. Perry, Landford Manor Gardens, Salisbury.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

December 2.—*Present*: E. A. Bowles, Esq. (in the chair), Sir H. J. Veitch, Professor W. Bateson, Professor F. Keeble, Messrs. J. Odell, A. Worsley, W. Hales, J. T. Bennett-Poe, E. M. Holmes, W. C. Worsdell, G. Wilson, J. Fraser, Dr. Voelcker, and F. J. Chittenden (hon. sec.).

Potatos diseased.—Dr. A. J. Voelcker showed examples of Potatos with brown discoloration just beneath the skin, and a soft rot spreading therefrom into the tuber. The tubers had been grown at Woburn and had been clamped, but not until after the Potatos had been some time in the clamp had the trouble been evident. Nothing had been seen of disease while the plants were growing. The tubers were sent to Wisley for further examination, along with others, from Hampshire.

Pelargonium hybrids.—Mr. Fraser showed further dried specimens from the Wisley collection, and made remarks on their origin from Pelargonium denticulatum, which appears to vary considerably in the foliage.

Professor Bateson exhibited leaves of Pelargonium illustrating the two types of leaf-variegation the mode of inheritance of which has been elucidated by Baur's classic investigations. In the Pelargonium the nature of the sub-epidermal layer—which layer gives rise to the germ-cells—determines the variegation or non-variegation of the leaves of the offspring. If the sub-epidermal layer contain chlorophyll, the offspring produced by self-fertilising a variegated Pelargonium have normal green leaves; if, on the other hand, the sub-epidermal layer lack chlorophyll the plant on self-fertilisation gives rise to albino seedlings. Professor Bateson's experiments with variegated forms of Chlorophytum elatum and C. comosum have led to new and striking results. Chlorophytum elatum has leaves the margins of which are white and the central parts green. Self-fertilisation of this type of variegated Chlorophytum results in the production of seedlings with normal green leaves. In Chlorophytum comosum, on the other hand, the variegation is reversed. A white stripe runs down the middle of the leaf and the margins are green. The few seedlings which have been obtained by self-fertilising C. comosum of this form of variegation are all albinos. Some conversation took place with regard to the meaning of the phenomenon exhibited by the Chlorophytum. Other examples in which albino seedlings were produced were mentioned, and analogous cases of variegation were referred to. It would be interesting to cross the white-edged form of C. elatum with a form having a median white stripe to the leaf if such is at present in existence. One was known at one time under the name of medio-pictum, but appears to be rare if not extinct. The Committee would be glad to hear of its occurrence. It may be noted that the white-edged Chlorophytum has no chlorophyll-less sub-epidermal layer.

Evolution of the Winter-flowering Begonia.—Sir Harry Veitch showed a series of Winter-flowering Begonias to illustrate the evolution of these useful and beautiful plants from the original forms. Begonia socotrana, a species discovered in Socotra by Prof. I. Bayley Balfour, and brought to England by him under some difficulties owing to the Phylloxera orders in existence on the Continent, was crossed with one of the tuberous forms, which had been retarded for the purpose, by Mr. John Heal. B. socotrana, which was shown, flowers normally at this season, and it imparted this character to the seedling of the cross. The first of these was John Heal, a very floriferous variety with rather small flowers. This was crossed again with tuberous forms, and others raised, including Mrs. Heal, and later double flowered forms and plants with quite large flowers, and of a variety of shades, but none pure yellow or pure white so far. Along with the increase in size there was at first a drooping habit or florescence, but this was corrected by crossing back on to the original species, B. socotrana, which carries its flowers erect. B. socotrana does not appear to have handed on its peltate leaves to its offspring, but its persistent floral leaves are seen in the new forms, which retain

their flowers for more than a month, until they fade without dropping. The Committee unanimously recommended a Certificate of Appreciation to Mr. John Heal for the remarkable and successful work he had accomplished in raising these decorative plants.

Leaf cutting bee.—Mr. Bowles showed the foliage of horse-chestnut with the well-known circular pieces removed by this insect. No member of the Committee had seen the leaves of this tree attacked in a similar way before.

Apples splitting.—Mr. W. Voss of Raleigh showed Apples which had split after they had been placed in the store. The Committee were of opinion that the late rains had so swollen the flesh of the Apple after the skin had become set that the latter could not long withstand the pressure set up. Mr. Voss also sent fruits of Apple

THE HORTICULTURAL CLUB.

December 2.—After the usual monthly house dinner of this club at the Hotel Windsor on Tuesday the 2nd inst., at which Sir Harry J. Veitch presided and a good number of members and guests were present, a most interesting lecture was given by Mrs. Julia L. Henshaw entitled "A Ramble Along the West Coast of Vancouver Island," and illustrated by a large number of lantern slides, most of which the lecturer had photographed and coloured herself.

By the aid of the pictures and vivid verbal descriptions of the scenery of the island and both its flora and fauna the general character of this delightful country was clearly explained to the audience. Mrs. Henshaw dissipated the somewhat general idea that Canada was entirely a country where almost Arctic natural to high levels were found not only at their normal elevation, but also in a thriving state far below, a fact she attributed to snow-slides or spring freshets. A large number of very beautifully executed slides depicting the flowers and trees were thrown upon the screen, one in particular of Cornus Nuttallii, as a stately tree over 60 feet high and one mass of white flowers from base to summit, evoking not only the admiration of the experts present, but a tinge of envy when it was remembered that the same species here when about a tenth of the height was considered a triumph of cultivation. The many views of truly Alpine scenery, bounded by ranges of snow-capped mountains and with deep valleys in the foreground clothed with magnificent trees, gave a vivid idea both of the beauty of Vancouver and of its value as a botanical hunting ground. Meadow plants, bog plants, rock plants, shore plants, forest plants and Alpines may all be found in closely adjacent localities, so that as the lecturer remarked, "the spice of life is never wanting, and added to this there is the lure of the primæval and the unknown—the flavour of the West—that powerful and pungent essence which those who have once inhaled it can never forget."

Vancouver Island, too, affords a fairly extensive field for the botanist's research, since it is 385 miles long with an average of 60 in breadth, while the central mountain range rising from 3,000 to 8,000 feet, interspersed with enchanting valleys, rivers and lakes, adds a picturesqueness and grandeur to the scenery which it would be difficult to surpass.

In the subsequent discussion Sir Harry Veitch, Messrs. Cheal, Druery, Sutton, Pearson and others participated, and all testified to the excellence of the lecture itself and the ability displayed in the obtaining and colouring of the slides. A very cordial vote of thanks was passed, and the President expressed the general hope that the club might be favoured with a further lecture when Mrs. Henshaw next visited England.

Fig. 148.—Primula malacoides, with double flowers.
R.H.S. Award of Merit on the 2nd inst. See report on p. 408.

Annie Elizabeth and Cox's Orange Pippin affected with bitter-pit.

Prunella vulgaris on a lawn.—A piece of lawn with this well-known weed was sent. It often occurs on lawns and spreads close to the ground when cut down by the mower. It is difficult to eradicate, but dressings at intervals with sulphate of ammonia at the rate of 1½cwt. to the acre would probably kill the foliage of the weed and encourage the growth of the grass. Another method suggested was to forgo mowing for a time, and so permit the plant to grow tall enough to be removed by hand.

Growth on bulb.—A bulb was sent by Miss Skelton with a curious growth on its side, apparently due to the development of numerous adventitious buds.

SCOTTISH HORTICULTURAL.

December 2.—The monthly meeting of this association was held in the Goold Hall, 5, St. Andrew Square, Edinburgh, on the 2nd inst. Mr. King, the president, was in the chair, and there was an attendance of 115 members.

The meeting was devoted to the discussion of various matters connected with horticulture, including size in relation to quality in judging Potatos: the brighter colouring of the foliage of the scarlet or red Oaks on the shoots produced from near the base as compared with that higher up the tree; the covering of vine borders with straw at midsummer; and the flagging of Chrysanthemum blooms on the exhibition table. It was contended by some that the brighter colour in the Oak leaves was for protective purposes, and by others that it was due to better nourishment. It was generally conceded that medium-sized Potatos, with shallow eyes, of good shape, and of good quality were to be preferred to large tubers. An insufficient supply of water, due often to their being placed in too small vessels, was given as the most common cause of Chrysanthemum flowers flagging; and there was diversity of opinion as to whether vine borders should be covered. A question relating to the best means of utilising the land had to be abandoned owing to want of time.

The exhibits were: Collection of Single and Decorative Chrysanthemums, exhibited by Messrs. Dobbie and Co., Edinburgh; Chrysanthemums: Miss Marion Raven, Margaret Gray, Mensa, Phyllis Bryant, Mrs. R. C. Cowan, and Miss E. L. Cowan, exhibited by Mr. W. G. Pirie, Dalhousie Castle, Midlothian; spikes of Cymbidium Traceyanum, exhibited by Mr. D. Halliday, Ascog, Bute. Each of the exhibitors received a Cultural Certificate.

It was intimated that the balance of receipts over expenditure at the Chrysanthemum Show was about £80, and that the receipts from the bazaar in aid of the Horticultural Institution Fund had realised over £800. November 19, 20 and 21 were fixed as the dates for holding the Chrysanthemum Show in 1914.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

November 27.—*Committee present:*—Rev. J. Crombleholme (in the chair), Messrs. J. Cypher, A. G. Ellwood, J. Evans, A. Hanmer, W. H. Hatcher, J. Howes, D. McLeod, C. Parker, F. K. Sander, W. Shackleton, W. Thompson, H. Thorp, A. Warburton, Z. A. Ward, G. Weatherby, and H. Arthur (Secretary).

A large Silver-gilt Medal was awarded to R. Ashworth, Esq., Newchurch (gr. Mr. Gilden); large Silver Medals to A. Warburton, Esq., Haslingden (gr. Mr. Dalgleish); Wm. Thompson, Esq., Walton Grange (gr. Mr. Howes); and Messrs. Cypher and Sons, Cheltenham. A Silver Medal was awarded to H. H. Bolton, Esq., Newchurch (gr. Mr. Eastwood), for a group of well-grown Cypripediums. Other exhibitors included Z. A. Ward, Esq., Northenden (gr. Mr. Weatherby); the Hon. Lady Neeld, Grittleton, Wiltshire (gr. Mr. Pitts); O. O. Wrigley, Esq., Bury (gr. Mr. Rogers); Messrs. A. J. Keeling and Sons, Bradford; Messrs. Charlesworth and Co., Haywards Heath; and Mr. W. Shackleton, Great Horton, Bradford.

AWARDS.

First-class Certificates.

Cypripedium Mirum (*Euryades New Hall Hey Variety* × *Melibaeus*), a gigantic flower (a Gold Medal being also awarded); *C. Queen Alexandra Walton Grange*, a large flower of good colour; *C. Hermes*; *C. San Actaeus Our Queen*, an excellent flower of good shape, and green tinted dorsal sepal devoid of spots: *Odontioda Queen Mary Luminosa*, round flower with distinct markings, all from Wm. Thompson, Esq.

Awards of Merit.

Cypripedium Draco Grittleton, from the Hon. Lady Neeld.

C. Lathamianum Thompsonii, from Wm. Thompson, Esq.

Odontoglossum Amabile "*Ruby Gem*," from Z. A. Ward, Esq.

Laelio-Cattleya Thyone, from R. Ashworth, Esq.

NATIONAL CHRYSANTHEMUM.

December 10.—A Chrysanthemum show was held by the National Chrysanthemum Society on Wednesday last in the Essex Hall, Strand, and later in the day a conference took place, when papers on "The Evolution and Development of Outdoor Chrysanthemums" and "Chrysanthemums for Outdoor Garden Decoration" were read by Mr. Norman Davis and Mr. Thomas Bevan respectively. The exhibits were not numerous, but of splendid quality; there were just sufficient good blooms of the various types to represent the best varieties in season, and a leisurely examination was possible, for visitors were very few. Messrs. Cragg, Harrison, and Cragg, Heston, won many 1st prizes, and they thoroughly deserved the honours, for they showed splendidly. For 8 vases of disbudded blooms, 9 blooms in each vase, occupying a space of 6 feet by 3 feet, this firm won the 1st prize with the varieties Heston Pink, Russet Mrs. J. Thompson, Godfrey's Crimson, Mrs. T. Judson, Matthew Hodgson, H. Pilson and December Gold. 2nd, Mr. Isaac Godber, Bedford, with Pale Yellow Thompson, Winter Cheer, Bronze Thompson, Mrs. Judson, Golden Thompson, Black Prince, Mrs J. Thompson and Jennie Burian.

The outstanding variety in Messrs. Cragg, Harrison and Cragg's 1st prize exhibit of 3 vases of Chrysanthemums, 8 blooms in each, was the warm-tinted Russet, which harmonised pleasantly with Golden Mrs. Thompson. The 2nd prize set from W. W. Mann, Esq., Ravenswood, Bexley (gr. Mr. J. Simon), was of larger blooms and contained more varieties, but was not of equal quality.

The only exhibitor of 3 vases of Single Chrysanthemums, 12 blooms in each, was E. G. Mocatta, Esq., Woburn Place, Addlestone (gr. Mr. T. Stevenson), and he received the 1st prize for large blooms of Kathleen May, Mrs. Hubert Williams, and Brightness.

There was also no competition in the class for 3 vases of partially disbudded single varieties, and here Mrs. Roger Gregory, Shoreham House, Shoreham (gr. Mr. L. Lawrence), was awarded the 1st prize.

Messrs. Cragg, Harrison and Cragg excelled in the class for 1 vase of Single Chrysanthemums with the crimson Kathleen variety; and they also won the 1st prizes in the similar classes for partially disbudded blooms with the variety Godfrey's Perfection, and 3 vases of white Chrysanthemums with Mrs. Thompson, Mrs. Judson, and M. T. Pancoucke

Mr. Mocatta excelled for 1 vase of single Chrysanthemums, in a class from which traders were excluded, with splendid blooms of Brightness, Mrs. Hubert Williams, and Kathleen May.

Messrs. Butler Bros., Bexley Heath, were the only competitors in the class for a group of Chrysanthemums. Each plant bore half-a-dozen or more of good, average-sized blooms, and all were well furnished with healthy foliage.

Awards.

First-class Certificates were awarded to :—

Commodore.—A single variety with four or five rows of rich crimson florets and a rich yellow centre. Shown by Mr. Mocatta.

Heston Pink.—A market or decorative variety of a pleasing pink shade. This variety was adjudged worthy of the special certificate as a market variety, and won the 1st prize in the class for the best novelty from a market point of view.

Non-Competitive Exhibits.

Messrs. Cragg, Harrison, and Cragg, Heston, Middlesex, filled a large table space with many vases of "market varieties" and a few pot plants. All the blooms were of the high quality which characterises Messrs. Cragg's productions, and the most noteworthy varieties were Russett, Heston Pink, Princess Victoria (both the yellow and the bronze forms), Wells's Late Pink, Matthew Hodgson, Heston Bronze, and December Gold.

Messrs. Wm. Wells and Co., Merstham, Surrey, included a vase of James Fraser, a large Japanese variety with narrow, soft, yellow florets, in their exhibit. Other varieties of exceptional value were Merstham Jewel, Bertha Lachaux, and Mauve Beauty.

SMITHFIELD CLUB.

December 8-12.—The Fat Cattle Show at Islington has become one of those time-honoured institutions that serve to mark the progress of the year. The gardens may still be gay with Roses luring us into the belief that autumn is lingering, but time is more stable than seasons, and so, when the Cattle Show comes round, we have a sure reminder of the approach of Christmas. Those of us who are in the habit of visiting flower shows find ourselves in a new world at an agricultural exhibition, although agriculture and horticulture are twin sisters. We miss the brightness of the flowers and the gay scenes generally. Even the crowd of visitors seems bent less on pleasure than on business. Indeed, the amenities of the one appear to have little in common with the other. And yet there is much that the gardener may learn from a cattle show, for there is plenty that appeals to him in the many side shows. The multitudinous array of manures, washes, fencings, seeds, fruits, buildings, implements, and the thousand and one other things assembled in the vast building have all a bearing, more or less, on gardening. Nevertheless, even the gardener will find himself first of all directed as a matter of course to where the champion beasts are stalled.

Everyone is impressed by size, especially when combined with high quality, and here we find the very summit of the breeders' art. But now our attention is directed by unusual commotion, to find, as may be expected at a Royal show, that His Majesty King George V. is making an inspection of the animals. But we must leave this aspect of the exhibition, save to remark that pride of place this year is won by a magnificent beast of the Black Angus breed turning the scale at 15 cwts. 3 qrs. 20 lbs.

The gallery, as usual, is occupied by exhibits from the great seed houses. Here we find well-known firms—Carter, Sutton, Webb, and others—showing what excellent produce their seeds give in field and garden. Messrs. Sutton and Sons' Mangels, Swedes, and Turnips are all of gargantuan proportions. We could detect no trace of injury in the marvellously large roots of Prizewinner Mangels and the more nutritious Golden Tankard variety, which has such high feeding value for milch cattle. But our interest was more in the many fine samples of Potatos—no inconsiderate crop to many farmers; the strains of culinary Peas, specimens of Grasses, Parsnips, Carrots, Onions, Tomatos, and other vegetables. There are on view two new Potatos, the one named Carisbrook Castle—an early variety—the other Stirling Castle—a maincrop sort. This very comprenensive display also includes Tobacco grown at Byfleet, Sugar-beet, and models of insect pests and diseases.

Messrs. Carter and Co. have huge specimens of Golden Globe Mangel, a variety that has given 80 tons to the acre; Invicta Swedes, one of the finest varieties in cultivation; Kohl Rabi, up to 10 lbs. in weight per root, and many other agricultural roots. They have also clean-skinned, well-matched Potatos in most of the finest varieties, fine Ailsa Craig and Record Onions, Carrots, Beets, Parsnips, and Turnips. Large White Carrots for feeding purposes resemble Parsnips; crops of this vegetable have given the enormous weight of 100 tons the acre. The pedigree cereals are a feature of this exhibit, notably the Goldthorp Barley and the Stand-up Red Wheat.

Messrs. Edward Webb and Sons, Stourbridge, are amongst the largest exhibitors of agricultural roots and seeds. The new Empire Swedes and Golden Tankard Mangels are splendid, whilst equally good Potatos, Cauliflowers, Onions, Beets, Peas, and Leeks are exhibited. Novelties in Potatos include Empire, a second-early variety, and Majestic, a good maincropper. The Stourbridge Marrowfat Peas are a favourite with market growers, a *sine qua non* to prolific cropping and general good qualities.

Messrs. Dicksons, Chester, exhibit fine samples of roots, fruits, and grasses. The Mangels, Clovers, and Potatos are a feature of this stand.

Messrs. E. W. King and Co., Coggeshall, Essex, show a new variety of Pea, named the Jap, which, the attendant informed us, is suitable for early, mid-season, and late cropping, producing pods from June to November on successional plants. The Kohl Rabi in this exhibit are as large as Mangels, of which there is a noteworthy display, surmounted by its newly-discovered feathered enemy.

Messrs. Kent and Brydon, Darlington, have a similar exhibit, in which their Darlington Swede figures conspicuously.

Other exhibitors of a like nature are Messrs. Harrison and Sons, Leicester, Messrs. John K. King and Sons, Coggeshall, and Messrs. Toogood and Sons, Southampton, who show four roots of Masterpiece Mangel which turn the scale at 84 lbs. A tuber of Potato Tremendous serves to justify the name, for it has a weight of 4 lbs. 4 ozs. This firm also display Onions, Parsnips, Marrows, and pedigree cereals.

Seed Potatos are shown by many, and an inspection of these exhibits, however cursory, leads at once to an enquiry as to whether we have tried the new Arran Chief variety. Everybody seems to possess it; some have even cooked samples to show how greatly superior it is to Northern Star, which it most resembles. We miss some of the usual exhibits of fruit this year, but find that Messrs. Horne Bros., Rochester, are present, as usual, with specimen trees and fruit of high quality. Messrs. W. Seabrook and Sons, Chelmsford, and The King's Acre Nurseries, Ltd., are also the exhibitors of fruit and fruit trees.

The exhibits of sundries include many proprietary washes. Messrs. Cooper and Nephews, Berkhamsted, show drums of their V. 1 fluid, a winter wash for fruit trees, and V. 2, a milder wash for application in summer. A preparation named Tactite is for use in grease-banding, the substance having the advantage over grease of remaining sticky after long exposure.

Messrs. Corry and Co., Ltd., Shad Thames, have a useful sprayer named the Niquas Syringe, with two nozzles. The spray may be directed either upwards or forward, according as the

tool is held, and is excellent for applying insecticides to the under surfaces of leaves. Their Niquas insecticide and Lethorion Vapour Cone are other specialities of this firm.

Messrs. WALTER VOSS AND CO., LTD., Millwall, show a useful soil steriliser in Voss Creol, lime-sulphur washes, winter washes, Vossolite, a soil insecticide, and other preparations for the destruction of plant pests.

Izal, a preparation from coal, for destroying insect pests in gardens and orchards, is shown by Messrs. NEWTON, CHAMBERS, AND CO., LTD. JEYES, LTD., display their well-known Cyllin soft soap, and a more convenient form of the specific as a fluid wash.

LINNEAN.

DECEMBER 4.—Professor E. B. POULTON, F.R.S., President, in the chair. At a meeting of this Association held on the above date, Mr. A. S. HORNE, B.Sc., alluded to the exhibition by Messrs. JAMES VEITCH AND SONS of the "cross-grafted" plants which had been shown at the International Horticultural Show in London in 1912, the following being the plants now on view:—Athrotaxis Doniana grafted upon Cryptomeria elegans, Aucuba japonica on Garrya elliptica, Benthamia fragifera on Cornus Mas, Cotoneaster pannosa on Pyrus Aucuparia, Cratægus Oxyacantha on Cotoneaster Simonsii and on Rhaphiolepis japonica; Cratægus Pyracantha on Photinia Benthamiana and on the Quince, Cupressus Lawsoniana and its variety Allumii on Thuja occidentalis, Cytisus supinus on Laburnum vulgare, Eriobotrya japonica on the Quince and on Rhaphiolepis japonica, Hamamelis sp. on Parrotia persica, Hippophaë Rhamnoides on Elæagnus aurea var. picta, Laburnum vulgare on Cytisus præcox, Libocedrus macrolepis on Thuja occidentalis, Ligustrum ovalifolium var. elegantissimum on Olea fragrans, Olea fragrans on Osmanthus ilicifolius, Osmanthus ilicifolius on Ligustrum ovalifolium, on Olea fragrans and on Phillyrea ilicifolia, with its variegated form on Olea fragrans and on Phillyrea ilicifolia, Osmanthus rotundifolius on Phillyrea ilicifolia, the latter on Ligustrum ovalifolium, Osmanthus rotundifolius on Phillyrea icilifolia, the latter also on Ligustrum ovalifolium, Phillyrea Vilmoriniana on Olea fragrans, Photinia ovata on the Quince, Photinia serrulata on Cotoneaster Simonsii and on the Quince, Pyrus Aucuparia on Cotoneaster Simonsii, the Quince—Pyrus japonica—on Cratægus Pyracantha, Rhaphiolepis japonica on Cotoneaster Simonsii, on Cratægus Lælandii, and on Cratægus Pyracantha, Rubus Bambusarum on a Rose, Stranvæsia undulata on Cratægus Oxyacantha and on the Quince, Sycopsis sinensis on Hamamelis virginica, Thuja orientalis on Thuiopsis borealis, and the latter worked on the former reciprocally; in all 57 plants were shown.

Mr. HORNE then gave an outline of his work during the past eight years, which was embodied in his paper:—A Contribution to the Study of the Evolution of the Flower; with special reference to the Hamamelidaceæ, Caprifoliaceæ, and Cornaceæ. (Communicated by Professor J. BRETLAND FARMER, F.R.S.).

Dr. RENDLE, Dr. GATES, and Dr. OTTO STAPF spoke on various points which had been raised by the author.

The next general meeting will be held on Thursday, the 18th inst., at 8 p.m. Exhibitions and Papers.—1. Mr. JOHN PARKIN, M.A.—The Evolution of the Inflorescence. 2. Mr. C. E. SALMON.—Hypericum Desetangsii, Lamotte, a new British plant. 3. Mr. J. DAVIDSON, M.Sc.—The Month-parts and Mechanism of Sucking in Schizoneura lanigera. (Communicated by Professor A. D. IMMS.)

BRITISH GARDENERS'.

DECEMBER 6.—A meeting was held in the Town Hall, Leamington Spa, on this date, for the purpose of forming a local branch of the British Gardeners' Association. The chair was taken by Mr. E. M. POLLOCK, K.C., M.P., and he was supported by the Mayors of Leamington and Warwick, Alderman HOLT, and Mr. HAYES, Superintendent of the Public Parks and Gardens, Leamington. The general secretary, Mr. CYRIL HARDING and Mr. DYFRI-JONES, hon. sec. of the Birmingham branch, explained the objects and aims of the Association, and it was decided to form a local branch, to be known as the Leamington, Warwick and District Branch. Mr. POLLOCK was elected president of the branch, and the Mayors of Leamington and Warwick, and Alderman HOLT, vice-president. Mr. HAYES was appointed chairman; Mr. H. F. SMALE, Warwick Castle Gardens, treasurer; and Mr. G. L. BLACKBURN, Bericote Gardens, Leamington, honorary branch secretary.

DEBATING SOCIETIES.

BRISTOL AND DISTRICT GARDENERS'.—A meeting of this Association was held on the 13th ult.; Mr. Baston presided. Mr. Garraway, a representative of the Bath Society, read a paper on "Vegetables for Exhibition." The lecturer gave advice in the selection of varieties, times of sowing and planting, preparation of the ground, situation and insect pests. Messrs. Keeling and Sons, Bradford, offered prizes for two Orchids in bloom, and the 1st prize was won by Mr. Curtis. Mr. L. Coombes was appointed librarian. The fortnightly meeting was held on the 27th ult., Mr. E. T. Parker presiding. There was a good attendance of the members. The evening was set apart for a paper-reading competition by under-gardeners, the competitors to choose their own subjects, and the reading of their papers not to exceed fifteen minutes each. Mr. Barrow was awarded the 1st prize, his subject being "Gathering and Storing Fruit"; 2nd, Mr. Extence, for a paper on "Border Carnations." Each dealt with his subject in a very able manner, and was highly congratulated by the members present. Votes of thanks to the judges and to Mr. Parker concluded a very pleasant evening. The prizes, kindly given by Mr. H. G. Smith (Messrs. James Carter and Co.), for two dishes of Potatos, one round and one kidney variety, produced a keen competition, and were won by Messrs. Young, Neale and Scott.

DUMFRIES AND GALLOWAY GARDENERS'.—The monthly meeting was held in the Wesley Hall, Dumfries, on the 6th inst. Mr. S. Arnott presided. The lecturer was Mr. A. Cameron, Balgray Gardens, who gave a paper on "Deciduous Calanthes." Mr. David Hunter having resigned his duties as secretary and treasurer, Mr. William Taylor, Brocklehirst, was unanimously appointed to this office.

WATFORD HORTICULTURAL.—The fourth annual meeting was held on Tuesday, December 2, when the president (R. H. Comyns, Esq.) occupied the chair. The secretary (Mr. W. Waterton) presented the annual report, which showed a steady increase of membership, and the financial statement with a balance in hand of £12 9s. This was adopted unanimously, as well as a slight alteration in Rule 2.

CHESTER PAXTON.—The twenty-sixth annual general meeting was held in the Grosvenor Museum on the 5th inst. Mr. N. F. Barnes presided. The hon. secretary and treasurer, Mr. George P. Miln, in submitting the annual report, pointed out that there had been during the past year an increase in the list of members and subscribers, the figures now standing at over 600. The Fruit and Chrysanthemum Exhibition held in November was, he said, one of the most successful exhibitions held under the auspices of the society, the classes being more fully represented than on any previous occasion. The course of winter lectures had also been well attended, and the financial statement showed a credit balance of more than £50.

EGHAM AND DISTRICT GARDENERS'.—Mr. W. Swan, of Thorncote Gardens, Staines, delivered a lecture on "Bush Fruits" at the meeting held on the 3rd inst. Mr. Swan said that fruit trees should be planted in south-east or south-west situations, as the trees would flower later, and so escape injury to the blossom from frosts than those planted facing the south. The best soil is a rich deep loam; in the case of poor soils manure should be dug into the bottom spit, keeping it below where the roots are planted. Mr. Swan dealt fully with the questions of planting, pruning, and training of fruit trees; also the cultivation of the Strawberry, Loganberry, and Blackberry.

BIRMINGHAM AND MIDLAND DISTRICT GARDENERS'.—At a meeting of the above society on the 1st inst. a lecture on "The Gardener: His Education and Training," was delivered by Mr. J. Udale. Gardeners as a body, said Mr. Udale, were liable to be despised, because their remuneration was not so favourable as that of many other professions. As a groundwork the young gardener should acquire good grammar, accurate arithmetic, and legible writing, and if he wished to prove himself efficient in his calling, a knowledge of chemistry, botany, geography, mensuration, drawing, entomology, and even a slight acquaintance with Latin, were all necessary. An absolute essential to real success was in personality, in having acute observation, quickness to denote colour, form and proportion, an easy adaptability to environments, and an administrative capacity in which loyalty, honesty, faithfulness, earnestness, and truthfulness were combined. A suitable age for the young gardener to commence work was from fifteen years upwards, and during the succeeding years he should attain proficiency by careful continuation of his former scholastic studies by taking up advanced classes in all the important subjects which come within his sphere of requisites. He should be prepared to do all grades of work, however menial. Above all, he would be well advised to keep a diary of his daily work and observations from the very outset, thus he would be able in after years to refer to much useful information gained by experience. All this, said the lecturer, meant long hours of close study and hard work, but the industrious, diligent worker would obtain the reward in after years.

DUNDEE HORTICULTURAL.—Mr. J. S. Chisholm again lectured before this association at the meeting held on December 3rd, his subject on this occasion being "The Cultivation of the Apple." Mr. Chisholm stated that under proper management orchards could be made profitable in Scotland provided suitable land could be obtained at a reasonable rate in favoured districts. Points emphasised in the lecture were the absolute necessity for working on scientific lines in regard to feeding, pruning, etc., keeping the roots near to the surface, preserving a proper balance between root and branch—the effect of summer pruning, and keeping the trees free from blight and pests by spraying.

WARGRAVE AND DISTRICT GARDENERS'.—At the meeting held on the 3rd inst., the hon. secretary, Mr. H. Coleby lectured on "Soils," showing how they have been formed. The composition and poperties of loams, sand, clay, lime, and humus were in turn brought under review, and a good discussion followed. Three new members were elected, and notice given of the last meeting for the session, to be held on December 17, when Mr. T. Haskett will speak on Calceolarias.

CATALOGUES RECEIVED.

W. SEABROOK AND SONS, Chelmsford.—Fruit Trees and Roses.

THOMAS RIVERS & SON, Sawbridgeworth.—Fruit Trees, Roses and Shrubs.

JAMES COCKER & SONS, Aberdeen.—Hardy Herbaceous, Alpine and Bulbous Plants, and Roses.

AMOS PERRY, Enfield.—Hardy Perennials and Rock Plants, Delphiniums, Ferns, Shrubs, Bulbs, Seeds, etc.

STEWART AND CO., 13, South St. Andrew Street, Edinburgh.—Roses, Herbaceous and Rock Plants.

W. AND T. SAMSON, 8 and 10, Portland Street, Kilmarnock.—Trees.

H. M. REED, Westbrook, Underdown Road, Southwick, Sussex.—Rhubarb Roots.

WHITELEGG AND PAGE, Chislehurst, Kent.—Hardy Garden Plants and Climbers.

MERRICK BROS., Ipswich Street, Stowmarket.—Roses, Fruit Trees, Ornamental Trees, Shrubs, etc.

HEAD BROS., Penrith.—Forest, Ornamental and Fruit Trees.

CLIBRANS, Hale, Altrincham.—Forest and Ornamental Trees and Shrubs; Fruits, Chrysanthemums.

HOWDEN AND CO., Inverness.—Nursery Stock.

WM. FELL AND CO., Hexham.—Forest Trees, Trees and Shrubs, Fruit Trees, Roses.

WARGRAVE PLANT FARM, LTD., 10, The Arcade, Liverpool Street, London.—Alpine and Herbaceous Plants.

W. SMITH AND SON, 18, Market Street, Aberdeen.—Forest Trees.

W. DRUMMOND AND SONS, Stirling.—Forest Trees, Ornamental Trees, Roses and Shrubs.

JAMES VEITCH AND SONS, King's Road, Chelsea.—Roses.

DICKSONS, Chester.—Ornamental and Forest Trees and Shrubs, and other Nursery stock.

WM. WATSON & SONS, Clontarf Nurseries, Dublin.—Fruit Trees, Roses, Shrubs, Hardy Climbers, Hedge Plants and Forest Trees.

KING'S ACRE NURSERIES LTD., Hereford.—Fruit Trees, Roses, Forest Trees, Conifers, Hollies, Rhododendrons, Alpine and Herbaceous Plants.

AUSTIN AND MCASLAN, Glasgow.—Trees and Plants.

H. CANNELL AND SONS, Evnsford.—Pelargoniums.

H. J. JONES, Ryecroft, Hither Green, Lewisham.—Chrysanthemums.

LITTLE AND BALLANTYNE, Carlisle.—Trees.

D. & W. CROLL, 63, Commercial Street, Dundee.—Roses.

NORMAN DAVIS, Framfield, Uckfield.—Chrysanthemums and Michaelmas Daisies.

AMOS PERRY, Enfield, Middlesex.—Lilies.

KENT AND BRYDON, Darlington.—Trees.

MISS HILDA HEMUS, Holdfast, Upton-on-Severn.—Sweet Peas.

BARR & SONS, King Street, Covent Garden.—Bulbs.

PROTHEROE AND MORRIS, 67, Cheapside, London.—List of Nurseries, Market Gardens, Farms, and Seed Businesses, etc.

Foreign.

ALBERT TREBST, Merseburg.—Chrysanthemums.

FREDERICK ROEMER, Quedlinburg, Germany.—Flower Seed Novelties.

SLUIS & GROOT, Enkhuisen, Holland — Vegetable, Flower and Agricultural Seeds.

LEONARD LILLE, 107, Cours Emile-Zola, Lyon-Charpennes, France—Plant Novelties.

PAPE AND BERGMANN, Quedlinburg.—New Plants.

DERVAES FRERES, Wetteren, Belgium.—Nursery stock.

HAAGE AND SCHMIDT, Erfurt.—Seeds of Novelties in Flowers.

SOUPERT AND NOTTING, Luxembourg.—New Roses.

M. HERB, Naples, Via Trivio, 24-38.—New Plants.

F. C. HEINEMANN, Erfurt, Germany.—Plant Novelties.

CARL PASSLER, Lüptitz, Bez, Leipzig.—New Pinks.

GEORG ARENDS, Ronsdorf, Germany.—Seeds of Novelties in Flowers.

VILMORIN-ANDRIEUX ET CIE, 4, Quai de la Mégisserie, Paris.—Trees.

MARKETS.

COVENT GARDEN, December 10.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Foliage, &c.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum Fern (Maidenhair), best, per doz. bunches ..	5 0- 6 0	
Agrostis (Fairy Grass), per doz. bunches ..	2 0- 4 0	
Asparagus plumosus, long trails, per half-doz	1 6- 2 0	
— medium, doz. bunches ..	12 0-18 0	
— Sprengeri ..	6 0-12 0	
Carnation foliage, doz. bunches ..	—	
Croton foliage, vrs., doz. bunc.		12 0-15 0
Cycas leaves, artificial, per doz.		3 0-12 0
Eulalia japonica, per bunch ..		1 0- 1 6
Honesty, per doz. bunches ..		10 0-12 0
Moss, gross bunches ..		6 0 —
Myrtle, doz. bnchs. English, small-leaved ..		6 0 —
— French.. ..		1 0 —
Smilax, per bunch of 6 trails ..		1 0- 1 3

French Flowers.

	s. d.	s. d.
Anemones, double pink, per doz.	1 9- 2 0	
Lilac white, per bunch	3 6- 4 0	
— mauve, p. bnch.	5 0- 6 0	
Marguerites, yellow, per dozen bunches ..	1 9- 2 0	
Mimosa (acacia), per pad	5 0- 6 0	
— — per bunch	0 9- 1 0	
Narcissus, Paper White, per pad	6 0- 7 0	
— — — per doz. bunches ..	1 9- 2 0	
— Soleil d'Or, per pad	6 0- 7 0	
Narcissus, *Continued:* — Sol d'Or, per dozen bunches		1 6- 2 0
Ranunculus, scarlet, per dozen ..		9 0-12 0
— Barbaroux ..		3 6- 4 0
— carmine ..		3 0- 4 0
— orange		10 0-12 0
— yellow		9 0-10 0
Roses, Safrona, per packet (24) ..		1 6- 1 9
Violets, single, per pad		5 0- 6 0
— — per dozen bunches ..		1 6- 1 9
— Parmas, large bunch		3 0- 3 3

Cut Flowers, &c.: Average Wholesale Prices

	s. d.	s. d.
Arums, per doz. ..	2 6- 3 6	
Azalea, White, per doz. bunches ..	3 6- 4 0	
Camellias, per doz.	1 6- 2 0	
Carnations, per dozen blooms, best American varieties ..	1 9- 3 0	
— smaller, per doz. bunches ..	12 0-15 0	
— Carola (crimson), extra large	4 0- 5 0	
— Malmaison, per doz. blooms:		
— — pink ..	6 0- 9 0	
Chrysanthemum: — White and coloured, large specimen blooms	4 0- 5 0	
— Special blooms	2 0- 2 6	
— Medium blooms	1 3- 1 9	
— Bunch, white, per doz. ..	4 0- 6 0	
— — coloured, per doz. ..	3 6- 5 0	
Daffodils, single, per doz. bnchs	15 0-18 0	
Eucharis, per doz.	2 6- 3 0	
Freesias, per dozen bunches ..	4 0- 5 0	
Gardenias, per box of 15 and 18 blooms.. ..	3 0- 5 0	
Lapageria alba, per doz. blooms ..	2 0- 2 6	
Lilium auratum, per bunch ..	2 0- 2 6	
— longiflorum, per doz., long..	1 9- 2 0	
— — short ..	1 6- 1 9	
— lancifolium album, long ..	1 3- 2 0	
— — short ..	1 3- 1 6	
— rubrum, per doz., long ..	1 6- 2 0	
— — short ..	0 9- 1 0	
Lily-of-the-Valley, per dozen bunches:		
— extra special ..		15 0-18 0
— special		12 0-14 0
— ordinary ..		9 0-10 0
Orchids, per doz.:		
— Cattleya ..		15 0-18 0
— Cypripedium ..		2 0- 3 0
— Dendrobium Phalænopsis ..		1 6- 2 0
— Odontoglossum crispum ..		3 0- 4 0
Pelargoniums, per doz. bunches, double scarlet		6 0- 8 0
Pointsettias, per doz. blooms ..		9 0-10 0
Roman Hyacinth, per doz. spikes		0 9- 1 0
Roses: per dozen blooms, Bridesmaid		2 0- 2 6
— Kaiserin Augusta Victoria		3 0- 4 0
— Liberty ..		4 0- 5 0
— Mme. Carnot..		2 6- 3 0
— Madame A. Chatenay ..		2 6- 4 0
— Melody ..		2 6- 3 0
— Niphetos ..		1 6- 1 9
— Prince de Bulgaria ..		2 6- 4 0
— Richmond ..		2 6- 4 0
— Sunburst ..		2 6- 3 0
— Sunrise ..		2 6- 3 6
Spiræa, per doz. bunches ..		6 0- 8 0
Stephanotis, per spray of 72 ..		3 0- 3 6
Tuberoses, per gross		4 0- 5 0
Violets, English, per dozen bunches		1 0- 1 6
— Princess of Wales per doz. bunches		2 0- 3 0

REMARKS.—At the time of writing these notes trade generally is very slow, and except for one or two subjects the prices remain unaltered, despite the cold weather of last week. The trade in Chrysanthemums shows a little improvement, and for blooms of best quality prices are expected to advance considerably during the next few days. Carnations show the most improved prices, especially scarlet varieties. Roses are gradually on the decrease, but red varieties, such as Liberty and Richmond, are fetching higher prices. Arums and varieties of Liliums are plentiful, and the quality remains good. This also applies to Camellias, Roman Pointsettias, Lily-of-the-Valley, Violets (Princess of Wales), and Tuberoses; but the supply of Gardenias is shorter. Prices for Cattleyas are firmer, but Cypripediums are plentiful. There is only a small supply of Daffodils, but sufficient for the demand. Freesias are now on sale, and they meet with a good demand. There is more business in the French flower market, and prices for best flowers are firmer. Violets are arriving in fine quality, but they were cheaper this morning. Parma Violets still keep very firm, which is only to be expected now. There is an improvement in the quality of Anemones, Lilacs, Mimosa, Ranunculus, and Safrano Roses.

Plants in Pots, &c.: Average Wholesale Prices.

	s. d.	s. d.
Aralia Sieboldii, dozen	6 0- 7 0	
Araucaria excelsa per dozen ..	18 0-21 0	
Asparagus plumosus nanus, per dozen	10 0-12 0	
— Sprengeri ..	6 0- 8 0	
Aspidistra, per doz., green	18 0-30 0	
— variegated ..	30 0-60 0	
Azalea, per doz. ..	30 0-36 0	
Begonia Gloire de Lorraine, 48's, per dozen ..	9 0-12 0	
Cacti, various, per tray of 15's ..	4 0 —	
tray of 12's ..	5 0 —	
Chrysanthemums:— 48's, per doz. ..	6 0-10 0	
Cocos Weddeliana, per dozen, 60's	6 0-12 0	
— larger, each ..	2 6-10 6	
Croton, per dozen	18 0-30 0	
Cyclamen, 48's, per dozen	10 0-12 0	
Cyperus alternifolius, per doz.	5 0- 6 0	
— laxus, per doz.	4 0- 5 0	
Dracæna, green, per dozen ..	10 0-12 0	
Erica gracilis, per dozen	9 0-12 0	
— hylmalis ..	10 0-15 0	
— nivalis, per doz.	10 0-15 0	
— small, in thumbs, per dozen ..	4 0- 6 0	
Ferns, in thumbs, per 100.. ..	8 0-12 0	
— in small and large 60's ..	12 0-20 0	
Ferns, in 48's, per dozen	5 0- 6 0	
— choicer sorts, per dozen ..	8 0-12 0	
— in 32's, per doz.	10 0-18	
Geonoma gracilis 60's per dozen..	6 0- 8 0	
— larger, each ..	2 6- 7 6	
Kentia Belmoreana, per dozen	5 0- 8 0	
— Fosteriana, 60's, per dozen ..	4 0- 8 0	
— — larger, per dozen	18 0-36 0	
Latania borbonica, per dozen ..	12 0-30 0	
Lilium lancifolium rubrum, per dz.	12 0-18 0	
— lancifolium album	15 0-18 0	
— longiflorum, per dozen ..	12 0-18 0	
Lily-of-the-Valley	18 0-21 0	
— 48's, per dozen	21 0-30 0	
Marguerites, in48's, per doz., white	6 0- 7 0	
Pandanus Veitchii, per dozen ..	36 0-48 0	
Phœnix rupicola, each	2 6-21 0	
Pointsettias, per dozen 48's ..	10 0-12 0	
Roman Hyacinths, per doz. ..	1 6- 1 9	
Solanums, 48's per dozen	6 0-10 0	
Spiræa japonica, per dozen pots	6 0- 8 0	
— pink	10 0-12 0	

REMARKS.—The plant trade shows a great improvement, and many plants were despatched to the provinces on Wednesday, especially Ericas and Solanums. A busy time is expected in this department during the next fortnight.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English Dessert, ½ bushel..	5 0- 8 0	
— cooking, per bushel	4 6- 8 0	
— Cox's, per ½ bushel	5 0- 8 0	
— American, brls.	36 0-38 6	
— Californian Newtown Pippin, case	10 6-11 6	
— Nova Scotian, barrel	24 0-28 0	
— Oregon, Newtowns, case ..	13 6-15 0	
— Wenatchee, case	14 6-15 6	
Avacado pears, per dozen	12 0-18 0	
Bananas, bunch: — Double Ex. ..	11 0-12 0	
— Extra	12 0-13 0	
— Extra medium	10 0-12 0	
— Giant	14 0-16 0	
— Medium ..	8 0- 9 6	
— Red, per ton ..	£25 - £28	
— Jamaica, p. ton	£11 - £12	
Cranberries, Cape Cod, per case ..	9 6-12 6	
Custard apples, per doz. ..	6 0-12 0	
Dates, dozen boxes	4 0- 4 6	
— per cwt. case..	20 0 —	
Figs, Kadrowi, cwt.	11 0 —	
Grapes—English: — Gros Colmar, per lb.	0 8- 2 6	
— Black Alicante	0 10- 1 6	
— Canon Hall Muscat ..	1 0- 5 0	
— — Special, per lb.	6 0-10 0	
— Muscat of Alexandria	1 0- 5 0	
— — Special ..	6 0-10 0	
Grapes, *continued:* — Guernsey, Black Alicante ..	0 5- 0 7	
— Almeria, per barrel	16 0-21 6	
— — per dozen lbs.	5 6	
Grape Fruit, case: — 96's .. — 80's .. — 64's .. — 54's ..	12 6-18 6	
Lemons, Messina, per case ..	12 6-26 0	
— Malaga ..	21 0 —	
— Murcia, p. case	16 0-22 0	
Limes, per case ..	4 6- 5 6	
Lychees, box ..	1 6 —	
Medlars, ½ bushel..	4 6- 5 0	
Nuts: — Almonds, sack	64 0-65 0	
— Barcelona, sack	44 0	
— Brazils, cwt. ..	95 0 —	
— Chestnuts, Naples, per bag ..	12 0-20 0	
— Cobnuts, English, per lb. ..	1 3- 1 6	
— Cokernuts, per 100	18 0-22 0	
— Grenobles, bag	8 0- 9 0	
— — French, bag	8 0- 9 0	
Oranges, Jamaica..	9 0-11 0	
— Denia, per case	18 0-22 0	
— Mandarines, box	1 0- 4 0	
— Mercia, p. case	8 6- 9 6	
— Vera, per case .	15 6-35 0	
Pears, Californian, box	6 6-17 6	
— Stewing, ½ bus.	3 0- 4 6	
Persimmons, p. box	1 6- 2 6	
Pineapples, St. Michael ..	3 0- 3 6	

REMARKS.—Cox's Orange Pippin Apples are obtainable from home growers in fairly large quantities for the season of the year. Cooking varieties comprise Bramley's Seedling, Newton Wonder, Dumelow's Seedling, (Wellington), and Dr. Harvey. The market is well supplied with Wenatchee, Oregon and Nova Scotian Apples, including some fine samples of Cox's Orange Pippin packed in boxes and trays. Pears are now limited to those from Californian sources, and include the varieties Doyenné du Comice, Winter Nelis, and Easter Beurré, the last of very fine quality. Black Grapes from all sources continue to be very plentiful, but Muscats are scarcer. English Tomatos are finishing, but Tomatos from the Canary Islands are an increasing quantity, some of the fruits being equal to those from home growers. Forced Rhubarb from Yorkshire is available. Forced vegetables from English and French growers include Beans, Asparagus, Cucumbers, Peas, Mushrooms, Seakale, and New Potatos. Nuts and dried fruits are not so plentiful as in former seasons, but up to the present there have been plenty of Oranges and Pineapples. Mistletoe and Holly are already seen in the market. Owing to the continued mild weather all the commoner vegetables are plentiful.—*E. H. R., Covent Garden, December 10, 1913.*

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Artichokes, Globe, per dozen ..	2 0- 3 0	
— ground, ½ sieve	1 0- 1 3	
Asparagus, Paris green	4 3- 4 9	
— Cavillion ...	2 10- 3 0	
— Sprue	0 6- 0 8	
Beans, Guernsey, lb.	1 0- 1 6	
— Madeira, per basket	3 6- 4 0	
— French canes..	4 6- 5 0	
Beetroot, per bushel	2 0- 2 6	
Cabbages, per tally	3 0- 5 0	
Carrots, (English), bags	3 0- 4 0	
Cauliflowers, per dozen	1 0- 1 6	
— St. Malo heads, per dozen ..	1 6- 2 0	
Celeriac, French, per dozen ..	1 6- 2 0	
Celery, per doz. ..	6 0- 8 0	
Chicory, per lb. ..	0 3-0 3½	
Cucumbers, per doz	6 0-15 0	
Endive, French, per dozen	1 6- 2 0	
Garlic, per strike..	3 0- 4 0	
Horseradish, 12 bundles ..	9 0-10 0	
Leeks, per dozen ..	1 6- 2 0	
Lettuce, English, Cos, per score	0 9- 1 3	
— English, round, per score ..	0 4- 0 9	
— French crates	2 0- 3 6	
Mushrooms, cultivated, per lb.. ..		0 10- 1 0
— Broilers ..		0 8-0 10
— Buttons ..		1 0- 1 3
Mustard and Cress, per dozen punnets		0 10- 1 0
Onions, picklers, per ½ bushel ..		1 6- 2 0
— Dutch, bags ..		5 0- 5 6
— English, bags..		6 0- 6 6
— Spanish, cases		6 6- 7 0
Parsley, per dozen bunches ..		1 6- 2 0
Peas, Guernsey, lb.		2 0- 2 6
Radishes, per doz.		1 6- 2 0
Rhubarb, forced, dozen bundles		2 0- 2 6
Sage, per dozen ..		2 0 —
Savoys, per tally ..		4 6- 6 0
Spinach, per bushel		1 0- 1 3
Sprouts, ½ bushel..		1 0- 1 3
— ½ bags		2 0- 2 6
Stachys tuberosa, lb.		0 4- —
Tomatos, English, per dozen lbs.		3 0- 5 6
— Canary, bundle		14 0-20 0
Thyme, per dozen bunches ..		2 0- 6 0
Turnips (English), per bag ..		2 0- 2 6
Watercress, per doz.		0 4- 0 6

Potatos.

	s. d.	s. d.
Bedford, per cwt.	3 6- 3 9	
Blacklands	2 6- 2 9	
British Queen ..	3 6- 4 0	
Dunbars	4 6- 5 0	
Evergood	3 0- 3 3	
Langworthy, per cwt.	5 6 —	
Kent	3 0- 3 6	
King Edward ..	3 3- 3 9	
Up-to-date	3 6- 3 9	

REMARKS.—Trade remains very quiet. Supplies are large, and prices show no change. Stocks in London are very heavy.—*Edward J. Newborn, Covent Garden and St. Pancras, December 10, 1913.*

THE WEATHER.

GENERAL REMARKS.

December 9, 1913.

Weather.—Very changeable conditions were experienced, and, except in the North-East of England, precipitation was frequent. Late in the week a considerable quantity of snow fell in Scotland and the adjacent portions of England, and smaller amounts further south, while some snow and hail occurred in Ireland. Thunderstorms passed over some Scottish and Irish localities, and thunder was heard at Llangammarch Wells.

Temperature was at first high for the time of year over the whole Kingdom, but after the middle of the period it fell decidedly, the change in the North and North-East being very striking. In Scotland East (at Balmoral) the thermometer in the screen fell to 7°, in Scotland North to 14°, in England North-East to 17°, and in England North-West to 18°. In England South-East and Ireland South the lowest reading was 33°, in England South-West 34°, and in the English Channel 37°. Early in the week the maxima were above 50° in almost all districts; as high as 57° in England East and Ireland South, and 58° in the Midland Counties and England South-East. On Saturday the thermometer in many parts of Scotland remained below 32° all day. The lowest grass readings were 5° at Balmoral, 10° at West Witton, 12° at Harrogate, 14° at Durham, and 16° at Crathes and Marchmont. The temperature of the earth continued above the average both at a depth of 1 foot and 4 feet.

Mean Temperature of the Sea was again above the normal at nearly all stations, and was higher than in the corresponding week of last year. On most Scottish coasts the water was, however, much colder than in the preceding week. The mean values ranged from 52.5° at Plymouth and Salcombe to 42.6° at Cromarty.

Rainfall exceeded the normal in Scotland, Ireland, and all but the North-Eastern, Eastern, and South-Eastern parts of England. In most districts the excess was rather large. On the 2nd 1.4 inch fell at Fort William; on the 3rd 1.5 inch at Killarney, and more than 1 inch at Blacksod Point, Newton Rigg, Glasgow, and West Linton; on the 4th 1 inch at Foynes; and on the 5th more than 1 inch in the Channel Islands. At some stations in the North-East of England the total for the week was less than 0.1 inch.

Bright Sunshine was more than the average in Scotland East, England North-East, and England East, less elsewhere, especially in the South-Western districts, where there was much mist and fog on the coast. In Scotland East the daily mean was two hours, and the percentage of the possible twenty-nine, while in Scotland North, Ireland, and the English Channel the daily mean was only about 0.5 hour. In the English Channel only 5 per cent. of the possible duration was recorded.

Barometer and Wind.—During the earlier half of the week the pressure distribution was favourable for westerly to south-westerly winds, and gales were experi-

enced on most parts of the coast, the force being very strong in the west and south-west. On Thursday, when the barometer rose quickly in the rear of a depression, which had passed across Scotland, the wind veered to the north-westward, but continued to blow with the force of a gale for a time. By Saturday the pressure distribution had undergone a great modification. While a V-shaped depression extended south-eastwards from the Atlantic to the English Channel, a narrow tongue of relatively high pressure stretched north-westward from the continent across Great Britain nearly to Ireland. The wind consequently became light and variable in Scotland, and easterly in Wales and the Midland Counties, but continued westerly on the south-west coasts of England, and blew a gale from the north-west at the mouth of the Channel.

THE WEATHER IN WEST HERTS.
Week ending December 10, 1913.

The Twelfth Unseasonably Warm Week in Succession.—This proved another warm week, and the twelfth in succession. There occurred two cold days, however, in the middle of the week, when the highest reading in the thermometer screen did not exceed 41°. On no night did the exposed thermometer register more than 5° of frost. The ground is now 4° warmer at 2 feet deep, and 5° warmer at 1 foot deep, than is seasonable. Rain fell on all but one day during the week, but to the total depth of less than ½ inch. Small quantities of rainwater have passed each day through both the percolation gauges. The sun shone on an average for only fifty minutes a day, which is half an hour a day short of the usual duration at the beginning of December. Five days were altogether sunless. The winds were as a rule high, and in the windiest hour the mean velocity reached twenty-one miles—direction W.N.W.; the average amount of moisture in the air at three o'clock in the afternoon exceeded a seasonable quantity for that hour by 2 per cent. *E. M.*

GARDENING APPOINTMENTS.

[*Correspondents are requested to* write the names of persons and places as legibly as possible. *No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. D. Leslie, for 5½ years Gardener at Lignwood, Scone, Perth, N.B., as Gardener to JOHN TURNER, Esq., Alva House, Alva, N.B.

Mr. F. Vaughan, until recently Foreman at Reaseheath Hall, Nantwich, Cheshire, as Gardener to R. VICTOR WILLIAMS, Esq., Child's Ercall Hall, Market Drayton, Shropshire.

Mr. F. A. Slaney, Foreman for 3 years to E. H. CUTHBERTSON, Esq., and 1 year to Mrs. H. MCCALMONT, of Bushey House, Bushey, Hertfordshire, as Gardener to Mrs. MIDDLETON, Hazelbeach Hill, Northampton. [Thanks for 1s. 6d. for R.G.O.F. box.—EDS.]

Mr. A. F. Snolton, for the past 14 months Gardener at Harefield, Romsey, Hampshire, as Gardener to Mrs. ERLE, Bramshott Place, Liphook, Hampshire. [Thanks for 1s. for R.G.O.F. box.—EDS.]

Mr. J. Deuchars, for the past 3 years Gardener to MRS. JOHN GORDON, at Kenmure Castle, Galloway, as Gardener to C. D. RUDD, of Ardnamurchan, at Shielbridge, Acharacle, Argyllshire.

Mr. John Mayne, for the past 12 months Gardener at Woodlea, St. John's Wood, and previously for 7½ years Foreman for F. S. LOW, Esq., Rookery Park, Yoxford, Suffolk, as Gardener to the Rev. J. H. MATTHEWS, M.A., Hedgerley Rectory, Farnham Royal, Buckinghamshire. [Thanks for donation for R.G.O.F. box.—EDS.]

Mr. Thomas Watson, for the last five years at Warreston House, Edinburgh, and formerly with the late Col. KINNARD, Great Tangley Manor, as Gardener to Lionel C. W. PHILLIPS, Esq., Ensted Park, Godalming. [Thanks for 2s. for R.G.O.F. box.—EDS.]

Mr. T. Prentice, until recently Foreman in the Gardens at Fullarton House, Troon, as Gardener to the Hon. F. C. MONTGOMERIE WILLIAMFIELD, Irvine. [Thanks for 1s. for R.G.O.F. box.—EDS.]

Mr. John Stringer, as Gardener to F. L. BALDWIN, Esq., Broom Hill, Great Barr, near Birmingham.

Mr. C. Hare, for three years and eight months Foreman at Bodlondeb, Conway, N. Wales, as Gardener to COL. H. LE ROY LEWIS, D.S.O., Westbury Park, Petersfield, Hants.

PUBLICATIONS RECEIVED.—***The Roll of the Seasons.*** Nature Essays. By G. G. Desmond. (London: Duckworth & Co.) Price 5s. net.—***The British Rust Fungi.*** By W. B. Grove. (Cambridge: University Press.) Price 14s. net.—***The Land Problem.*** By "Home Counties" (J. W. Robertson Scott). (London: Collins' Clear-Type Press.) Price 1s. net.—***The Use of Vegetation for Reclaiming Tidal Lands.*** By Gerald O. Case London: St. Bride's Press, Ltd.) Price 2s. net.—***The Report of the Agricultural Organization Society, 1913.*** (London: The Stepney Press). Price 1s.—***A Naturalist in Western China.*** By Ernest H. Wilson. Vol. I. and II. (London: Methuen & Co., Ltd.) Price 30s. each.—***The Life-Story of Insects.*** By G. H. Carpenter. (Cambridge: University Press.) Price 1s.—***Instruction in Professional Horticulture.*** By Cyril Harding. (Bruxelles: Gaston Bonnet).—***Mildews, Rusts and Smuts.*** By George Massee, assisted by Ivy Massee. (London: Dulau & Co.) Price 7s. 6d. net.—***Cattleyen und Laelien.*** Von Anton Hefka. (Wien und Leipzig: Wilhelm Frick.) Price K. 4.80.—***Manures and Fertilisers.*** By Homer G. Wheeler, D.Sc. (London and New York: The Macmillan Company.) Price 7s.—Bulletin No. 6 of the Department of Agriculture of Ceylon: ***Diseases and Pests Legislation in Ceylon.*** By T. Petch. (Colombo: H. C. Cottle.)—***Gardens of the Great Mughals.*** By C. M. Villiers Stuart. (London: A. and C. Black.) Price 12s. 6d. net.—***Planting in Uganda.*** By E. Brown and H. H. Hunter. (London: Longmans, Green, and Co.) Price 10s. 6d. net.—***"From Suez to Sinai."*** By Arthur W. Sutton. Being a Paper read before the Victoria Institute.—***The Diseases of Tropical Plants.*** By Melville Thurst n Cook, Ph.D. (London: Macmillan and Co., Ltd.) Price 8s. 6d.—***Record of Proceedings of the Royal Horticultural Society of Ireland.*** Price to non-members post free 7d. Secretary, 5, Molesworth Street, Dublin.—***Date Growing in the Old and New Worlds.*** By Paul B. Popenoe. (Altadena, California: West India Gardens.)—***Orchids of South Africa.*** By Harry Bolus. Vol. III. (London: William Wesley and Son.) Price £1 10s. net.—***Educational School Gardening and Handwork.*** By G. W. S. Brewer. (London: Cambridge University Press.) Price 2s. 6d. ne .—***Bulletin of Miscellaneous Information, 1913.*** Contents: List of Staffs in Botanical Departments at Home, and in India and the Colonies. (London: Royal Botanic Gardens, Kew.) Price 1d.—***South African Garden Practice.*** By Edward W. Griffiths. (Johannesburg: The Central News Agency, Ltd.) Price 2s.—***Plant Physiology.*** By Dr. Ludwig Yost. (Oxford: Clarendon Press). Price 2s. 6d.—***Albury Park Trees and Shrubs.*** Compiled by A. Bruce Jackson. (London: West, Newman & Co.).

ENQUIRY.

PRIMULA MALACOIDES AND SKIN IRRITATION.—Will any reader kindly inform me if Primula malacoides has been known to cause irritation of the skin? *W. F.*

Answers to Correspondents.

ASPARAGUS: *J. D.* A layer of sea sand 3 inches deep will be sufficient protection during the winter and a good stimulant for the plants. Nitrate of soda acts as a quick stimulant during the growing season, but its effects are not lasting. Special Asparagus manures are prepared and sold by the sundriesmen, and some of these give excellent results. Sewage water has a wonderful effect on Asparagus grown on porous soils, and should be applied about the end of March.

CORRECTION.—The premier exhibit of five blooms of White Wonder Carnations at the recent exhibition of the Perpetual-Flowering Carnation Society was shown by the Countess of Derby, Sunningdale (gr. Mr. W. J. Reed).

CYCLAMEN UNHEALTHY: *Wintonian.* The plants are attacked by eelworms. There is no cure for this pest; burn the affected plants and sterilise the soil by baking.

CYPRIPEDIUM WITH BROWN FOLIAGE: *M., South Wales.* The plant of Cypripedium Curtisii is badly infested with yellow thrips, and these seem to be the sole cause of the damage to the foliage, as the plant is strong, and was well developed in its earlier growth. It is advisable to destroy all plants similarly affected, unless they are specially rare. For a considerable time the plants must be sponged with a weak insecticide occasionally, allowing some of the specific to run down amongst the central growth, where the insect mainly lurks. That is probably the reason why you did not detect it. The insecticide you mention is suitable. Light fumigations occasionally will help to destroy thrips, but fumigations alone must not be relied on, for if sufficiently strong to kill the thrips the vapour would damage the plants.

GROS COLMAR GRAPE: *T. S. N.* There is no disease caused by fungus. The failure is due to some defective treatment that can only be determined on the spot.

GRUBS ATTACKING HERBACEOUS PLANTS: *B. Collins.* Both the caterpillars you send, though differing markedly in colour, are the larvæ of the common Cabbage moth, Mamestra brassicæ. Paris green is a fatal bait for this pest, but this poison cannot well be applied to border plants. Your only plan will be to search for the larvæ after dark and destroy them. Some of the caterpillars may be trapped by placing small pieces of turf under the plants which are usually attacked by the grub, as they will go into hiding beneath these, and then may be captured and destroyed. Care should be taken also when the borders are dug to remove all chrysalids and caterpillars, as these pass the winter in both stages in the ground.

INSECTS IN SOIL: *C. E. Taylor.* The insect infesting the soil in your herbaceous borders is one of the spring tails, Lipura armata. Do not use stable manure, but apply a dressing of soot and lime. You will probably find also that deep trenching will prevent the attack of these pests.

NAMES OF PLANTS: *W. R.* Fragaria indica.—*H. and Sons.* Probably a Brassica sp., but cannot identify in this condition.—*J. K.* 1, Phillyræa latifolia ilicifolia; 2, Rosa sericea Pteracantha; 3, Cytisus monspeliensis; 4, Euphorbia splendens; 5, Ruellia Portellæ; 6, Maranta zebrina; 7, Sequoia sempervirens; 8, Sequoia gigantea.—*U. Z.* Ornithogalum lacteum.—*Interested.* 1, Bidens grandiflora; 2, Rosa multiflora var.; 3, R. spinosissima var.; 4, Cotoneaster horizontalis; 5, probably an Erica—send when in flower; 6, Arbutus Unedo; 7, Escallonia rubra; 8, Spiræa salicifolia; specimen unnumbered, Rosa bracteata. *J. A. J. B.* 1, Pittosporum Tobira (not a Daphne); 2, Fuchsia thymifolia.—*E. W. P.* 1, Cupressus pisifera plumosa aurea; 2, Picea excelsa pygmæa; 3, Pernettya mucronata; 4, Cupressus Lawsoniana albo-spica; 5, Berberis japonica Bealei; 6, Cupressus pisifera filifera; 7, C. macrocarpa; 8, Thuya occidentalis aurea; 9, T. occidentalis; 10, Cupressus obtusa; 11, Osmanthus rotundifolius; 12, Thuya dolabrata.—*Smeaton.* Stapelia variegata. The plant is not a Cactus, as you suggest, but one of the carrion plants belonging to the Asclepiadeæ.—*A. C.* 1, Polypodium aureum; 2, Lastrea aristata variegata; 3, Cyrtomium falcatum; 4, Polystichum angulare; 5, Davallia canariensis; 6, Cotoneaster sp., probably C. horizontalis; 7, Swainsona galegifolia alba; 8, Blechnum corcovadense.—*C. R., South Wales.* Centropogon Lucyanus.—*H. H., Bornet.* 1, Oncidium flexuosum; 2, Brassia brachiata; 3, Sophronitis cernua; 4, Satyrium carneum.

PEST ON CARNATIONS: *A. E. S. N.* The injury is caused by the larvæ or maggots of a fly. Spray or dip the plants in an insecticide, and dust a little guano on the soil, as this will prevent the flies from depositing their eggs.

TULIP BULBS: *A. and Sons.* The rotting is caused by a fungus—Fusarium bulbogenus—which attacks the leaves first and works down into the crown of the bulb. The soil is evidently infected. Gas lime is the most certain means of destroying the fungus in the soil, but if not procurable quicklime and kainit may be substituted. It would be advisable not to plant bulbs on the infected land for at least one season.

Communications Received.—E. B. S., Puyallup, Washington (your letter has been forwarded).—H. and Son—W. R.—G. M.—P. H. R.—F. S., Millom—E. W. P.—Lieut.-Col. B.—A. T.—E. P.—R. D.—S. A.—G. J. N.—J. V.—T. H. G.—E. K.—R. A. M.—R. W. C. G. W. H.—W. H. A.—G. W. T.—W. G.—H. R. D.—A. C. H.—R. N.—W. H.—A. B.—Italy—J. V.—J. S., Fife—T. D. S.—W. J. F.—H. B.—A. M.—W. P. B.—A. W. C.—B. and Sons.

NYMPHÆA GALATÉE

A variety raised by M. Latour-Marliac.

THE
Gardeners' Chronicle

No. 1,408.—SATURDAY, DECEMBER 20, 1913.

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ILLUSTRATIONS.

WINTER NOTES FROM HYÈRES.

ON March 28, 1908, the *Gardeners' Chronicle* published an article based upon observations made by me at Hyères in the spring of 1907. The following notes refer chiefly to the Botanical Garden.

In November, 1912, there were several night frosts, and the acres of Violets close to the town were white with hoar frost in early morning. The Kidney Beans in the plain were immediately blackened and killed by the frost, but young Beans sown on the wooded hillside facing south escaped. They were protected from the north by the low hills covered with Cork Oak (Quercus Suber), Holm Oak (Q. Ilex), Pines and Olives. But perhaps the undergrowth, or *maquis*, which surround these cultivated patches on the hills, keep off the frost as much as the taller trees and the hills themselves.

These early frosts of 1912 gave rise to fears that the climate had been influenced by the terrible forest fire in the previous August, which destroyed an immense area of woodland and *maquis* on the hills between Hyères and the sea. The forests of Provence, and of this district in particular, were very ably described by Mr. Tansley in this journal in July and August, 1912.

In November few wild flowers remain, but of fruits and berries there are many. Of scarlet berries those of the Arbutus and Butcher's Broom (Ruscus aculeatus) are the most imposing. The latter interesting plant is already opening its blossoms in the centre of its leaf-like branches or cladodes. R. hypoglossum, with much larger and less prickly cladodes, does not flower until March. A native of Southern and Eastern Europe, its only known stations in France are in this district, where perhaps it is naturalised. The resinous and aromatic Lentisque (Pistacia Lentiscus), so common on the littoral, now shows its dull red clusters of small berries; and here and there the orange-red fruits of Osyris alba can be seen. This plant is interesting botanically, for it is almost the sole representative in Europe, with a few species of Thesium, of the rather large family of Santalaceæ. Among black berried fruits those of the Myrtle and Laurustinus (Viburnum Tinus) are seen in many places.

A species of Privet (Ligustrum), which the French call Troëne, is a small tree much planted in the streets and gardens of Hyères. It has leaves like those of Lilac, but longer, and its fruits are rather blacker than those of Laurustinus. The fruits are less beautiful than the graceful hanging panicles of dull pink berries on the Californian Pepper Tree (Schinus Molle), which is planted for shade and ornament, as in California and Australia.

Among the few wild flowers in blossom at this season of the year may be mentioned the blue Globularia Alypum, the sweet-scented Calamintha Nepeta, the pretty mauve Aster acris, and the yellow Inula viscosa. On the salt marshes the Golden Samphire (Inula crithmoides) still lingers, and the prickly Centaurea aspera can be seen in waste places until December. The small mauve flowers of Iberis linifolia, on wiry stems 2 feet high, lend a note of colour to some of the woods, while Calendula arvensis and Diplotaxis erucoides, two weeds of arable land, may be seen in flower throughout the year. Among rarer plants in bloom the first days of December is Thrincia tuberosa, which loves shady ground under the Cork Oaks. The roots consist of

Photograph by H. S. Thompson.

FIG. 149.—PHŒNIX CANARIENSIS IN THE JARDIN D'ACCLIMATATION, HYERES.

several thick tubers as large as small Radishes. But in early winter perhaps the prettiest and commonest flower in the woods and thickets is the Daisy (Bellis sylvestris). It is much like, and perhaps a sub-species of, the ordinary Daisy, but twice the size, and the under side of the petals is usually of a deep rose colour. Some blossoms are an inch and a half across on stems a foot high. Early in the spring the little white Bellis annua will take its place.

The Jardin d'Acclimatation at Hyères used to be in touch with both Paris and Lyon, and if one may judge from the fact that none of the splendid trees and shrubs are now labelled, it is unfortunate that connection ceased. The late Director, M. Nardy, died in April, 1912, and his widow now occupies his place. The fine specimens of Eucalyptus, mostly E. Globulus, in themselves make the garden worth visiting, for some of them were the first to be introduced into Europe, and they have grown marvellously. One tree, about 40 years old, is 17½ feet in circumference 5 feet from the ground, and has a spread of about 35 yards. Another, to the south of the garden, has a trunk almost as large, and a third, near the main entrance, is over 100 feet high, though much smaller in the bole. Young fruiting branches are cut off some of the trees for exportation to manufacturing chemists, who extract the essential oil from the leaves and young shoots.

Perhaps the most striking object in the garden is a group of five superb Washingtonia robusta about 50 feet high, the biggest measuring 8 feet in circumference. There is an avenue of these trees in the town, and though the trees are shorter, they are nearly as big in girth. In the background are good examples of Phœnix canariensis, which, with the taller P. dactylifera or Date Palm, are largely planted in the streets. They are frequently interspersed with the elegant Casuarina tenuissima, which is now covered with clusters of little green prickly fruit the size of small marbles. About the end of November the dead leaves and branches of all the Palms and other trees in the streets and public places are removed, in order to improve the growth in the following season.

Among the rarer or more interesting trees and shrubs in the Jardin d'Acclimatation are a fine specimen of Jubæa spectabilis, 30 years old, and about 25 feet high, with a trunk 12 feet in girth; two or three large Araucaria Bidwillii, one of which is perhaps 50 feet high, with a spread of 35 feet; a twin example of Phœnix senegalensis, the two trunks dividing immediately above ground; a beautiful silvery example of the rare Brahea Roezlii in fruit; a specimen of the Heath-like Melaleuca thymifolia, 25 feet high, with slender pendulous branches; fine pyramidal examples of Juniperus drupacea; a 30-year-old plant of the rare Cereus monstrosus, 10 feet high; and the Chinese Pittosporum Tobira, which is as common in gardens here as in those of Italy.* There are also good specimens in the open of Yucca filifera, 25 feet high, Yucca aloifolia, Agave americana striata, A. mexicana, Opuntia of several species, Dasylirion gracile, D. longifolium, Chamærops humilis, C. excelsa, Corypha excelsa, Dracæna indivisa, Ephedra altissima, Pinus maritima, and other ornamental plants, several of which are shown in the photograph (fig. 151).

There are hundreds of acres of Violets near Hyères. Many of the women and girls who pick them, for about two francs a day, are Piedmontese. In Paris these Violets fetch about 20 francs for 100 bunches, or 2½d. a bunch. The culture of a dwarf Jasmine is a comparatively new industry at Hyères, as at Grasse, the flowers being used largely in the manufacture of perfume.

The colouring of the vineyards between Hyères and Toulon and towards Marseilles is a glorious sight about the second week in November. Every tint, from gold through orange and vermilion to crimson and purple, is represented in a blaze of colour, and yet none of these tones ever clash with the rich colour of the fertile soil. *H. Stuart Thompson.*

Photograph by H. S. Thompson.

Fig. 150.—Peasants gathering violets at Hyeres: the tree in the background is Eucalyptus globulus.

* Mr. W. J. Bean noted several of these specimens in his article on Mediterranean Gardens in *Kew Bulletin*, No. 6, 1912.

SOME GARDENING EPITAPHS.

Adjoining Chatsworth, Derbyshire, the seat of the Duke of Devonshire, is the model village of Endesor, with its handsome church, erected on the site of an older structure by that great designer of religious edifices, Sir Gilbert Scott. The church and graveyard contain many memorials, and among these is one to James Brousard, a former gardener to the Duke of Devonshire, who died in 1762 at the age of 76 years:—

"Ful forty years as Gardener to ye D. of Devonshire,
to propigate ye earth with plants it was his ful desire;
but then thy bones, alas, brave man, earth did no rest afoard,
but now wee hope ye are at rest with Jesus Christ our Lord."

Over the gravestone of William Mather are the following lines, dating from 1818 :—

"When he that day with th' waggon went,
He little thought his glass was spent;
But had he kept his plough in hand,
He might have longer till'd the land."

In Wimbledon Churchyard is the grave of John Martin, a natural son of Don John Emanuel, a former King of Portugal. He came to England early in 1712, and after several changes of circumstances eventually became a gardener. That he achieved success in horticulture is clearly evidenced by his epitaph, which follows :—

"To the Memory of JOHN MARTIN, gardener, a native of Portugal, who cultivated here, with industry and success, the same ground under three masters, forty years.

Though skilful and experienced,
He was modest and unassuming;
And tho' faithful to his masters,
And with reason esteemed,
He was kind to his fellow-servants
And was therefore beloved.
His family and neighbours lamented his death,
As he was a careful husband, a tender father, and an honest man.

The character of him is given to posterity by his late master, willingly because deservedly, as a lasting testimony of his great regard for so good a servant.

He died March 30th, 1760. Aged 66 years.
For public service grateful nations raise
Proud structures, which excite to deeds of praise;
While private services, in corners thrown,
Howe'er deserving, never gain a stone.
But are not lilies, which the valleys hide,
Perfect as Cedars, tho' the valley's pride?
Let, then, the violets their fragrance breathe,
And pines, their ever-verdant branches wreathe
Around his grave, who from their tender birth,
Upreared both dwarf and giant sons of earth,
And tho' himself exotic, lived to see
Trees of his raising droop as well as he,
Those were his care, while his own bending age,
His master propp'd and screened from winter's rage,
Till down he gently fell, then with a tear
He bade his sorrowing sons transport him here.
But tho' in weakness planted, as his fruit
Always bespoke the goodness of his root,
The spirit quickening, he in power shall rise
With leaf unfading under happier skies."

This is an extremely good specimen of the narrative style of epitaph, while its distinctly professional note cannot fail to be noticed.

A former Rector of All Hallows, Bread Street, was a famous amateur gardener, a fact that has not been lost sight of by the epitaph writer who is responsible for his mural inscription, which may be seen in the church. Singularly enough, the Rector's name was Stocke, a circumstance that has provided the material for a pun. The inscription reads :—

"Thy lifeless trunk, O, Reverend Stocke,
Like *Aaron's* rod, sprouts out againe;
And, after full winters past,
Yields blossomes and ripe fruit amaine.
For why—this work of piety,
Performed by some of thy flocke,
To thy dead corps and sacred urne,
Is but the fruit of this old *Stocke*.

The following specimen of a punning epitaph is from Holy Trinity Church, Hull, and is inscribed on a slab in the floor of the north aisle of the nave of the "Worshipful Joseph Field, twice Mayor of this town," and a celebrated horticulturist. This worthy died in 1627, aged 63 years :—

"Here is a Field sown, that at length must sprout,
And 'gainst the ripening harvest's time break out,
When to that Husband it a crop shall yield,
Who first did dress and till this new-sown Field;
Yet ere this Field you see this crop can give,
The seed first dies, that it again may live."

The epitaph written on Mary Pyper, a well-known writer of sacred verse, and a passionate lover of flowers, a love that may be traced all through her poetry, is well worth recording, if only for the beautiful analogy on life and the seasons :—

"I came at morn—'twas Spring, and smiled,
The fields with green were clad;
I walked abroad at noon, and lo!
'Twas Summer—I was glad.
I sat me down—'twas Autumn eve,
And I with sadness wept;
I laid me down at night—and then
'Twas Winter—and I slept."

The epitaph on the Tradescants, father and son, the renowned botanists and gardeners, calls especially for mention :—

"Know, stranger, ere thou pass, beneath this stone
Lye John Tradescant, grandsire, father, son;
The last dyed in his spring; the other two
Liv'd till they had travell'd Art and Nature through;
As by their choice collection may appear,
Of what is rare, in land, in sea, in air;
Whilst they (as Homer's Iliad in a nut)
A world of wonders in one closet shut;
These famous antiquarians had been
Both gardeners to the Rose and Lily Queen,
Transplanted now themselves, sleep here: and when
Angels shall with their trumpets waken men,
And fire shall purge the world, these hence shall rise,
And change this garden for a Paradise."

Photograph by H. S. Thompson.

Fig. 151.—Succulent plants in the Jardin d'Acclimatation, Hyeres.

The monument was erected by Hesther Tradescant in 1662, the sculptures representing a crocodile, shells, etc., together with a view of some Egyptian buildings. At the corners of the tomb are trees worked in high relief. The stone fell into decay eventually, and was restored and repaired by public subscription in 1773. The "Rose and Lily" Queen of the inscription refers to Henrietta Maria, the wife of the unfortunate Charles I., to whom the Tradescants were both head gardeners. The father, who is reputed to have died about 1637, had previously held the appointment of gardener to Robert

Cecil, Earl of Salisbury, Lord Wotton, and the Duke of Buckingham. Soon after his entry into the King's service he established his famous Physic garden at South Lambeth, which was the first in England. It was situated on the east side of the South Lambeth Road, leading from Vauxhall to Stockwell, and the house was known as "Tradescant's Ark."

John Tradescant (1608-1662), the son, had early "gathered flowers, plants, shells, etc.," in Virginia for his father's collection at Lambeth. At his sire's death he succeeded him as Royal Gardener, and in 1656 he published his *Museum Tradescantianum*. He subsequently bestowed his valuable collection of botanical and natural history curiosities on Elias Ashmole, who in turn presented it to the University of Oxford, some years later. Among the trees and shrubs introduced by the Tradescants into England may be mentioned the Lilac, Acacia and Occidental Plane, beside others of lesser fame.

A mural verse, in which the Rose is specially singled out for the purpose of analogy, may be seen at Kilvarock, where it is set up to the memory of a gardener's wife :—

Here lies a Rose, a budding Rose,
Blasted before its bloom;
Whose innocence did sweets disclose
Beyond that flower's perfume.
To those who for her loss are griev'd
This consolation's given,
She's from a world of woe reliev'd,
And blooms a Rose in Heaven."

At Blandford, Dorset, the Lily has been treated the same way, under precisely the same circumstances :—

"See from the earth the fading Lily rise,
It springs, it grows, it flourishes and dies:
So this fair flow'r scarce blossom'd for a day,
Short was the bloom and early the decay."

A famous private gardener was John Baskerville, a native of Birmingham, where he was untiring in his efforts to cultivate and beautify his estate. This man so dearly loved his garden that in death he wished not to be parted from it. Dying in 1775 he was, by his own desire, buried in a specially prepared tomb erected within the confines of his much-loved estate. His epitaph is brief and frank :—

"Stranger,
beneath this cone, in unconsecrated ground,
a friend to the liberties of mankind directed his
body to be inurn'd.
May the example contribute to emancipate thy
mind from the idle fears of superstition,
and the wicked arts of priesthood."

In the churchyard of Charlton Kings, near Cheltenham, is this eulogistic inscription to the memory of a faithful and good gardener :—

"To preserve from immediate oblivion,
Neither honors nor riches,
The frail inheritance of uncertain life,
But that property
Which befits the possessor
To all eternity:
A grateful master placed this stone over the
remains of
(alas! how rare a character)
A Faithful Gardener,
THOMAS BALLINGER,
Whose soul quitted its earthly mansion on the
22d. day of August, 1789;
After giving life to it nearly 47 years.
Tho' o'er his humble grace no costly bust,
Or sculptur'd marble, points to titled dust;
An honest MAN, the noblest work of GOD,
He left his cares beneath this verdant sod."

At Epsom, Surrey, inscribed on the old-fashioned wood-rail tomb of Samuel Cane, one-time gardener to the Rev. W. Price, are these memorial lines. Cane died in 1782 in his 69th year :—

"Here lies a pattern for the human race,
A man who did his work and knew his place;
A trusty servant to his master dear,
A good companion, and a friend sincere;
In spite of bribes and threats, severely just,
He sought no pension, and he broke no trust;
Truth warm'd his breast, he liv'd without disguise,
His heart was grateful and his actions wise;
In him through life all social virtues shone——
O blush, ye great, by CANE to be outdone."

An epitaph to the memory of two Scottish gardeners may be seen at Grayfriars, Edinburgh. The inscription is a fair specimen of the epitaph biographical :—

"Two brethren Hendersons here lie below,
Sons to Alexander Henderson, Gardiner;
Struck in their Prime of Youth, by Death's sad Blow,
Richard could write and plead, Robert could cure.
Their Arts, Strength, Stature, seem'd them to secure
Longer from this Attack; But, we may see
Nothing impedes the Courte of Destinie.
Richard died 30 November, 1677. His age 33.
Robert Henderson died 21 June, 1680. His age 23."

John Symson, another Scottish gardener, is perpetuated by a monument at Linlithgow, on which are these lines :—

"Here lies the Corps of John Symson, who departed this Life, in the year 1695, March 19. Of his age 61.
He of *Drumcarro* Tennent was,
And, from this Life, to Death did pass;
In Credite, Peace, and Honestie:
An emblem of his Pietie."

The monument is beautifully sculptured, bearing a spade, shovel, yoke and coffin, while within a shield is written :—

"Here lies a gardener good enough,
Who gained his living by the spade.

In conclusion, we give the epitaph on Nathaniel Reuch, gardener, of Fulham, who died in 1783. The gravestone relates :—

"Under this stone
are deposited the remains of
NATHANIEL REUCH,
late of this parish, gardener,
who departed this transitory life
Janu. 18th, 1783.
Aged 101 years."

The claim to longevity appears to be ill-founded, for the evidence of the church register proves him to have been born in August, 1701. From this it appears that he would have only been 82 years of age at his death. It is interesting to note that Reuch was born and died in the same house, and was the father of 32 children. *C. Edgar Thomas.*

THE MAHOGANY TREE.

All are familiar with the wood of the Mahogany tree (Swietenia Mahagoni Jacq.), for it has been one of the most popular furniture woods for more than a century, but comparatively few people in this country know the living tree. And anyone purchasing new "mahogany" furniture in the present day cannot be sure that it is manufactured from the wood of this tree, for the timber of the true Mahogany tree has become scarce during the last 30 years, and there are now many substitutes on the market, chiefly of African origin.

S. Mahagoni is a native of the West Indies, Cuba, Colombia, Nicaragua, Florida, Hayti, and other countries situated about the junction of the two Americas. It has, however, been introduced to other tropical countries, and is giving good results in India. The illustration (fig. 152) represents a fine specimen as grown for decorative purposes in India: the photograph is kindly furnished us by Mr. Storey, of Sajjan Niwas Gardens, Udaipur. It cannot, however, be accepted as a good representative of the species as it grows in its native soil. Photographs of the tree in natural conditions show it to possess a tall, clean trunk with very large buttresses. Such trees may be from 50 to 90 feet high, with a trunk diameter above the buttresses of 6 or 8 feet, and a few massive branches. Really fine examples are now, however, rarely met with, and only at a considerable distance inland, all the finest trees in favourable localities having fallen under the axes of lumbermen. Neither leaves nor flowers are very imposing. The former are pinnate, 5 to 7 inches long, and made up of 4 or 5 pairs of ovate or ovate-lanceolate leaflets, each one of which is from 1½ to 2 inches long and up to 1 inch wide. The flowers are very small, white, and borne in small panicles. They are followed by rather imposing fruits. These, when mature, are 4 to 5 inches long and 2 to 3 inches wide. When ripe they divide into 5 sections, or rather the outer coat shells off in 5 regular parts, liberating the rather large, bright brown, winged seeds, and leaving the central, 5-parted core on the tree.

A closely allied tree, S. macrophylla King, is found in British Honduras. This is distinguished by its larger leaves and fruits, the former being up to 15 inches long, and the leaflets 6 to 8 inches in length. It is probable that lumbermen do not distinguish between the two trees.

The heart-wood of the Mahogany is of a rich reddish-brown colour, and the sapwood is yellow and of no particular value. Some logs are finely figured, and command a very high price for veneer. As a rule the buttresses produce much of the best figured wood. In the early days it was usual to fell the trees at a point well above the buttresses to save a certain amount of work. Now, when the true wood is scarce, these old butts are being worked by lumber firms. All the timber of this species did not, in the past, command a similar price, that from various countries, or ports, being more valuable than that drawn from other sources. That from San Domingo, Cuba, Jamaica, and Honduras has always been considered the finest quality.

J. R. Batterden, in *Timber*, p. 158, says that the first shipment of wood to this country was made in 1724. In that year a Captain Gibbons brought a cargo as ballast for his brother, a London doctor, who wished to use it for the indoor woodwork of a new house then under construction. The workmen, however, objected to it on account of its hardness.

Much of the African Mahogany is obtained from species of Khaya, a genus belonging to the same order as Swietenia—i.e., Meliaceæ. It is exported under many names, according to place where it has been cut or shipped. Thus, the following kinds can be found regularly about the Liverpool Docks: Benin, Sapeli, Assinee, Axim, Sekondi, and Gaboon. A considerable amount of the African Mahogany imported into Liverpool is exported again to the United States.

At the present time Mahogany varies considerably in price. It is always sold by the square foot one inch thick. Sometimes it does not command 2s. a foot, whilst well-figured logs have been known to realise between 6s. and 7s. a foot. It is used extensively for furniture, shop fittings, show cases, panelling, and many other purposes. In many countries considerable restrictions have of late been placed upon the cutting of trees, only those above a certain size being available for timber.

S. Mahagoni is well described and figured in Sargent's *Silva of North America*, vol. i., pp. 100-102. *W. D.*

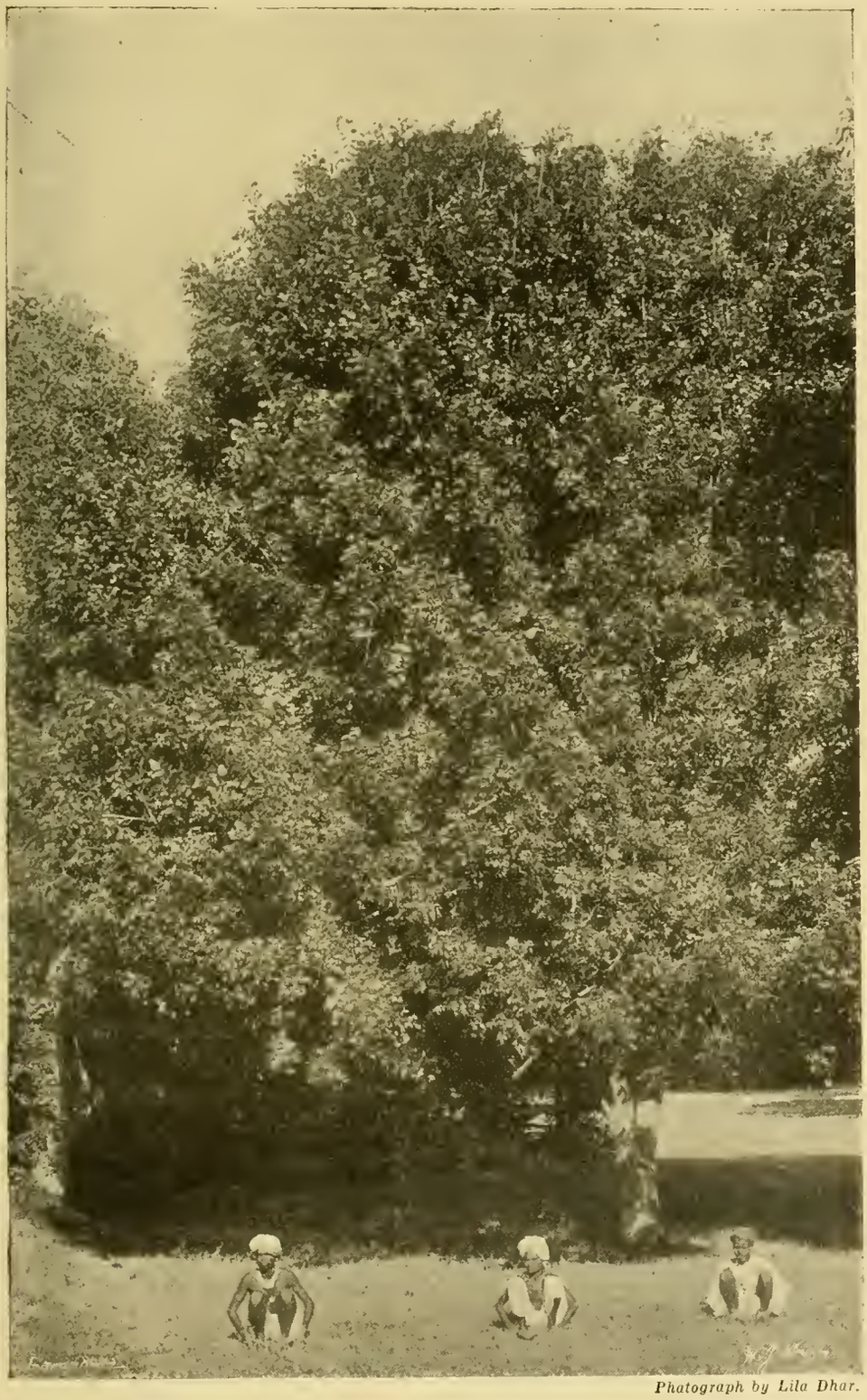
Royal Botanic Society's Secretary.—At a recent meeting of the Royal Botanic Society the President announced, with regret, the retirement of the Society's secretary, Mr. J. Bryant Sowerby. Mr. Sowerby succeeded to the office in 1895. His predecessors in the office were his father and grandfather.

THE ROSARY.

SOME HINTS ON PLANTING ROSES.

There are many details connected with the planting of Roses which, though small in themselves, may make considerable difference to the well-being of the plants, and even in some cases may, in their after-effect, make all the difference between success and failure.

I shall assume, in the first instance, that the beds are well made to a depth of at least 2 feet 6 inches, and sufficiently drained to prevent any chance of water-logging in heavy weather. There is one point I should, however, refer to even in this connection, and that is that where the beds are newly made the mere consolidation effected by, perhaps, a few weeks' rain and the trampling the ground receives at planting-time is insufficient—at least, where the soil is at all inclined to be light, and at some time before new growth commences further steps should be taken by stamping or ramming the soil to ensure a compact and solid root-run for the plants in the ensuing period of growth. Compact and solid growth is not to be expected with a loose and shifting soil, and though perhaps at first sight it may appear a paradox, yet I believe that the more carefully and thoroughly a bed is made the more careful and attentive should the Rosarian be to see that it becomes sufficiently solid and compacted together before the spring growth commences.



Photograph by Lila Dhar.

Fig. 152.—Swietenia mahagoni fruiting in Udaipur Gardens, India.

We may begin with the arrival of the plants from the nursery, for this is the way that the vast majority of plants come into our gardens. When they have been unpacked, the first thing to do is to examine the roots of the plants. There is a great deal of difference in the condition in which they arrive. From some nurseries they will come nicely puddled in clay, well protected from the air, with plump buds, and ready for immediate planting. From others the roots will be found hard and dry, as though they had been some time out of the ground, and the plants covered with flagging foliage. In this case some preparatory treatment is desirable. The greater part of the foliage should be removed, and the plants heeled into some moist soil—for example placed in a trench and even the tops lightly covered with soil, in which condition they may be left for a week or more if desired. If, however, although rather dry, their condition is not very bad, the plants may be put into a bucket of water for a few minutes and then planted. But whatever be the condition of the plants, at the time of arrival the weather may perhaps be not propitious, or there may be so many plants to be dealt with that it will be some time before they can all be planted, or immediate planting may be delayed for a dozen causes. In any of these cases heeling in for a time will be requisite. In doing this a little care should be practised. In the first place, all the straw or packing should be removed from the roots. It is far better to have the soil itself in contact with the roots than any packing. This may seem a superfluous warning, but on more than one occasion I have seen it to be necessary. Next a good and fairly deep hole should be dug, or a trench, if there are a number of plants, and after the plants are in place the soil must be carefully put back so as to cover all the roots, and well stamped down. Unless the plants are to be planted in the course of the day it is not sufficient merely to cover up the roots and leave the soil loose; and, lastly, it is wise not to put too many plants into the same hole. If they are spread out a little the roots are more easily brought into contact with the soil than when a number of plants are bunched into one hole.

Now we come to the planting. It is imperative to select a day when the soil is not actually frozen. I have before now planted in ground where the top has been frozen to the depth of an inch or so, carting away the frozen surface soil, and bringing in fresh light soil to replace it; but I have generally found the result rather unsatisfactory, and when frosty weather is anticipated, and we want to get the plants into their places, it is better to cover the beds beforehand with dry straw or litter in order to prevent it freezing. This often seems to answer well. The condition of the soil must also be considered. If it is very heavy and sodden with water it is very difficult to plant satisfactorily.

The tools and impedimenta for planting are not numerous. I use a large five-pronged fork for making the holes, a small light fork for filling in, and a box about a foot square, filled with bone-meal and containing a trowel for distributing it. The box should be fitted with a handle (a piece of string passed through two holes in the centre of opposite sides of the box answers very well). In my pocket I carry a two-foot rule, a pair of secateurs, a very sharp knife, and some string; a number of small bamboos about 2 feet long are also useful for marking out the exact place where the plants are to stand; and if we are planting in beds surrounded by grass, or if the soil be very heavy, a few short planks 6 feet or so in length are a convenience.

On arriving at the planting-ground, if more than two or three plants are being dealt with the first thing to do is to lightly heel in the

plants, and this should be done not in the bed to be planted, but in some other bed or piece of ground close to; or, if preferred, a damp mat may be thrown over the roots.

Next stake out the bed or border to be planted, using the short bamboos for the purpose, and measuring their distance apart with the rule. A bed or border 5 feet wide takes three rows of plants; one of about 7 feet will accommodate four rows. The beds or borders should seldom be wider than this. In staking out a bed it is usually sufficient to measure the distances of the stakes in the centre row or rows and the position of the four corner plants; the places for the rest of the bamboos can be judged by the eye with sufficient accuracy. In doing this it is a mistake to put the Roses very far apart, unless it is intended to peg them down; and even where this is intended, seeing that pegging down cannot or ought not to be attempted the first season after planting, it is often convenient to put in temporary plants and remove them when the permanent residents have grown and are ready for filling up the beds; 1 foot 6 inches between the plants is in most cases enough, but strong growers may have 2 feet. All being in order, make the first hole with the large fork, beginning with the end plant of the centre row and making the hole about a foot deep and 1 foot 6 inches square; scatter a trowelful of bone-meal in the hole, and a turn of the fork will mix it with the soil.

Next take the first plant from the ground or mat and examine it carefully, beginning with the stems; from these remove with the knife any damaged branches, and if they are very long—e.g., longer than a walking-stick—shorten the stems slightly so that they may not be disturbed by the wind. If not very long they may be left full length till the spring. Instead of shortening the long shoots, they may be secured to a 4-foot bamboo cane.

Next examine the junction of the plant with the root where it has been budded, and with a very sharp knife remove any part of the briar stock that may be projecting beyond the place where the Rose was budded and any dead or diseased wood.

Nurserymen vary very much in the way they prepare Roses for sending out. Some cut the old stump of the briar carefully away, others allow the old stump to remain sticking out, just as the plants were left when the budded briars were headed down in the previous spring. Roses should never be planted in this latter condition, but the stump should be pared off neatly. I usually employ my budding-knife for the purpose. It is the sharpest I have. Finally examine the roots. If they are all tufted, fibrous roots they may be left untouched. Very long roots should be pruned back, so also should hard, dry roots which have no root-fibres coming from them. The amount of pruning to be given to the roots varies with the practice of different operators within rather wide limits, some scarcely pruning the roots at all, others nearly always reducing them a good deal. In my own case I am guided entirely by the look of the plant and roots, but I believe there is little harm done in reducing the old roots even considerably. A long, straggling root is more likely to form suckers than to feed the plant, and I conceive that in most cases the roots of lifted Roses are not of any very great use to the plants until they begin to push out young, white rootlets. In cutting a root, always cut it on a slant, with the pointed edge of the root left so that when in position it will be downwards. I have sometimes thought that in moving Roses from one part of the garden to another those have ultimately done best where the roots have been somewhat heavily pruned, but I have no accurate observations on this point.

The plant is now ready to be placed in the hole, and, if it is a dwarf, be careful how it faces. It is well to remember that in nine cases out of ten it will grow more strongly in the direction taken by the side of the briar on which the bud was placed. This should be considered in planting the bed. Spread out the roots somewhat, but elaborate care is not necessary, and, holding the plant in position, draw the soil over the roots with the small fork; when the soil is loosely filled in give the plant a little shake, slightly pulling it upwards, to settle the soil and raise the roots somewhat so that they will be left pointing downwards; then proceed to stamp down or ram the soil well, consolidating it very firmly over the roots. When this is finished the plant will be left in the centre of a little basin, and that is filled up with the soil dug out in making the next hole.

How deep should a dwarf Rose be planted? The rule usually given is that the union between stock and scion should be 2 or 3 inches below the ground. I consider this rather deep, and if the union is an inch deep when the soil is raked level over it this will be enough. It is to be remembered that every spring, except the first after planting, we shall give the beds a good top-dressing, and therefore the Roses tend to become deeper each year.

On account of the inevitable movement which takes place in stamping the plant down it is not easy to get the plant exactly at the depth desired. I find a good rule of thumb is as follows: when loosely filling in the soil round the plant so arrange the plant as to have the junction of stock and scion just above the ground level. The trampling it subsequently receives usually brings it to about the correct distance below the surface.

The difficulty does not arise to the same extent in planting standards, for in this case it is a convenient plan to insert the iron stake to which the Rose is to be tied before putting the tree into the hole. The stake should have a hole at the top through which to pass the tying material, and the Rose can be tied at the right height before filling in the soil. The soil mark on the stem usually gives a good indication of the depth to plant standards.

When planting is finished do not put any manure round the stems of the Roses, but it is a good plan soon after Christmas to put a little fine burnt clay or light soil in the form of a little mound round each plant. In the case of Tea Roses this is always advisable. Finally, do not forget to go over the plants again a month or so after planting to re-tread and consolidate the soil round them. *White Rose.*

NOTICES OF BOOKS.

INDIAN GARDENS.*

OF Indian gardens and gardening far too little has been thought in England; nor have we cared to consider in this matter (as in many others) the profound debt that the West owes to the East in everything pertaining to beauty and good. But now Mrs. Villiers-Stuart has raised the veil for us, and forced us to understand how great a share the splendid traditions of India and Persia came ultimately to have in developing the garden-craft of Europe. Each country evolves, according to its landscape and climate, the kind of garden best suited to its inhabitants; and the Mughal Emperors of India, that brief and gorgeous dynasty, brought with them into the comparative flatness of their new country a taste that revolted against its necessities. None the less, temperament at war with circumstances produced, as usual, in its clash a beautiful result, and those great Emperors, working in sweeps of vast flat lines and parallelograms, were able to inspire these with life in the intensity of their own devotion to flowers as personalities. It is impossible for any modern gardener who is worth his salt not to feel a thrill of joined hands with long-dead Babar, that terrific Sovereign, as he reads in this book of the Emperor's love and longing for his Tulips and "the garden which was in all its glory," one day in spring, when he returned there for a day or two of rest and quiet; impossible not to realise the vitality of hands that are dust of two centuries, as we study the living frieze of blossoms carved in stone that still touch petals and dance in a ring of living spirits, Tulip and Iris and Anemone, round the greatest tomb in the world that ever love erected for love, the Taj Mahal set up by Shah Jahan the Emperor, for the immortal memory of Nur-jahan the Beautiful. So filled is this book with the scent of old regrets and lovely, vanished things that it is not easy, as one reads, to drag away one's mind upon the jog-trot road of comparisons; yet it is a matter of deepest interest to see how the gardens of the Mughal Sovereigns and their age (allowance made for the needs of life and climate) precisely echo those in England of the later Elizabethan day—though on a scale, of course, incomparably grander—for here are the same firm lines, the confinement, order, and splendour, yet within that order and confinement a riot of individuality and special plants and jungles of delight (in one miniature there is even a hint of a rock-garden), just such a wedding of liberty with restraint as afterwards the soulless eighteenth century forgot, losing sight of all else in pursuit of rigidity, even as the rampageous nineteenth swung to the opposite extreme, and forgot everything in its sedulous pursuit of weak anarchy. At the same time no modern gardener must read the book to learn of gardening; gone are the great Emperors, and all their Roses followed them into the dark land. Nothing remains but a memory, and the joys and regrets of vanished Sovereigns. Their huge garden spaces lie gaunt and bare and empty, except where English taste has remodelled them into something more positively terrible than emptiness. This book is a chronicle and full record of many such Paradises as once they were and now no longer are. It is, if anything, too full of plans and reconstructions of the irreplaceable; but a wistful pleasure to read, being reasonably light in the hand, of a comely, large type with fascinating reproductions of Mughal miniatures and photographs that adequately illustrate their objects, even if the colour-plates (though pretty enough) be a trifle weak and perfunctory—the conventional gilt paper in which all charm now has to be wrapped, if it is to be sold as an acceptable Christmas present. *Reginald Farrer.*

* *Gardens of the Great Mughals.* By C. M. Villiers-Stuart. (A. and C. Black.) 12s. 6d.

MOUNTAIN AND ROCK PLANTS.*

THOSE who are interested in Alpine and rock plants become accustomed to the large output of literature on the subject by M. Correvon; and because of his great experience as a collector and cultivator of these plants, and of his wide knowledge of the mountains, everything from his pen must necessarily arrest attention.

The present modest, unbound volume of about 500 pages of thin paper has no illustrations except a few wood engravings, from sketches of M. Fernand Correvon, most of which are rather feeble, though the little figures showing how to lay rocks properly have some value. Ten francs is somewhat dear for the book, even though it is published at Geneva and Paris, where books cannot be produced so cheaply as in Great Britain.

We are told in the preface that this volume may be considered as a condensed edition, with additions, of four previously published books by the author, but especially of *Les Plantes Alpines et des Rocailles*" (1895), which for some reason is omitted from the list of the author's books opposite the title-page of the present one. Probably in France and Belgium, where little has yet appeared on the cultivation of Alpine plants, this book will have a wide sale.

Though we have said so elsewhere, it is unfortunate that not a few French and Swiss books

* *Les Plantes des Montagnes et des Rochers: Leur acclimatation et leur culture dans les jardins.* By H. Correvon. (Genève, the author, and Paris, O. Doin et fils). 10 francs.

containing numerous English names are disfigured by the words not being correctly spelt. It is so easy to get them corrected in proof. The most amusing case in the volume before us is the title to fig. 13, Friar Parck's Rock garden (*sic*). We regret that we neither know the hybrid name of this Friar, nor the rock-garden he owns; but on p. 103 some light is thrown on the matter.

There are some very interesting chapters on plants in the mountains, their characteristics, their culture, and acclimatisation, etc. Few as annuals are, and necessarily must be, the statement that the only annual Alpine plants are a few Pedicularis and one or two Gentians must not be taken too literally. We are told that the finest Alpine plants usually grow in stony, sandy, unfertile soils; and species which are called "first colonisers," *i.e.*, those which first get established on glacier moraines, borders of torrents, and sands by the sea, are often the brightest or most striking. This is an interesting fact, the truth of which must come home to all who have seen plants grow in such places.

The chapters on wall-gardens and on special cultures (on Sphagnum, etc.) are very useful, and that by Dr. Rosenstiehl on lime-loving and lime-hating plants throws new light on a perplexing subject. No fewer than 260 pages are devoted to a long alphabetical list of hardy plants (many are *not* "mountain plants" nor rock plants) cultivated in gardens. Their original country or mountain range, time of flowering in Geneva or Paris, colour of flower, approximate height in centimetres, and other information, are given in a very concise form. Most of the genera and a few of the too numerous species are briefly described. The nomenclature is that of the *Index Kewensis*, subject to the stipulation that many species or varieties considered the same in the *Index* are quite separate and distinct in cultivation. We prefer the expression indigénat in the sub-title of this chapter to the word habitat used in the explanatory notes; for the habitat is not given, but "the principal territory where the plants are found wild."

In the chapter on "Floraire" we learn that M. Correvon's first garden was started in 1876 at Yverdon, and next year the first catalogue in French-Switzerland of Alpine plants acclimatised for gardens was published. The earliest attempt to make an Alpine garden in the mountains was in 1885, at a height of 2,200m., near the Hotel Weisshorn, above Val d'Anniviers. Four years later the rocky hillock above Bourg St. Pierre was bought for the Association for the Protection of Plants, and there our author started the well-known Jardin de la Linnæa, which is still perhaps the most picturesquely situated of the Alpine gardens on the Continent.

This very comprehensive book, dedicated to Prof. Bayley Balfour, ends with chapters on the Fernery, Terrestrial Orchids, Cactus and Lilies. *H. S. T.*

Rubber and Rubber Planting.*

Dr. Lock, who was until recently assistant director of the Botanic Gardens, Ceylon, has produced a valuable and eminently readable book on the cultivation and exploitation of rubber. It is indicative of the hustlefulness of our times that the rubber industry dates only from 1839, when Nelson Goodyear discovered the means of vulcanisation, that is of combining rubber with sulphur. The honour of discovering rubber rests with Columbus, who found the natives of Hayti playing "with balls made of the gum of a tree." The modern rubber-planting industry dates from the seventies of last century, when Sir Clement Markham proposed the introduction of rubber to India. Thanks to Markham, Sir Joseph Hooker, and the collectors Collins, Cross and Wickham seeds of Hevea arrived at Kew in 1873. Under Thwaite's direction a plantation was made at Henaratgoda in Ceylon of 2,000 plants sent out in Wardian cases. These were Wickham's seedlings, all that remained of 70,000 seeds collected with difficulty in Brazil. Tapping of the trees of the Henaratgoda plants was begun by Dr. Trimen in 1881, and the results were sufficiently successful to lead Trimen to predict a profitable future for Ceylon rubber. When the ruin of the coffee industry overtook the Ceylon planter some attention was paid to rubber, but tea was first favourite. So late as 1890 there were only about 300 acres under rubber; but in 1900 the area had increased to 1,750 acres. Steady expansion followed, so that by 1904 11,000 acres were under rubber. Then came the boom, and in two years the area was increased eight-fold. In Malaya the rate of plantation was even greater. Virgin forests were cleared with amazing haste, till by 1912 there were 420,000 acres given over to this crop. To-day in different parts of the world there are upwards of a million acres devoted to the cultivation of the various rubber-producing plants.

The price of rubber—a sore subject just now—appears to be as elastic as the substance. In 1871 fine hard Para was 3s. a pound; in 1878, 2s.; in 1883, 4s. 4d. It rose from 2s. 6d. in 1885 to 5s. 8d. in 1905. It shrank in 1908 to 2s. 9d.; but stretched to 12s. 9d. in 1910, since when it has steadily shrunk. Of the many rubber-yielding plants, lists and descriptions of which are given in Dr. Lock's pages, the most important are Hevea brasiliensis and other species of Hevea (Para rubber); Manihot Glaziovii (Ceara), which flourishes in a drier climate up to an altitude of 4,000 feet; Castilloa elastica (Ule rubber), which is found from S. Mexico to Peru; Parthenium argentatum (Guayule rubber), of the deserts of N. Mexico; Funtumia elastica (Lagos silk rubber), of Africa. Other African rubber plants are Landolphia owariensis, Ficus Vogelii, etc. Asiatic rubbers include Ficus elastica, which is falling into disfavour; the climbers include Willughbeia species, Parameria glandulafera, and other genera. Dr. Lock devotes considerable attention to the physiology of the latex, the source of rubber; but is not able to say that it fulfils any other function than that of protecting wounds from attack by insects and other enemies. The effects of the different systems and periods of tapping are considered in detail, and full records of the Ceylon experiments, in the conduct of which Dr. Lock played a large part, give great val to his account of this all-important part of the subject.

The remaining chapters deal with the planting and harvesting of Hevea, factory work on the estate, pests, the chemistry and manufacture of rubber goods. The book will well repay the attentive reader, whether he be botanist, prospective planter, rubber estate manager, or even an investor in plantation shares; for although Dr. Lock is properly silent on the subject, the investor may obtain from his pages information which may help to guide him in his present somewhat gloomy path.

* *Rubber and Rubber Planting.* By R. H. Lock. Cambridge University Press. 5s. net.

MICHAELMAS DAISIES.

SELECTION OF VARIETIES.

During the last twenty years a vast improvement has taken place in the varieties of the Michaelmas Daisy. Formerly the weedy growth of Pulchellus in the Novæ-Angliæ section, with its 6 feet of stem and tuft-like bunch of bloom at the top, was far from presenting a beautiful or ornamental appearance, and the Novi Belgii section, whilst it showed a slightly improved form of growth and greater freedom of flowering, produced no varieties such as we have at present, which grow 6 feet high, and begin to flower 12 inches or less from the ground. In the best modern varieties side branches are borne almost from the bottom of the stem to the apex, each branch bearing its full complement of flowers. Such a plant forms a handsome specimen, filling a space of 4 feet or more in diameter. Such varieties require much more space than the older varieties; indeed, it has become the custom to devote a part of the garden—for instance, a wide border—entirely to this flower, and with excellent results. When grown together in sections or in a blend of colours (taking care to keep those of similar habit together, so that the tall may not overshadow the dwarf varieties) a very handsome display may be secured, and also a good opportunity for comparing the varieties. The plants should not be allowed to grow on undisturbed for long, but need lifting, dividing, and replanting every other year at least. Early in March is a good time to replant, unless the soil is very light, in which case October or early November will be found the most suitable time. Deeply-trenched, well-manured soil suits Michaelmas Daisies, and the roots need copious supplies of water, especially during July and August. A nightly overhead syringing during warm weather will be found to do good, and will help to ward off attacks of mildew—a troublesome and very injurious pest, which is especially harmful in the month of September, just before the expansion of the blossoms. The proper support of the stems is a very important point. In the case of varieties of a somewhat drooping or weeping nature, such as the Hon. Edith Gibbs, each of the three stems on each plant should have a stake to itself, fixed in an outward-slanting position, so as to allow space for development. The following is a brief selection of varieties which flower during September and October:—

Day Dream is a freely-flowering white variety. Lady Lloyd is a soft pink, freely-branching plant; Silver Queen and Victory are both pure white. Sirius is erect in growth, and bears a profusion of pink flowers. Grace Mary Lewis is rich blue in colour; Miss Bennett bears blossoms of a medium size, pale pink slightly touched with blue. Bianca bears large sprays of pure white flowers; Chastity is also white, with an attractive habit of growth. Climax bears very large blossoms, fully 2 inches in diameter, of a bright violet colour; the foliage is also larger than usual, and the variety is an excellent one for supplying cut flowers. Desire has smaller leaves, but produces innumerable white blossoms, and is a very fine variety. Grey Dawn is a dainty variety, with flowers of lavender-blue. Lustre bears semi-double blossoms of a rich, rosy lilac; while the flowers of Novelty are a paler shade of lavender, with a faint pink blush. Ringdove is a rosy-lavender variety; St. Egwin is of a dwarf habit of growth, the flowers being a soft rose colour. Star Shower bears creamy-white blossoms; Sweet Lavender, as the name implies, is of a pure lavender hue. Enchantress is blush-pink, with a yellow centre, which changes to dark brown. Avalanche is a pure white seedling variety, with a distinct yellow eye, derived from Climax, but perhaps more compact in growth. Amethyst is rich blue with slightly-quilled florets. Blue Beard, like Avalanche, is a Climax seedling, in colour rosy-lavender. Little Bo-peep is silvery-blue with a dark disc. Profusion is pure white when young, but assumes a rosy-pink hue later. Lovely is blue with a rosy suffusion; Damosel is a rich purplish-blue. Golden Spray has white flowers with a rich yellow disc; Simplicity is pale blue, and Ophir white suffused with pink. Gaiety is white flushed with a rosy tint of lavender. Vaga is lavender-blue, Rapture pale rose, and Finchley may be considered the finest early white; while White Spire is perhaps the finest late white variety. Feltham Blue bears flowers of a fine lavender-blue. Lil Fardell is a silvery-rose, Mrs. Twinham soft pink, and Mrs. Frank Brazier clear blue. Miss Southall is a very tall-growing variety with large blossoms of a rich lilac-mauve. Mrs. J. G. Day is rose-pink. Dan Clarke bears flowers of porcelain-blue with a deep yellow disc.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

DENDROBIUM.—It is advisable to examine periodically plants of Dendrobium that are resting, for a number are on the point of sending up their flower-buds, and such specimens should be placed in a slightly warmer house, where the temperature at night is about 55°. They may remain in the warm house until the flowers become prominent, when they should be removed to the East Indian house or plant-stove. Apply water at the roots with great care, and at comparatively long intervals, for any undue excitement at this period may cause the growths that are visible at the base of the pseudo-bulbs to develop at the expense of the flowers. These remarks are particularly applicable to such species as D. Wardianum, D. crassinode and their hybrids.

CŒLOGYNE CRISTATA.—This well-known species and its varieties are now showing their flower spikes, and in those collections containing several specimens of each variety a long succession of flowers can be maintained if one or more of them are placed in a slightly higher temperature. At this period the cultivator should guard against over-watering the plants or sprinkling the bloom spikes, as the flower buds are liable to decay if moisture accumulates about them. A careful watering with weak liquid cow-manure, if the compost is sufficiently dry, may be given to well-established plants just previous to opening their flowers. These useful winter-flowering Orchids will succeed in almost any house where an intermediate temperature is maintained. They appreciate a light position at all times, and at this season will enjoy direct sunshine; when too much shaded the flower spikes are often deficient in size and quality. C. c. Lemoniana is easily distinguished from the typical C. cristata by its Lemon-coloured centre. C. ocellata maxima and C. elata are also pushing up their flower spikes, and need to be copiously watered till the flowers fade. C. flaccida, C. Massangeana, and C. tomentosa, being at rest, need but very little water at the root before the flower spikes appear or growth recommences. Such species as C. Rossiana, C. Cumingii, C. graminifolia, C. sulphurea, and the rare C. Mooreana that have bloomed recently may be repotted if they require it. C. miniata now flowering in the Cattleya house is a pretty and interesting species, with small, bright-red flowers.

EPIDENDRUM.—E. Wallisii is an old favourite that is nearly always in bloom. At the present time the plant is producing new growths, and repotting may be given attention. Being a free-rooting species it requires rather large pots, but they should be well drained to rather more than half their depth with clean crocks. The compost may consist of equal parts of Osmunda-fibre and Sphagnum-moss, both materials being cut up moderately small and well mixed together, making the soil quite porous by adding some small crocks. E. Endresii is a lovely species of small growth. After flowering this plant, too, may be repotted, using the same kind of compost. It should be well supplied with water at the root always, and be kept in a rather damp, shady corner of the house, but in spite of the damp position red spider often infests the undersides of the foliage, which if not quickly detected and cleaned off will soon cause the leaves to change colour and fall away, and when these are gone the plant rarely recovers. E. Endresio-Wallisii, E. Clarissa and E. elegantulum all require similar treatment and attention. E. inversum, E. cochleatum, the tall-growing C. Harrisoniæ, E. diffusum, E. radiatum, E. punctiferum, and E. variegatum, now flowering in the intermediate house, are interesting and curious species. E. Friderici-Guilielmi is a showy plant, and the white-lipped E. leucochilum is certainly worth growing. The young shoots of both species have made considerable progress, and fleshy roots are pushing out from their base. This is a critical time for them, for if watered too heavily before the roots are well into the compost, they are liable to turn black at their points, and make no further progress. The autumn flowering varieties of E. vitellinum have passed out of bloom, and the plants being at rest should be placed in the cool-house, and be kept rather on the dry side, while plants of the spring-flowering variety are now finishing up their new growths, and some are already pushing up flower spikes. During cold weather they should be arranged in a light position in the intermediate house, and be kept well supplied with water till the flowers open, when the quantity should be gradually lessened.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

AUTUMN-FLOWERING PLANTS.—Most of these have completed their flowering, and it is advisable to reserve a few of the best specimens of such subjects as Salvia splendens, S. Pitcheri, Clerodendron fallax, and Heliotropes for stock purposes. Do not shorten the shoots too severely, rather allow them to remain with as much foliage as possible until the turn of the year, when better and stronger cuttings will be available. Plants of Bouvardia that have finished flowering should be removed to a cool house or pit. If cuttings are required the oldest plants should be cut back and brought into a warm house. Bouvardias may also be propagated by dividing the roots and treating them in the same manner as advised in a previous calendar for Plumbago capensis.

BULBOUS FLOWERS.—Where a continued supply of cut blooms is required, batches of Narcissus, Tulips, and Roman Hyacinths should be placed into heat at intervals. Berlin crowns of Lily-of-the-Valley should be grown in a strong bottom heat in a dark chamber where the atmosphere is kept damp. It is advisable to retain some of the old plants that have been forced to furnish foliage, which is sparse on the early batches from Berlin crowns. Roman Hyacinths that have furnished first blooms may, provided the foliage has not been cut, also be placed again in heat, when they will develop a second crop of smaller side spikes.

HERBACEOUS CALCEOLARIAS.—Plants that require potting should be attended to at once and not allowed to become pot-bound. First examine the plants for the presence of green-fly, and in any case fumigate them, as they are very subject to this pest. The compost should consist of good loam mainly with leaf-mould, coarse sand, a little mortar rubble, decayed cow-manure and wood-ash added. The soil should not be rammed too firm. The foliage is very brittle and easily damaged. Therefore great care must be taken in potting. Stand the plants in a cool house or pit free from frost, and gradually increase the temperature to bring them into flower as required.

CYCLAMEN.—Plants that are on the point of blooming should be placed in a greenhouse where the night temperature is 50° to 55°. After they are housed they should be fumigated to destroy insect pests, and the roots fed on frequent occasion with artificial manure and liquid cow-manure. Seedlings raised this autumn should be grown on as advised previously.

FUCHSIA.—Cuttings of Fuchsias inserted early in the autumn should be shifted into larger pots, using a compost consisting of rich loam and leaf-mould in equal parts mixed with a suitable quantity of coarse sand, decayed cow-manure and wood-ash. If intended to be grown for standards, place the plants in a house having a warm temperature, so that they may grow to a suitable height early, thus assuring a longer period for the production of fine, large heads. Those intended for bush plants may be grown on in a cooler temperature such as an intermediate house affords.

RHODODENDRON INDICUM (AZALEA INDICA).—Plants required for flowering during the early months of the year should be placed in a house having a night temperature of 45° to 50°, until the buds show signs of bursting, when the most promising specimens should be placed in a strong bottom heat in a forcing house. Before starting the plants it is advisable to dip them in an insecticide and to keep them well syringed overhead with clear water.

THE HARDY FRUIT GARDEN.

By B. GOODACRE, Gardener to Sir ERNEST CASSEL, Moulton Paddocks, Newmarket.

MORELLO CHERRIES.—When trained either as fan-shaped trees on north walls or as pyramids in the open, Morello Cherries require to be pruned differently from the Sweet Cherry. The fruit is borne almost entirely on young wood of the current season. Wall trees should have the young growth thinned slightly, retaining, where possible, side growths and cutting away the foreright ones. Old wood may be cut out entirely if there are young shoots to furnish the space. With regard to pyramid trees, the young shoots may be thinned, cutting out those that cross each other or that grow towards the centre of the tree, retaining the others to their full length.

FILBERTS AND COB NUTS are suitable trees for growing on poor, stony land. They succeed where fruit trees fail, and do well—provided attention in such matters as pruning is not neglected—by the side of streams or in partially-shaded positions, such as under woodland. Cold winds early in spring are often the chief cause of the failure of the nut crop, therefore plant if possible in the shelter of tall hedges or walls. Nut bushes require to be well pruned and manured annually. Suckers afford the best method of propagation, and when planted they should be cut down to within 12 inches or 18 inches of the ground level. This will result in from four to six branches developing, and these must be again shortened next year to 6 inches. The centre of a nut tree should always be kept clear and open by training the tree in a goblet shape, using stakes, if necessary, to train the branches. As the tree continues to grow the leading growth of the main branches should be shortened yearly to about 12 inches or 15 inches, according to the vigour of the tree. When the tree has reached a desired height, say 6 or 7 feet, all lateral growths and old fruiting wood should be well shortened, but leave those bearing catkins their full length. The ground should be kept clear of sucker growths, and a top-dressing of manure applied annually. Nut trees that have received no attention will repay for a little care even now. Remove suckers and weeds, thin the under and cross branches, and in the case of much-neglected trees, cut them down to within 2 feet of the ground and train up fresh growth. Trees treated in this manner should be thinned severely early in the summer, and trained somewhat in the same manner as advised for young plants. When the work of pruning and clearing the ground is completed dress with well-decayed, farmyard manure, and lightly fork the dung into the surface. This method will soon result in a great improvement in the quality of the nuts. The best nuts for dessert purposes are the Cosford and Kentish Cobs, and Red and White Filberts.

AUTUMN-FRUITING RASPBERRIES.—These fruits have been a great success this season; a week or so ago we were picking a quantity of good, clean berries daily. No other variety can compare with Queen Alexandra for late and certain cropping. It well repays for the trouble to lift the stools annually, and this work should be done whilst the weather remains favourable. Plant in open ground, for when grown in confined quarters Raspberries frequently damp and develop a musty flavour. The soil should be dug a full spade deep, working a fair amount of well-rotted manure into the ground. It is advisable to plant on a fresh site annually, therefore the canes should be lifted and replanted. Set each clump well apart to permit of the full develop-

ment of the young growths from the bottom upwards, for then fruit will be produced from even the lowest buds. Do not cut out the older canes for another month, more especially if the fruit is required as late in the season as possible.

THE KITCHEN GARDEN.

By John Dunn, Foreman, Royal Gardens, Windsor.

Lettuce.—Make a sowing at once of some early variety of Lettuce in boxes in a slightly heated pit. When the young plants appear place the boxes close to the roof-glass and admit air freely during times of mild weather. The young plants should be pricked out as soon as they are large enough to handle. May King, Golden Ball and Pioneer are good Cabbage Lettuce for early supplies, whilst Mammoth White Cos may also be selected.

Early Peas.—In gardens where it is not convenient to sow Peas under glass for planting out in spring a small sowing may be made on a warm, south border as soon as the soil is in a suitable condition. Provided the ground was trenched in the autumn no further preparation of the soil will be necessary now beyond making the trenches, which should be about 6 inches deep. Place the excavated soil on the side from which cold winds may be expected in the spring, for although the seedlings will withstand a few degrees of frost, cold winds are harmful and would soon destroy the plants. None but hardy varieties should be selected for this crop. At Frogmore we grow the Pilot for early supplies. This is a very hardy variety, producing pods as large as those of Gradus and stems about the same height. Last season our first sowing was made on December 30, and the first pods gathered on June 7 in 1912. The first supplies were gathered from this variety on May 25 from plants raised from seed sown on January 1.

Early Winter Broccoli.—The mild weather has caused these plants to make a very succulent growth, and unless measures are adopted for their protection the first severe frost will prove very harmful to them. It is advisable to lift as many plants as possible when the heads are about the size of a penny, and place them in double rows so that a protective covering can be applied easily in times of frost. Care should be taken to retain as much soil as possible on the roots of each plant. Mats and dry Fern litter provide suitable materials for the purpose. The covering should be removed as soon as the weather becomes mild again.

Parsley.—All decaying leaves should be removed from Parsley to allow plenty of light and air to reach the plants. Endeavour to produce as much hardy foliage as possible so that the plants may be capable of withstanding a few degrees of frost. Some covering material should be provided in times of snow. Hurdles covered with clean straw or dried Fern fronds will answer the purpose well. Parsley in pits should be left uncovered by the lights for as late in the season as possible, and leaves gathered from the plants whilst supplies can be obtained from plants in the open

Winter Spinach.—Remove decaying leaves and stir the ground between the rows frequently. Overgrown leaves should be picked whether they are required for use or not.

Cauliflowers.—Plants in cold pits should be afforded all the fresh air possible during mild weather. If the plants are well established the lights may be removed from the pit every morning in order to keep them stocky. Any plants remaining in the seed-bed should be pricked out carefully into cold frames. These may prove valuable for successional cropping.

French Beans.—If pots and space are available make a sowing of French Beans to afford supplies about the middle of February, when choice vegetables are scarce. If the seeds are sown in 7 inch pots, and placed in a temperature of 60° to within 18 inches of the roof-glass, there need be little fear but that pods will be ready for use by that time. The soil may consist of three parts rich loam and one part decayed horse manure. Fill the pots with soil to within 2 inches of the rim, leaving room for a top dressing when the plants are a few inches high. The Belfast and Progress are two good varieties for present sowing.

Seed Potatos.—Tubers intended for planting early should be placed in shallow trays as soon as possible, so that stocky shoots may be produced before the sets are placed in the ground. All weak growths should be rubbed out, leaving only one or two stout breaks on each tuber.

THE FLOWER GARDEN.

By Edward Harriss, Gardener to Lady Wantage, Lockinge, Berkshire.

Newly-planted Roses.—Strong winds will sometimes cause recently-planted Roses to become loose in the ground. Make an examination of the plants occasionally, and, if necessary, press the soil around about the roots with the foot. Should severe weather set in lose no time in protecting the more tender varieties, and more especially any that have been recently planted. Closely-made hurdles are splendid for screening Roses from cold winds. If it is intended to plant Briar stocks for budding purposes now is the best time to do the work. Suitable wildlings may often be found in the neighbourhood. Roses and Brambles which have been planted in the woodland must be pruned and trained annually. Climbing varieties may be employed for covering bare stems of old trees. The plants will require an annual top-dressing of some rich materials, as in such positions the soil soon becomes exhausted. Brambles which have been allowed to grow at will may be cut down to the ground level.

Box Edgings.—The planting of Box edgings may be carried out any time during the winter months when the weather is favourable. It may not be generally known that for ordinary purposes the common tree Box may be used as an edging. Some of the most successful Box edgings in these gardens were raised from cuttings taken from the common Box. The cuttings should be taken from plants in exposed situations. Gaps in Box edgings may also be filled up in the same manner.

Carnations.—It is not unusual for Carnations out-of-doors to be injured by rabbits and other animals when food is scarce. The best protection is to surround the beds with wire netting, but where this is not practicable light dustings of soot will help to keep the creatures away. After times of frost the plants should be examined, as the ground may become loosened and the roots exposed. A handful of dry soil from the potting shed will be beneficial in these circumstances. A few coal-ashes placed around the collar of each plant will be effective in warding off this trouble, besides which they will act as a deterrent to slugs. Plants wintering in pots in cold frames must be examined occasionally for water. Specimens plunged in ashes will not need water for nearly the whole winter.

General Remarks.—When the weather is unfavourable for outdoor operations old stakes may be sharpened and tied in their respective sizes ready for another season. Labels may be painted, and, in some cases, the names written. Potting materials may be got ready and placed in a dry shed; pots washed and graded ready for use. Specimen plants in tubs, such as Pelargoniums, Sweet Verbenas, Agapanthus, Bays, and Myrtles must be examined occasionally to see if they need watering. Although the roots require very little water during the winter months, the soil must not be allowed to become dust dry. Seeds harvested in the autumn should be cleaned and stored in a cool, dry place, taking care to write the name on each package. Plants which have been covered with Bracken Fern or similar material for protection against frost must be examined at intervals, for it is possible that during times of mild weather some may start into growth. The protecting material should be removed or drawn aside whenever the weather is very mild.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith Palace, Midlothian.

Figs in Pots.—Pot Figs that have been started into growth to furnish early fruits should be afforded a mild bottom heat of 70° to 75°. Plunge the pots in a bed of fresh leaves mixed with a very little stable litter, renewing or adding fresh materials occasionally. By the use of the hot-bed it will be possible to maintain a suitable degree of warmth without much fire-heat, and this will be more favourable to the trees breaking into growth and to the embryo fruits. The night temperature of the house should be 55°; during the daytime it may rise 10 or more degrees higher with sun-heat. Syringe the plants moderately on bright days early in the morning, and water the roots with tepid water. Plants that have filled their pots with roots should be fed with diluted manure water. Trees planted out in successional houses may be started by closing the house, using only sufficient artificial warmth to maintain an atmospheric temperature of from 45° to 50° at night, according to the weather. When the trees burst into growth the temperature may be raised to 55° or 60°. If the borders are narrow and filled with roots they should be watered with liquid manure and top-dressed with artificial stimulants and farmyard manure.

Grapes.—Bunches intended to hang on the vines until the end of the present month should be examined carefully for the presence of decaying berries Early forenoon is the best time to dry the air of the house, for only very little fire-heat should be employed at night. By the end of December all Grapes should be cut from the vines, and those not required placed in an airy fruit room with the stalks in bottles of water.

Pot Vines Plants now breaking into growth may, on mild nights, be afforded an atmospheric temperature of 60°, with 5° less on cold nights. It is no advantage to force the vines hurriedly during the shortest and coldest days, for growth will be rapid when the days are longer and the sun's rays more powerful. If the pots are plunged in fermenting materials fresh litter may be added to obviate the use of much fire-heat. Syringe the vines and damp the house on bright days, but guard against over-watering the roots until growth is more active.

Cucumbers.—Cucumbers in winter need careful attention. Water should be very sparingly applied to the roots. A close, damp atmosphere favours the spread of spot disease, therefore, when the weather is favourable, a little ventilation should be permitted each forenoon at the roof and less atmospheric moisture promoted. When roots appear on the surface of the soil cover them an inch deep with turfy loam mixed with manure from a spent Mushroom bed. High temperatures from the hot-water pipes must be prevented. It is better to place some covering material on the glass roof during cold nights, when a night temperature of 60° to 65° will be sufficient. On mild nights the thermometer should register 70°. Seed may be sown singly in small pots, and the latter plunged in bottom heat. Place the seedlings close to the roof-glass in a warm house. The plants will fruit in the spring, and provide a succession to the winter plants.

Walnut and Oak Hybrids.—In a recent report of the University of California Agricultural Department, we read the following:—"Since 1907 Professor Babcock has carried on an investigation of a new form of Californian Black Walnut. In studying the origin of this form it seemed desirable to attempt to produce hybrids between Oaks and Walnuts. . . . Therefore crosses were made in 1908-9-10-11 between Quercus agrifolia and Juglans californica, and as a result there are now growing seedlings from nuts produced from female Walnut flowers pollinated with Live Oak (local name for Q. agrifolia) pollen under bags. . . . About 40 of the 1908 crosses bloomed at the age of four years, and seed from self-pollinated second generation seedlings will be grown in 1914."

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Letters for Publication, *as well as specimens of plants for naming, should be addressed to the* **EDITORS**, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 38.5°.

ACTUAL TEMPERATURES:—

LONDON, *Wednesday, December* 17 (6 p.m.): Max. 48°; Min. 45°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London. *Thursday, December* 18 (10 a.m.); Bar., 29.7; Temp. 46°. *Weather.*—Dull.

PROVINCES.—*Wednesday, December* 17; Max. 45°, Shields; Min. 41° Aberdeen.

SALES FOR THE ENSUING WEEK.

MONDAY—

Rose Trees, Shrubs, and Lilies, at Stevens's Rooms, 38, King Street, Covent Garden, W.C.

Bulbs and Herbaceous Plants, at 12. Palms and Plants at 1.30, at 67 and 68, Cheapside, E.C., by Protheroe and Morris.

National Rose Society.

At the annual meeting of the National Rose Society, held on the 11th inst., Mr. Mawley, the secretary, was able to give a very good account of the position of the Society, both with respect to finance and general progress. More new members joined the Society than in any previous year, and for the first time in its history the number of members exceeds 6,000.

Four shows were held during the year. In order to encourage Rose-growing under glass a Spring Show was held at Westminster on May 1, and considering that it was the first exhibition of its kind ever held in this country, and that the weather was unpropitious, it was to be regarded as a success and promised to become extremely helpful and popular.

The Summer Show at the Botanic Gardens on July 4 proved the largest and finest exhibition that the Society had ever held, and the Provincial Show at Gloucester, on July 15, was larger than any of the three previous Provincial Shows. On the contrary, the autumn exhibition held at Westminster, on September 11 and 12, was disappointing, doubtless owing to the dry weather. The publications of the Society during the year consisted of the *Rose Annual* for 1913, sent out in April, and the *Official Catalogue of Roses*, distributed in November. In moving the adoption of the report, the president, Mr. C. E. Shea, mentioned that some had criticised as unwise the practice of the Society in sending to every new member all its current publications. It was said that anyone might join the Society, and after obtaining all its publications forthwith leave them, but he did not believe this would be so. The Society had published much in the past, but it was likely to issue still more and better literature in the future.

Of the value to the Society of its publications there can be little question, and one of the pleasantest proofs of the appreciation of the public has been that for some time past each new issue has been followed by an accession of new members.

Like other societies, the National Rose Society has not escaped difficulty in defining the status of an amateur. Under the previously existing rules no one was allowed to show in the amateur classes who sold Rose plants, Rose blooms or buds for budding, except when giving up the place in which they were growing, or in the case of new seedlings or sports. The Council now proposed to alter the rule so as to prevent a person from competing as an amateur who sold new seedlings or sports by retail, or who issued a catalogue. The proposal was opposed by an amendment moved from the body of the room on the ground that, under the new proposals, amateurs might be deterred from taking up hybridization. This is, no doubt, a legitimate consideration, but the speaker, if he was rightly understood, was less happy in suggesting that the new proposal unduly favoured the trade. The suggestion was evidently resented, and Mr. George Paul was clearly right in pointing out that the matter was not one that affected the trade at all, but was purely an amateur's question. If an amateur chose to join the ranks of the nurserymen they were ready to welcome him, and he instanced Mr. Mount, of Canterbury, as one who, having begun Rose-growing as an amateur, had since become a successful nurseryman. It is, in fact, difficult to see how the definition of the persons eligible to show in the amateur classes should be thought either to favour or otherwise affect nurserymen. When the matter was put to the vote the amendment was negatived, and the Council's proposals carried with but few dissentients, but it was noticed that the nurserymen present generally abstained from voting.

Other subjects brought forward were the admission of women to the Council, on which the president pointed out there was nothing to prevent any such nomination; and the taking of a postal vote instead of a ballot as is done at present.

In the course of the year the Society has suffered the loss by death of two of its vice-presidents. Mr. Alfred Tate, whose fine garden at Leatherhead was well known to Rosarians, died in January, and Mr. J. T. Strange, who was one of the oldest members of the Society, died suddenly in October last. He had been a member of the Council—known in former years as the Committee—since 1877, and his portrait appeared in the *Rose Annual* only last year on his election as vice-president of the Society. His quiet, genial manner, and untiring interest in the Rose made him very popular with his colleagues on the Council Board, and few will be more missed from its gatherings than J. T. Strange.

The Society contemplates again holding four shows in the coming year: the spring show, on April 23, when it is hoped that a dinner for members may be arranged, the Metropolitan Show on July 7, the Provincial Show, at Bath, on July 16, and the Autumn Show on September 24. The publications promised for the coming year are the *Rose Annual*, 1914, and new and revised editions of the *Enemies of the Rose*, the *Hints on Planting Roses*, and the *Pruning Book*.

Electricity in the Service of Horticulture.

The possibility of employing electricity in horticulture and agriculture has long occupied the minds and engaged the attention of men of science, and although the realisation of this possibility is long in coming there are indications that it will soon be achieved. Lemstrom long ago claimed to have demonstrated that an increase of some 45 per cent. in a crop is produced by the agency of high-tension electricity applied to the land by means of overhead wires, and, as is pointed out by Mr. Thorne Baker in a paper read recently before the Royal Society of Arts, Sir Oliver Lodge, Mr. Newman, and Professor Priestley, working with overhead discharges, have also obtained encouraging results. The cost of installation of the Lodge-Newman apparatus works out at £200 for 25-30 acres, and for the treatment of double that area only a small increase in cost is entailed. It is interesting to observe that the Departments of Agriculture of the United States and Egypt have provided themselves with the Lodge-Newman apparatus.

Of peculiar interest are Mr. Baker's experiments in the use of electricity as a fungicide. He claims that although American Gooseberry mildew is not destroyed by the electrical discharge, that discharge produces nevertheless a remarkable effect when used in conjunction with a weak fungicide, as, for example, a soluble sulphide (such as potassium sulphide). If the fungicide be sprayed on the affected plants, and if then the latter be played on with a high-frequency electric discharge, nascent sulphur is produced and the mildew is destroyed.

Mr. Baker claims that he has been no less successful in electrocuting cheese-mites, and if that be indeed the case we may venture on the hope that we have in this new process a possible means of ridding ourselves of that pestilent organism, the Big Bud mite. We hope

greatly that Mr. Baker will take up this particular problem, and we can assure him that if he can but rid our Currant bushes of this pest he will earn the lasting gratitude of many long-suffering men.

The most extraordinary of all its applications to intensive cultivation is the use of the electrical discharge in the raising of chickens, and Mr. Baker's account of electrified chickens reads more like a chapter in romance than in technology. The mortality of birds hatched in electrified incubators is said to be extremely small, and the chickens are ready for market in five weeks instead of three months. They thrive on less food, lose their shyness, sparks fly from their beaks when they peck at a finger held out to them—the owner of the finger feels a distinct shock, but the birds seem unaware that they are other than just ordinary chickens—in short, they have undergone transformation as wonderful as that which came over Alice when, wandering into Wonderland, she saw the magic bottle and, obedient to the printed instructions "Drink me," swallowed its contents and grew to gigantic proportions.

If results such as these are to be obtained with chickens what may we not expect of geese and turkeys? If the larger birds respond as copiously to the electrical treatment it will be no longer a figure of speech but an expression of serious fact when we talk of our tables groaning under Christmas fare. If only Truffles would consent to react in a similar manner, how the gourmet of Paris will bless Mr. Baker and the other magicians who, with the wand of electricity, work such delectable wonders in the world of intensive cultivation!

In the meantime we must all hope that further experiments "in this most potent art" may be undertaken, and that they will confirm and extend our knowledge of the uses of electricity in the service of man.

Our Almanac.—We shall shortly issue a *Gardeners' Chronicle* Almanac for the year 1914. *In order to make it as useful as possible for reference we shall be obliged if Secretaries of Horticultural, Botanical, and Allied Societies, or any of our correspondents, will send us* Immediate Intimation *of all fixtures for the coming year.*

Coloured Supplement—This week's Supplement represents a variety of Cyclamen latifolium, remarkable for the exceedingly decorative qualities of its foliage. This popular greenhouse plant, so effective at the present season in Christmas decorations, has produced from time to time varieties with variegated leaves, but all previous forms are excelled in this particular by the specimen now illustrated. The general effect of the white band of silver near the margins is similar to that furnished by some of the more decorative varieties of Begonia Rex. C latifolium, better known in gardens as C. persicum, is a native of Palestine, and was introduced into this country so long ago as 1731. The species has shown great powers of variation, not merely in producing flowers of large size, as in the Butterfly type, but also in the much wider floral modifications shown in the "Papilio," crested and other strains. Illustrations of some of these types will be found in the issues of *Gardeners' Chronicle* for May 15 and 22, 1897, when they were published with a report of Sir W. T. Thiselton Dyer's paper on "The Cultural Evolution of Cyclamen latifolium," read before the Royal Society. Cyclamen St. George obtained the R.H.S. Award of Merit in January last, when it was shown by the St. George's Nursery Company.

Collective Nouns and Singular Numbers.—Mr. Charles E. Pearson draws attention to the practice which has grown up in recent years of treating collective nouns—such as council, society, and the like—as plurals. We share Mr. Pearson's dislike of the innovation, and, although it has the sanction of many writers, we intend, subject, of course, to such lapses as come over erring mortals, to continue to emphasise the unity of such bodies as societies and councils by describing their several acts in the singular number.

Royal Trees.—During a recent visit to Black Moss, Thornley, near Preston, the residence of Captain the Hon. Algernon Stanley, Her Majesty Queen Alexandra planted two Chestnut trees.

The Fruiterers' Company Chair.—Amongst the effects of the late Mrs. A. G. Storr, sold recently at Messrs. Christie's rooms, was the Master's armchair of the Fruiterers' Company, of the Chippendale period, in mahogany, the back carved with figures representing Adam and Eve. It was purchased for 900 guineas by Mr. M. Harris.

The Covent Garden Estate.—The sale of the Covent Garden estate is an event of no little interest to horticulturists. The estate has been in the possession of the Russells for upwards of three centuries, and has undergone the strangest vicissitudes. In years gone by, Bow Street, which, running southward into Wellington Street, starts the market, was a centre of rank and fashion, and yet earlier—in the sixteenth century—the present market, as its name implies, was the Convent garden attached to the Abbey and Convent of Westminster. Hence, far into the dark backward of time, Covent Garden has been associated with the art and business of gardening. The market was created by Francis, fourth Earl of Bedford, in 1631, according to the designs of Inigo Jones. There is no reason to suppose that the change in ownership will lead to any changes in the estate.

Hoxton Market Mission.—This deserving charity makes an appeal for support through our columns. During the past twelve months the mission has distributed 624,000 free meals to poor children, 47,840 dinners to unemployed men and their families, sent coal into 7,322 fireless homes, repaired and distributed 2,148 pairs of boots, afforded a free holiday in the country to more than 3,000 children and adults, besides doing endless other good. An appeal is made for £4,500 to rebuild and refurnish the Mission buildings. Donations may be sent to the London City and Midland Bank (Old Street branch).

Status of Municipal Gardeners.—The duties of a municipal gardener are as important as those of any other department of civic management, yet, too often, the chief gardener of a town is made the "Cinderella" of corporation officials. It is absurd that business men on councils should permit, say, the town clerk or the surveyor to have charge of a branch of the town's business that neither of these officials understands. Our remarks are prompted by a letter received from a superintendent of public gardens in one of the Metropolitan boroughs. It appears that his committee intends, and rightly so, to place him in full charge of his special department, but serious opposition has arisen, and the town's legal adviser asserts that "the suggested change would establish a precedent, and that park superintendents are subordinate either to the surveyor or town clerk all over the country." The statement is erroneous, and should be withdrawn by the legal adviser who made it. If it gains currency a serious injury will be done to the status of gardeners, and town gardeners in particular. Our correspondent asks for a list of towns where the public gardener has full control under the committee.

Fatal Accident Whilst Tree-Felling.—While superintending the lopping of some trees at Chiswick recently, and warning passers-by against the danger of falling branches, Harry Gardiner, seventy, was himself struck by a falling branch and died of his injuries soon afterwards.

Cattle Poisoned by Yew.—Four cross-bred cattle have died at Elmswell, Yorkshire, owing, it is believed, to browsing on Yew trees in a shrubbery.

A College of Tropical Agriculture.—A letter from the Secretary of State for the Colonies, read at a recent meeting of the Agricultural Society (Trinidad), indicates that if a College of Tropical Agriculture is established it will be situated in the Federated Malay States, and that he cannot encourage the hope that a second similar institution may be created in Trinidad.

Noteworthy American Fruits.—Believing that it is the duty of the State to test new and promising varieties of fruit, the New York Agricultural Experiment Station has undertaken the work, and publishes an instalment of the results in Bulletin No. 364. Mr. A. P. Hendrick, the author of the Bulletin, draws attention to several varieties of Apple which have come well out of the tests. Of these varieties special praise is given to Delicious, which, introduced in 1895, has proved itself of considerable value for planting in the Apple districts of the United States It has size, beauty, and a rich, distinctive flavour. Of it Mr. Hendrick remarks that it is well worth planting in a probationary way for money-making, and every man should plant it in his home orchard. Mr. Hiatt, who found the original tree in 1881, states that in 1896, when three-fifths of his orchard was injured by cold and drought, Delicious—named by him Hawkeye—was found to withstand the winter perfectly. The fruit is large, uniform, skin very thick, tough, smooth, light yellow, overspread with red and splashed with carmine, flesh yellowish, form a little coarse, tender, juicy, aromatic, pleasantly sub-acid, good to very good; season, December to end of February. Of Pears Lucy Duke, supposed to have come from a Bartlett (Williams' Bon Chrêtien) seedling, pollinated with Winter Nelis, is a handsome and choice dessert Pear. This Pear is by no means new, but its merits have been somewhat overlooked. Of Peaches, Asp Beauty is the earliest good yellow fruit. Mr. Hendrick speaks well of Imperial Epineuse Plum—a large purple variety of good quality and shape. It was found long ago as a chance seedling in an abandoned monastery near Clairac, in the Plum district of France, and has known several changes of name, for example, Clairac Mammoth and Clarice Mammoth. Middleberg is another old Plum, the merits of which deserve wider recognition. It ripens late, keeps well, and is freer from brown rot than any other domestic Plum. Of Cherries Mr. Hendrick speaks well of Schmidt, a large black variety, with crisp, firm, juicy flesh and sweet, delicious flavour. This variety was introduced into America from England thirty years ago. Beside Grapes, several varieties of which are enumerated, the Bulletin refers to various

Raspberries, among which June is commended for its hardiness, which it shares with its parents, London and Marlboro'. It is very vigorous, produces comparatively few suckers, begins to fruit early, and yields heavily. It is of a bright red colour, and "ships" well. Plum Farms is the best black Raspberry at the Experiment Station. It is a comparatively new variety. Currants Perfection (from Fay and White Grape) and the Diploma are commended, and of Gooseberries, beside the European varieties Industry and Downing, Poorman is mentioned as being a good variety, and not susceptible to mildew. Of Strawberries, Prolific (Sample × Marshall) gives high yields, and matures in mid-season, and Chesapeake is described as one of the most promising of the comparatively new sorts.

THE KAT OR KHAT PLANT, CATHA EDULIS.—In view of the interest that has recently been taken in the therapeutic value of the leaves of Catha edulis, it may be of interest to note that in a Consular Report on the trade of Harrar, Abyssinia, for 1912, the Consul says: "Unfortunately, the cultivation of the Kat or Jat tree is allowed to increase. The consumption of Kat is indulged in by the male members of the Mohammedan population only; the true Abyssinians do not use it. The effect of Kat on the human system is to act as a temporary stimulant. The stimulating effect, however, soon passes off and leaves the consumer in a morbid, listless state without appetite for ordinary food and unable to sleep. A constant use of the drug appears to leave a permanent effect on the brain. The faces of the confirmed Kat eaters lack that look of intelligence which is a characteristic of the Northern African native. The poor physique, indolence, and want of intelligence of the local Gallas may be attributed to the excessive consumption of Kat by the race for generations. The plant is not grown in any district of Abyssinia except that of Harrar." In connection with the above it may be of interest to recall some facts or statements that have always been associated with Catha edulis. The plant is a shrub of about 10 feet high, belonging to the Natural Order Celastrineæ, a native of Arabia and known under the names of Arabian tea, Kat, Khat, or Cafta. The twigs with the leaves attached form the article of trade amongst the Arabs, who chew them both in the green or dried states, the effect being to produce great hilarity of spirits and an extreme measure of wakefulness. In some instances they are used in infusion, as in ordinary tea, though examination has shown that they do not contain any alkaloid related to theine or caffeine.

PERIODICITY OF RAINFALL.—The ancient philosopher who declared that "everything is in a state of flux" enumerated a truth, the illustrations of which are ever accumulating. Of recent years the hypothesis has been put forward that the world enjoys—or suffers from—alternating and fairly regular periods of relative humidity and relative dryness. Each has a cycle of about 35½ years, and the cycle is known—after the eminent meteorologist who enumerated this theorem—as BRUCKNER'S cycle. Extended inquiry into the known advance and recession of glaciers during the past three centuries provides remarkable confirmation of the truth of BRUCKNER'S hypothesis. From the study of glaciers, the variations of which are known, M. MONGIN discovers that the glaciers have shown advances from the following dates:—1605, 1644, 1674 (?), 1716, 1776, 1820, 1853, 1894, which gives an average interval of retreat of about 40 years. Evidently the glacier advances during periods of greater humidity, and shrinks during the intervening dry periods.

POLLINATION OF FRUIT TREES.—The Board of Agriculture and Fisheries desires to inform fruit-growers that it is engaged in an inquiry through its Horticulture Branch into the failure of fruit trees to set properly through insufficient pollination, and would be glad to be put in communication with the occupier of any orchard of five acres and upward who has reason to believe that his trees are bearing less than the normal crop over a series of years. Fruit-growers who are planting new orchards are also invited to communicate with the Board.

APPOINTMENTS.—The *Kew Bulletin* (No. 9, 1913) publishes the following appointments by the Secretary of State for the Colonies, on the recommendation of Kew:—Mr. GEORGE BRYCE, M.A., B.Sc., of the University of Edinburgh, as assistant mycologist and botanist in the Department of Agriculture, Ceylon. Mr. GODFREY E. COOMBS, B.Sc., of University College, Reading, as economic botanist in the Department of Agriculture of the Federated Malay States. Mr. F. T. BROOKS, M.A., senior demonstrator in botany in the University of Cambridge, as mycologist in the Department of Agriculture of the Federated Malay States for one year. Mr. FRANK GORDON WALSINGHAM, a member of the gardening staff, as assistant director of horticulture in the Egyptian Department of Agriculture. The *Bulletin* also announces the appointment of Mr. W. NOWELL, assistant superintendent of agriculture in Barbados, as mycologist and agricultural lecturer in the Imperial Department of Agriculture for the West Indies, in succession to Mr. F. W. SOUTH.

A MEMORIAL TO THE LATE MR. ROBERT SYDENHAM.—At a special meeting of the Midland Daffodil Society, held at Birmingham, on the 10th inst., a memorial to the late Mr. ROBERT SYDENHAM was considered by enthusiastic members, some of whom had travelled from such far-distant counties as Denbighshire, Wiltshire, Worcestershire, Cornwall, Nottinghamshire, Shropshire, etc. A great many letters were received from members unable to be present. Mr. P. D. WILLIAMS (president) occupied the chair, and he was supported by the Rev. G. H. ENGLEHEART (past president), the Rev. JOSEPH JACOB (chairman of committee), and Mr. HERBERT SMITH (secretary). Others present included Messrs. C. L. ADAMS, J. MALLENDER, J. SIMKINS, W. A. WATTS, H. N. ELLISON, G. F. PHILLIPS, E. H. WOOD, G. B. COPE, B. M. HAYNES, and C. H. HERBERT. The following resolution, passed at a special committee meeting on July 22, was confirmed: "That the committee, on behalf of the Society, desire to record and convey to Mrs. SYDENHAM and her family their deepest regret at the sad loss of Mr. ROBERT SYDENHAM, and their sincerest sympathy with her and her family in their great grief, also their appreciation of the great work which Mr. ROBERT SYDENHAM had performed in founding and maintaining the Society. That this resolution be entered on the minutes and a copy sent to Mrs. SYDENHAM." The president, in a few appropriate remarks, referred to the very great loss the Society had sustained by the death of Mr. ROBERT SYDENHAM, who was an indefatigable worker for and a generous supporter of the Society since its formation in 1898. He thought the name of ROBERT SYDENHAM ought to be perpetuated, and asked the members present for suggestions. After the Rev. G. H. ENGLEHEART had enlarged upon the many-sided good qualities of Mr. SYDENHAM a general discussion followed upon the most suitable form the memorial should take. A number of suggestions were made, and it was ultimately agreed that the desired object could best be attained by inscribing on all the Society's medals, publications and stationery the name "ROBERT SYDENHAM, Founder," and by every member doing his best to increase and maintain the usefulness of the Society, which will ever remain a monument of his ability, energy and indomitable perseverance. Mr. C. L. ADAMS was unanimously appointed hon. treasurer. Mr. W. A. WATTS was elected a member of the Floral Committee, and Mr. T. HUMPHREYS was elected co-auditor in place of Mr. ADAMS, to act with the Rev. JOSEPH JACOB. Mr. HERBERT SMITH will continue to act as secretary, an office he has filled with great benefit to the Society for many years. The meeting was pleased to hear Mr. SMITH intimate that the firm of ROBERT SYDENHAM, as well as the members of the staff, would continue to work on behalf of the Daffodil Society as hitherto. It was decided to adopt the Royal Horticultural Society's classification of Daffodils. Out of respect to Mr. SYDENHAM it was decided that an annual dinner should not be held in 1914, but that an informal meeting of members should be held on the first evening of the show to consider various matters connected with the Society.

CULTURAL NOTE.

CYCLAMEN.

ASSUMING that seeds were sown in August or the beginning of September, Cyclamen plants should now be large enough for potting singly into thumb or small sixty-sized pots. The compost may consist of equal parts loam and leaf-mould, which should be passed through a ½-inch sieve and sufficient sand added to ensure porosity, and a small quantity of finely-broken charcoal. Press the soil moderately firmly around the small corms, arranging the top of the latter level with the surface. Grow the plants in a temperature of 60° at night-time, rising to 65° by day. Stand them on a shelf close to the roof-glass and keep the atmosphere well charged with moisture. At about the beginning of March the young plants should be shifted into large sixty-sized pots, in a much rougher compost, consisting of loam one part, broken into lumps the size of a filbert, and leaf-mould or decayed horse manure one part. I prefer the latter material, as leaf-soil, unless composed of Oak and Beech leaves, favours the growth of fungi on the roots. Add a small quantity of broken charcoal and coarse silver sand to keep the soil porous. The soil should be made firmer than at the previous potting and care must be exercised to see that the young growths which spring from the corms are not broken. The plants should be grown in the same temperature as before and placed close to the roof-glass, but shaded from strong sunshine. They should be accustomed by gradual hardening to frame treatment, for they should be placed in frames from the middle to the end of May. At about the first week in June they will be ready for transference to their flowering pots. Receptacles 4½ inches in diameter will be large enough, and the compost should consist of equal parts loam broken into lumps the size of a walnut, and manure from a spent mushroom-bed or decayed horse manure, adding a small portion of mortar rubble and sufficient sand to keep the whole porous. The pots should be scrupulously clean and well crocked. Place the plants back again in the frame, which should be kept close for a few days afterwards. Syringe daily to destroy insect pests and to maintain a moist atmosphere. When the pots are filled with roots afford the latter plenty of moisture, giving them about twice a week some weak stimulant. In summer the lights may be removed after six o'clock in the evening, for the night air has a beneficial effect on the plants. Towards the end of September bring the plants into glasshouses and stand them on a layer of ashes or small shingle, where they will be well exposed to the light. The temperature of the house should be about 45° to 50° at night, according to the weather, allowing the heat to rise to 55° at daytime without sun heat. Green fly is the most troublesome pest of the Cyclamen, and the plants should be fumigated with a nicotine vaporiser on still nights. Some growers retain the old corms for another season, but I find there is nothing gained by this, as the flowers from old plants are small and inferior generally. Good varieties are found in Giant White, Giant Salmon and Giant Mauve. *E. F. Hart, Hockley House Gardens, Twyford, Winchester.*

LEMON CULTURE IN ITALY.

The ordinary Lemon tree (Citrus Limonum) is one of the many members of the Citron family, but the Citron proper is the fruit of Citrus medica.

A curious fact concerning Lemon trees is that, whilst in various countries wild Limes and wild Citrons grow plentifully, no specimen has yet been found which could be correctly called a wild Lemon.

There has been much controversy as to the nature of the "golden Apples" of the Ancients. Some declare them to have been Oranges, others Lemons, but the dispute has never been satisfactorily settled.

Oranges and Lemons, Citrons and Limes, taken collectively, go under the name of "agrumi" in Italy, and they all have many points in common and are cultivated in much the same conditions, the same climate being suitable for them all, and the lives of the growers, pickers, and packers of these several fruits are similar, for where one fruit grows the others can generally thrive.

We have no records of the appearance in Europe of the first Lemon tree, but it is believed that Lemons were introduced into Europe before the actual plants were imported. These first Lemons were known as "Assyrian Apples," their name indicating the country from which they came.

The Greeks and Romans were not acquainted with Lemons, and the fruit appears to have been introduced into Spain in the twelfth or thirteenth century. In 1494 Lemons were cultivated in the Azores, whence they were shipped to England; but as soon as Lemons from Spain, Portugal, California, Florida and Italy began to come into the market the exportation from the Azores ceased.

Lemons probably originated in India, and all the mysticism which surrounded them in the past emanates from that country, as also does the use of Lemons in religious ceremonies, on account of their supposed virtue in preserving incantations. In ancient times in India it was the custom of wives to be burnt after their husbands had died, and they went to the funeral-pile carrying a Lemon in their hands. In other countries married men held a Lemon in their hands in funeral ceremonies.

In the sixteenth century in France it was customary to offer Lemons to visitors, and women and girls frequently carried one with them and bit it occasionally to keep their lips fresh and rosy. The habit of packing Lemons amongst clothes to scent them and keep insects away still exists in many southern countries. Thiebaut de Berneaud says that French students used to offer to their professors in the beginning of June Lemons in which a gold-piece had been secreted, but this custom was abolished in 1700.

Nowadays fruits are exported so extensively and so freely that it seems strange that there ever should have been rules and regulations to restrict their sale. Nevertheless, at Mentone a great commerce was carried on in Lemons before it had spread on a large scale elsewhere, and a committee was instituted, presided over by a magistrate, who was called "magistrat des Citrons" (Lemon magistrate). He had to direct the gathering and sale of the fruit. The fruits offered for sale had to be of a fixed regulation size, and all fruits under standard size and quality were used to make oils. The peel and the pulp of Lemons were sold separately for different purposes.

The cultivation of Lemon trees is now carried on in a very large scale in many Mediterranean countries, the best fruits coming from Italy and Portugal. The trees flower from the early spring till the end of autumn, and the fruit is gathered practically all the year round. A few flowers come out late and their fruit ripens in the winter. Locally these go by the name of "testassa" (from "testa," head), on account of the flowers coming out on the top of the branch. These Lemons are generally large in size and their peel is thick. Large fruits with rough rinds are left on the tree to ripen, and not picked green like the earlier crop. They grow chiefly round Naples and Sorrento, and arrive in the London market in July and August.

One of the best-known varieties of this type of Lemon tree is the Spadaforese Lemon, which, when picked, is cut in half, pickled in brine, exported in casks, then soaked in water and candied. Citrons are treated in a like manner, but they are much more expensive and are exported from Sicily on a smaller scale. The best kinds are Wex Lemon, Imperial Lemon and Gaeta Lemon.

Lemon trees have three flowering periods. Those which flower in March and April give their fruit in October and November. This is the first crop. They are considered the best and keep the longest; they are also the most juicy. Trees that flower in May and June give Lemons ten months later. These are the second crop. Trees that flower in July and August give their fruit the following year. These fruits are pale green and have a thick skin; they are not very juicy. They are the third crop.

From the end of October to the end of December the Sicilian Lemon growers are busy with their harvest, and the fruit is gathered green and placed for sale or exportation in cases containing about 420, or in boxes somewhat smaller. They are picked by hand and sorted and wrapped in tissue paper. The Lemon cases that are due to arrive on the market at

Fig. 153.—View in an Italian Lemon Orchard.

Christmastime are often artistically decorated with silver and gold paper, coloured wrappers, picturesque advertisements, and trade marks.

If the weather is very fine in September and October the Lemon trees make new bloom, the fertilised flowers of which grow into large-sized, rough, thick-skinned Lemons. They are not very juicy, but the peel is most suitable for candying.

Fig. 154.—PACKING LEMONS FOR EXPORT.

They are known as "Settembrini," or fruits of September.

When Lemons are picked green for packing purposes they are warehoused and placed on straw, then they are sorted by expert sorters and packed in cases which vary in size according to quality and number of the fruits. No spotted, or otherwise imperfect, Lemons are packed, as they would rapidly spoil the others.

The most important substance obtained from Lemons is citric acid. It was discovered by Scheele in 1784, and is obtained from concentrated Lemon juice, which is prepared extensively in Messina and Palermo. To get the citric acid, Lemon juice is slightly fermented, then filtered, then subsequently neutralised, first with chalk and then with quicklime.

Lemon juice is most efficacious as a preventive of scurvy and is much used on shipboard. Best lemonades are made out of pure Lemon juice: mineral and bottled lemonades are made out of citric acid mixed with other substances.

The habit of taking iced lemonades as a favourite drink in warm countries seems to have come from the Orient in the twelfth century, and so far back as the fourteenth century lemonade was used plentifully in Italy. Its ponularity has never waned. In France it came into vogue at the time of Cardinal Mazarin. In all countries of the Mediterranean where Lemon trees grow plentifully a large industry centres round the Lemon, its peel and pulp both being utilised in many ways. Lemon juice is largely squeezed out of the fruit by means of huge presses, the liquid being placed in casks and exported.

In his Sicilian letters the Abbé Sestini relates a local way of keeping Lemons in that island by means of salt. The fruit is placed in barrels and sea water poured over it every twenty-four hours for forty days. Thus salted the fruits are sent abroad. In November and December in Sicily and Calabria the essence or essential oil of Lemon is got from the rind when still green. The following is the process:—A workman cuts three longitudinal slices off each fruit, leaving a three-cornered central core, having a small portion of rind at the apex and base. These pieces are then divided transversely and cast on one side and the strips of peel are thrown in another place. Next day the pieces of peel are deprived of their oil by pressing four or five times successively the outer surface of the peel (zest or flavedo), bent into a convex shape, against a flat sponge held in the palm of the left hand and wrapped round the forefinger. The oil thus gathered in the sponge is squeezed into earthern vessels furnished with a spout and subsequently decanted. Four hundred Lemons yield nine to fourteen ounces of essence. The prisms of pulp are afterwards pressed to obtain Lemon juice, and then distilled to obtain the small quantity of volatile oil they contain.

Formerly Lemons were held in great esteem as medicinals and as antidotes against poison. They were said to cure many ailments; now—though it is still used in medicine as an astringent and as a flavouring substance—it is chiefly considered as a wholesome beverage.

Syrup of Lemon is prepared from Lemon juice (Succus limonis), and Lemon oil (Oleum limonis) from the fresh peel. Lemon essence is used plentifully in cookery and confectionery; it enters into the flavouring of many sweetmeats, and typical sharp-tasting sweets, such as acid drops, are made out of it. Eau de Cologne, perfumery, toilet waters, have citric acid in their composition.

Lemon juice has a whitening effect on the skin and is a sedative to the stomach.

A large Lemon tree in Sicily may produce three thousand fruits in one year. And it is well that these trees are so prolific, for the growing, picking, sorting, packing, peeling, squeezing and distilling give work to thousands of native men, women and children, to whom the tree is the only source of livelihood from one year's end to another. Others find employment in the Orange industry, which was described in the issue for December 21, 1912, p. 461.

In winter the activity of the workers is greater, export trade is brisk, candied Lemon peel is in demand for making all manner of delectable sweetmeats; lemonades and lemonices are popular refreshments to be offered after dances and parties; cooking requires more tasty flavouring; on every dinner-table Lemons appear as accessories and ornaments to fish and other courses. And Lemons, with their golden, shining surface, seem to bring with them a welcome ray of glorious Southern sunshine into the dull winter of Northern climes. *E. S. Romero, Todesco.*

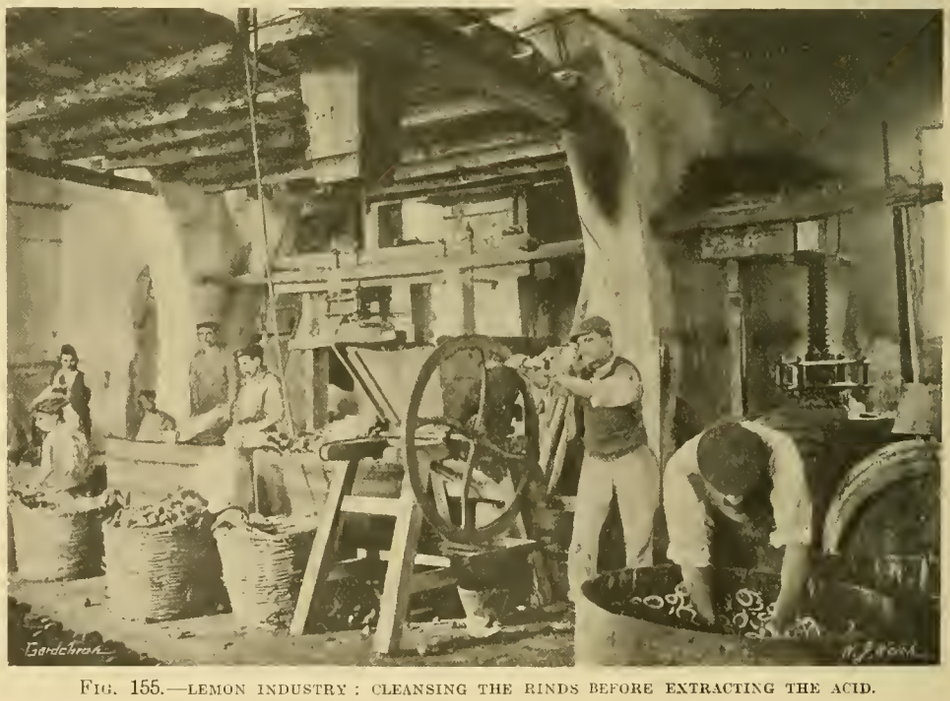


Fig. 155.—LEMON INDUSTRY: CLEANSING THE RINDS BEFORE EXTRACTING THE ACID.

COVENT GARDEN MARKET.

THE CHRISTMAS TRADE.

Covent Garden, as usual at Christmastide, presents a scene of extraordinary animation, and in some directions the presence of the extra produce exposed for sale causes as much congestion in the market itself as do the heavy railway and other wagons in the adjacent streets. The following notes show what wonderful variety is now obtainable in Christmas fruits.

There are plentiful supplies of Oranges, including good samples from Spain and Jamaica, and considerable consignments of the popular seedless variety from California. Mandarin

Oranges are of good quality, some of the samples being especially fine. Of the tropical fruits, none exceeds in importance the Banana, which is obtainable in yellow and claret-coloured varieties, but the supplies are scarcer than for several seasons past, and the fruit is much dearer. Pine-apples, which were formerly considered the choicest of exotic fruits at Christmas time, appear to be very plentiful, and of very fine quality. The principal source of supply is the Azores. Other tropical fruits include Grape Fruit, Custard Apples, Avocado or Alligator Pear (Monstera deliciosa), Mangos, the Kaki (Persimmon Fruit), and Chinese Lychees. The Persimmons are eaten when well bletted, and are sometimes known in Covent Garden as the "Apricot Jelly" fruit. Dates are always popular at Christmas time, those from Tunis, packed in decorative boxes (known in the market as the fancy glove-box) find a ready sale. Dried Figs come principally from Smyrna. Some are sent in neat little baskets that have the appearance of inverted straw skeps. Packers of these various fruits find it pays to place them before the public in as attractive a manner as possible. Crystallised or Metz fruits appear to be more popular each year, although at one time almost all the trade in them was in the hands of confectioners and grocers. There is a greater variety of these crystallised fruits than ever this year, and the manner of packing is as attractive as could be wished. Marrons glacés are one of the most expensive of all these conserves, and are made only from Italian chestnuts, which have

Fig. 156.—Press for extracting acid from the lemon peel.

no divisions such as are found in other chestnuts. In respect to Nuts generally, English Cob-nuts, as readers are aware, are scarce, and the few that are arriving in Covent Garden Market command high prices. Supplies of Grenoble Walnuts appear to be sufficient to meet the demand, and the nuts are of average quality. French and Italian Chestnuts have never been finer; considerable quantities of these Chestnuts are used for culinary purposes. Brazil nuts are good, but not over plentiful. There is no doubt that the Rubber boom has much to do with the scarcity of these nuts, for the natives find it more profitable to gather rubber. Apart from that fact, the supply of Brazil Nuts must always be a limited one. Sweet Almonds have arrived in excellent condition from Faro, in Portugal, and Montaigne, in France. The Sapucaya nut (Lecythis Ollaria), which outwardly resembles an elongated Brazil Nut, is deserving of mention; those who investigate below the leather-like coat will be agreeably surprised to find that the kernel is superior in flavour to the closely allied Brazil Nut. Contrary to what might have been expected, the Balkan war appears to have had no influence on the supply of such fruits at Dates and Figs. There are fair quantities of Apples from home-growers, but the bulk is from overseas. Beyond fruits of Cox's Orange Pippin, the supply of English dessert Apples may be said to be over for the season. But there are still obtainable excellent samples of home-grown culinary sorts, such as Dumelow's Seedling (Wellington), Newton Wonder, Bramley's Seedling, and Dr. Harvey. Most of the Apples received from overseas are from Nova Scotia, packed in barrels. Choice dessert Apples, packed in cases, are mainly from British Columbia and the Oregon Valley, California. The ever-popular Newtown Pippin appears to be first favourite, but there is also a good demand for highly coloured Apples —such varieties as Jonathan, Spitzenburg, and Winesap. English Pears may be considered a negligible quantity beyond a few fruits of cooking varieties, such as Catillac. For dessert Pears the market is now dependent on California and France; the principal varieties from the latter country are Passe Colmar and Doyenné du Comice. Those from California consist of Winter Nelis, Doyenné du Comice, Easter Beurré and Glou Morceau. Black Grapes, both Belgian and home-grown, are very plentiful. Muscat varieties, as is usual at Christmas, are scarce, especially the Canon Hall variety. Almerian Grapes are abundant. They are sent in small barrels, each containing about three and a half dozen lbs. of fruit. It is remarkable that, notwithstanding the fact that hothouse Grapes have been unusually plentiful and cheap, the prices for Almerian Grapes have been above the average.

At the time of going to press the supplies of Holly and Mistleto appear to be rather less than usual.

AUSTRALASIA.

A MILE THROUGH AUSTRALIAN BUSH IN OCTOBER.

Recently, I took a "short cut" through a mile of virgin bush country and made a note of the flora met with in that distance. The starting point was an ironstone ridge (elevation about 2,000 feet, latitude 38 S.) timbered with "ironbark" trees, Eucalyptus leucoxylon; the soil was what is locally termed light chocolate loam of a slaty or ironstone formation. On this ridge, growing right at the bases of the large trees, is found the slender-leaved Orchid, Calochilus Robertsonii, but its brown-bearded flowers are not visible before late in November; this Orchid seems to avoid the leaf-soil in any form, favouring places from which the top soil has been washed away. In somewhat similar situations, but carefully avoiding open, exposed spaces, the brown, naked stems of Dipodium punctatum are showing up, and in about 6 weeks its pretty rose-spotted flowers will also be at their best. The tubercules of this Orchid are 6 to 9 inches long, much branched and very fragile, thus rendering transplanting almost impossible unless a half-hundredweight of soil is moved also. The Potato Orchid, Gastrodia sesamoides, has similar tastes in the matter of soil and situation, but is of interest to botanists only. As is usual on such ironbark ridges, Davallia dubia, a very fine fronded "hare's foot" Fern, is abundant, intermingling with Gleichenia dicarpa, a hard fronded "coral" or "umbrella" Fern; and on the top of the ridge, climbing to the top of Acacia verticillata or any other support available, is found the "blue smoke" or Comesperma volubile. As it and the Acacia flower at the same time, the blue and gold form a most pleasing picture. At present (October 12), the most showy shrub is Oxylobium ellipticum, its branches being a mass of deep gold; amongst young saplings this shrub attains to 14 or more feet in height. The orange and brown Pultenæ Gunnii, P. daphnoides, and P. Muelleri, together with the brilliant blue Dampiera stricta and the golden Hibbertia Billardieri, also appear to prefer these ridges of poorer and drier soil. Thysanotus tuberosus, a lovely little thing with purple flowers beautifully fringed, and Thelymitra aristata, here a most aristocratic-looking Orchid, growing to two feet in height, with 25 of its fine blue flowers on each stem, seem more at home a little way down the side of the slope, but Billardiera longiflora, at present covered with its royal blue berries, is at home in any situation, from the top to the bottom of the hillside. Bauera rubioides—with its pendent, pinkish flowers, which are visible more or less the whole year; the rosy-red forms of Epacris impressa, Correa speciosa, here with greenish-yellow blooms, and Stackhousia linariifolia are all found within a few chains from the top. Ten chains or so from the top of the ridge Eucalyptus obliqua takes the place of E. leucoxylon, and the undergrowth becomes taller with a greater percentage of shrubs. Among the latter are:—the hill form of Aster stellulatus, Persoonia juniperina, Acacia myrtifolia, a shrub of about 7 feet, with beautiful globular flowers; A. diffusa, A. Oxycedrus, these two being prickly-leaved Wattles with catkin-like blossoms, and the latter in particular most beautiful when in bloom; Goodenia ovata, a yellowish-flowered Hop-bush, 5 feet tall, grows with its trailing relative, G. geniculata, which does not attain to as many inches, but has the larger flowers of the two; Eriostemon correifolius, a yellow-starred, free-flowering bush of about 3 feet in height and breadth; Tetratheca ciliata, one of our loveliest heliotrope-coloured natives, growing 9 inches to a foot in the open, but reaching 3½ feet in the shelter of taller shrubs, and usually throwing 50 to 70 flower spikes from a plant, each stem carrying anything from a dozen to 30 flowers—each of which measure an inch across—according to the height of the bush. Just at present it is an easy matter to locate patches where acres at a stretch are a pale purple haze. The hard-leaved rambler Platylobium formosum is also a brilliant member of the undergrowth world, and when the sun is bright it adds its quota of colour to the bush as it twines through the branches of Astrotricha ledifolia; Cassinia aculeata also fights for its share of the ground, but here it is not the vivid green bush which it is nearer the creek.

Closer to the gully Eucalyptus regnans (considered by some botanists to be a form of E. amygdalina) takes the pride of place, its majestic heads being carried on branchless stems 150 or more feet in height; the shrubs here attain the proportions of small trees, the tallest reaching 50 to 60 feet. Beneath, the ground is clearer and the soil of good quality; the "cat's head" Fern, Aspidium aculeatum and Blechnum cartilagineum join forces with the hard-fronded Lomaria procera, L. discolor and, occasionally, even the "fan" Fern, Gleichenia flabellata. Against decaying logs, deep in decayed leaves, the herbaceous Elderberry, Sambucus Gaudichaudiana, is pushing its sappy growth upwards. Overhead the light filters through the large woolly leaves of Senecio Bedfordii, Pomaderris apetala, here 35 feet tall, with clean stems as much as 33 inches around, Panax sambusifolium, Lomatia Fraseri, Aster argophyllus and the gully form of A. stellulatus, Myrsine variabilis and Prostanthera lasianthos, the Victorian Christmas tree, which at the festive season is covered with its pretty Lilac-coloured branches. Acacia dealbata appears to dominate all else, doubtless on account of its spreading roots and consequently marvellously rapid growth. Hedicarya Cunninghamii is fairly plentiful, but the pungent-foliaged, white-flowered Eriostemon Hildebrandtii and Correa Lawrenciana are more rare in this locality. Tecoma australis, with its lovely chocolate and cream-coloured flowers, here challenges the supremacy of that glorious white climber, Clematis aristata, and the silk pod, Lyonsia straminea, is also common. The bird Orchid, Chiloglottis Gunnii, luxuriates in many inches of decayed leaves, and even when uprooted by the Lyre bird, as that fast disappearing bird is scratching for insects, it lies on the débris and continues to flower unassisted by the soil. This surely is one of the most cosmopolitan of all Orchids. One finds it revelling in the cool depths of Dicksonia stems in situations where both wind and sun are unknown. It is equally at home right up on the

ridge where leaf-soil is completely absent, in open paddocks of gravelly soil, where the summer sun shines full on it and where it at night is subjected to 5 degrees of frost, and on rotting Eucalyptus logs in open or shade.

The gully is even more densely clothed than the bank, and Ferns of many kinds enjoy its shady protection. Dicksonia Billardieri, with stems 18 feet tall, covered with Polypodium pustulatum; the Fieldia australis, with its white Pentstemon-like flowers; Asplenium caripense; the sessile-flowered Orchid Corysanthes pruinosa and numberless other items of parasitic and terrestrial habit. Alsophila australis is the most lordly Fern in this gully (the head of the Bunyip river), a good specimen spanning quite 12 feet across the head, with individual fronds 36 to 40 inches across; the swamp-loving Osmunda barbara was the only other Tree Fern noticed. Asplenium bulbiferum is one of the prettiest of the dwarf Ferns, it grows equally well on the stems of Dicksonia and in soil. Lomaria lanceolata and L. procera are most vigorous, the former species favouring the water's edge. Pteris arguta, or "Oak" Fern, is a delicate, glaucous-fronded Fern, growing to 5 or more feet, but it will not endure frost or sun; and P. falcata, with its diminutive ladder-like fronds, spreads over the mossy surface of granite rocks; P. incisa also is here, its fronds in many ways resembling those of the farmers' curse—P. aquilina. One of the "shield" Ferns, Asplenium decompositum, makes great masses of green in odd corners, and a large and vigorous Fern which I do not recognise, usually growing on the bed of the creek, appears to be attempting to produce the head of a Tree Fern from the roots of a dwarf species. Close on the bank—evidently missed by the numerous fires which rage through this bush—are about a dozen extra fine specimens of Cassinia aculeata—the largest requiring 49 inches of tape to girdle its solid bole at a foot from the ground.

From what I know personally of Bunyip ranges, the flora seen in this mile of country may be accepted as fairly typical of that found to-day on over a million acres of uninhabited bush around the heads of the Yarra, Latrobe and Bunyip Rivers. *Gilbert Errey, Hazeldene, Victoria.*

HOME CORRESPONDENCE.

Old Tobacco Pipes in Gardens. — In the article on Huntercombe Manor, which appeared on p. 353 in the issue for November 22, the writer makes reference to the finding of some old tobacco pipes during alterations. This fact interested me, because I have found on several occasions pipes similar to those described, when making fresh excavations, such as sites for fruit trees or Rose beds. In this garden they are usually found about eighteen inches to two feet deep. The bowls of some are broken, others are in a good state of preservation, such as one I recently unearthed while making a new Rose bed. It would be interesting to know how they got there—seeing the ground (in our case) has not been disturbed to such depths for many years—in fact, we have no reason for supposing the ground has been cultivated to the depths above mentioned ever before, for previous to becoming a garden it was a country meadow, and that would carry its history back very many years. In making these remarks I have assumed that the writer of the article referred to meant a kind of clay pipe, for such have been those found by us, with stems about half an inch to two inches long, and long, narrow bowls. My employer has the pipes still in his possession. *C. Turner. Ken View Garden, Highgate.*

Selborne Nesting Boxes.—Last year the Press gave very material help to our work by spreading the suggestion that the nesting boxes for birds, from the sale of which the Brent Valley Bird Sanctuary derives considerable benefit, form suitable Christmas presents. The letters which we are receiving show that bird-lovers are still of the same opinion, but there must be some to whom the idea has not been presented, and I trust that by your kind aid the matter may be brought under their notice. *Wilfred Mark Webb, 42, Bloomsbury Square, W.C.*

Solanum jasminoides.—I am enclosing a photograph (not reproduced—Eds.) of Solanum jasminoides taken on November 21 last. The plants were very small when they were put out into their present positions in the spring of 1912. For four months this season they have presented a perfect picture. The only protection they need is a little bracken around the base of the plant during severe weather. We have the Solanum planted along the whole line of a Crimson Rambler hedge, fifty yards long, and it makes a fine show when the Roses are over. *W. H. Bailey, Burwood House Gardens, Cobham, Surrey.*

Silver-Leaf Disease.—Mr. Wm. Taylor's article on p. 385 reminds me of two old Nectarine trees, which were growing against a wall in a lean-to Peach house in the year 1910. They were infested with Silver-Leaf disease, and must have been unhealthy for several years, as I was given to understand they had not carried any good fruits for a long time; but I cannot speak about sulphate of iron, as I have never used it. In the last week in May I thoroughly limed the border and watered it well in, as the soil was of a very light nature. Then I applied soot water to the roots of the trees, besides syringing the trees with clear soot water every morning and soft water in the afternoons. Those two trees, to my surprise, made splendid growths of a very dark green colour, and in the autumn I covered the border with farmyard manure. In the spring of 1911 I again syringed the trees with soot water, as I did the previous year, and in that summer they carried 200 fruits and still made excellent growths, not only at the top of the trees, but all over alike. I think they had been starved for some time, as they quickly responded to this treatment and became healthy. In the autumn of last year I applied lime to some very old Plum trees growing against a garden wall, and this past spring I applied soot water to the roots but did not syringe the trees; they carried an abundance of good fruits this summer and autumn and made excellent growths of a dark green colour, and are now well set with fruit buds. These cases go to show the great value of soot. *I. Johnson, Catton House Gardens, Norwich.*

Lilium Henryi. — In your issue of the 6th inst. Herr Willy Müller, quoting an article of mine as his authority, puts bulbils into the leaf axils of this Lily, and asks if any of your readers have noticed them there. I am sorry to be a broken reed to your correspondent, but if he will turn to the article again he will see that L. Henryi is included in a list of Lilies some of which produce axillary bulbils and some offsets. At the time the article was written it did not seem necessary to take up your space in an enumeration of the various species which reproduce themselves in one or other or both of the two ways referred to, because well marked peculiarities of this nature come to the grower of Lilies very early in life, if not indeed at his mother's breast. In point of fact, it seems undoubtedly the case that under certain circumstances all Lilies will produce axillary bulbils. Your correspondent's experience as to the simplicity of raising L. Henryi from seed must surely be that of anyone who has tried it. The difficulty is to know what to do with the resulting myriads of bulbs of this and other easily-grown Lilies when they reach maturity, for in a small garden they cumber the ground required for more precious things. *A. Grove.*

Chrysanthemums and Hay Fever.—I am pleased to read the replies from *Grower* and Mr. Mayne. Since I asked the question I have met with several others who have experienced the same trouble. I am aware, as *Grower* states, that where there is much mildew or where sulphur has been used to combat mildew, one, or both combined, may cause sneezing, but this is quite different from hay fever. My plants this year have been exceptionally free from mildew, and sulphur has not once been used. Moreover, the first severe symptoms occurred at a Chrysanthemum show, where single varieties were extensively exhibited. The effects were felt for a day or two afterwards, and re-occurred when single Chrysanthemums were used. *L.*

The Abnormal Season.—The weather for the past three months has been exceptionally mild in the west on the warm slopes of the hills. Plants are growing and flowering in these gardens almost as well as in spring-time. Varieties of Narcissi, which usually flower here in March, are already in bloom. Other spring and summer-flowering plants now in bloom include Alyssum saxatile, Arabis alpina, Aubrietia, Cheiranthus alpinus, Daisy (Bellis perennis), Polyanthus, Pansies, Pentstemons, Veronicas, Hepatica, Scabiosa caucasica, Gazania splendens, and Iberis sempervirens, whilst in the kitchen garden Royal Sovereign and other strawberries have produced a full crop of flower trusses which have been removed. Raspberries have flowered late, and they have borne ripe fruit on canes of the current year. Seventy-five per cent. of a plot of 250 Flower of Spring Cabbages planted the middle of September and intended for use early in spring are ready for cutting. The plants are ready in ordinary seasons the first week in April. We shall have to depend on plants put out at the end of October for use in April, and I think they will be quite forward enough to take the place of the others. *Owen Moring, The Old House Gardens, Freshford, Somerset.*

Gardeners and Low Wages. — I was pleased to read the letter from *A. M., Surrey*, on this subject. I can vouch for the truth of his statements with regard to hours and wages. What other profession is there that is paid such a miserable rate? We are aware that there is the B.G.A. to back us up, but what is one to do when in last week's advertising columns of the gardening Press we find it stated "Members of B.G.A. need not apply"? Why not, may I ask? Surely members of that association are fully qualified; but no, the answer is, keep them down. Now fellow workers, cannot we band together and fight for our just cause? If things are to go on as they are at present then we must blame ourselves. *L.*

Statice profusa. — I was much interested in the account of winter-flowering plants at Ascott, Leighton Buzzard, on p. 413, and especially to know that Mr. Jennings grows the old Statice profusa, which I think, with its lovely shade of blue, is one of the most attractive plants at this season of the year. When visiting the gardens at Chatsworth last September, which are managed so splendidly by Mr. Jennings' son, I there saw specimens grown in perfection as decorative plants. Arranged in one of the long corridors of Chatsworth House, the effect was gorgeous. I remember the plant for more than thirty years, yet at the present time it does not appear purchasable. I wonder some of the nurserymen do not list it, for its merits are so good. *W. H. Bailey.*

Conference on Saxifrages.—I should indeed be sorry if, as Mr. Milne-Redhead alleges in his note on the proposed Saxifrage Conference on p. 425, I had misrepresented the facts of the case. It was perhaps owing to a desire to compress my letter within reasonable limits that I failed to make my meaning clear. If the Conference is to arrive at any definite conclusions, it is essential that there should be available at the time copies of the original descriptions of all the plants which botanists have described under specific names. Many of these descriptions are doubtless in rare or not easily accessible publications, to which it would be impossible to refer during the course of the Conference. Copies must be made in advance, and it is a long and tedious undertaking. To my mind, the only way to make such a Conference of real value would be to call a preliminary meeting at once and endeavour to arrange that

different people should set to work systematically to collect all available information on the various sections of the family. If the names of those who had undertaken to work at the various sections were announced, they would doubtless receive much valuable information from scattered sources. Their preliminary results as to synonymy and classification might be circulated among those interested, who would then meet at the actual Conference prepared to discuss, confirm, or refute the tentative results of the preliminary enquiries. So far as I know, no such steps have yet been taken, and a Conference, which merely consists of the reading of papers with no opportunity of checking the results contained in them, must necessarily be inconclusive. *W. R. Dykes.*

HEAVY YIELD OF POTATOS.—My gardener has this week dug from my garden a single root of Potatos (self sown) which yielded seven tubers weighing 2 lbs. 1 oz., 1 lb. 15 ozs., 1 lb. 9 ozs., 1 lb., 8½ ozs., 8 ozs., and 4 ozs. respectively, the total weight being 7 lbs. 13½ ozs. Is this or is it not a very extraordinary yield? I am not an authority upon Potato-growing, and should value your opinion. *Malcolm W. Keith, Dunottar, Warlingham.* [The yield is a good one but not a record. At the National Potato Society's Exhibition in 1905, twelve tubers of Scottish Triumph produced 147 lbs., an average of 12¼ lbs. per set.—EDS.]

CERCOSPORA VIOLÆ.—A few remarks concerning the disastrous results which I have experienced in the cultivation of the Violet during the past three seasons through bad attacks of the Violet disease (Cercospora violæ) may be of interest to readers. I have burnt the entire stock each season, procured fresh and healthy plants from various localities several miles distant, and replanted them in different parts of the garden where Violets had not been cultivated for several years. Some have been grown in the open garden in full sunshine, others under a north wall, and still others under fruit trees. During the summer the ground has been hoed frequently, well watered in dry weather, dusted well with wood-ash and soot, and syringed frequently with paraffin and soft-soap emulsion, and other specifics. Before lifting the plants, which I do about the second week in September, the frames have been thoroughly cleansed and removed to a fresh site. The soil was procured from an old pasture, plenty of charcoal and mortar rubble being incorporated with it; it was placed firmly in the frames to within a few inches of the glass. The plants were lifted with good balls of soil, and planted firmly. The lights were removed during favourable weather, and notwithstanding careful picking of affected leaves the disease spread rapidly each year about the end of November, the flower buds failing to open, scarcely a healthy leaf being left on the plants. This year I dusted the plants well with powdered charcoal whilst they were in the frames, and also watered and syringed them with a weak solution of permanganate of potash. They appeared healthy, and promised well until the end of November, but during the past two weeks the disease has developed rapidly, and now scarcely a healthy leaf remains. I have never seen such bad cases of the disease before. *Edward Spinks, Garston House Gardens, Watford.* [Try the effect of spraying liver of sulphur, ½ oz. in 2 gallons water, and of dusting flowers of sulphur between the plants.—EDS.]

TRIAL OF DAHLIAS.—Under the heading of the "Pæony-Flowered Type," in your notice of the trial of Dahlias held at Duffryn, Cardiff, you give an extensive list of varieties, with the raiser's name, amongst which we notice are a number of our raising and introduction which you attribute to other growers. This, we feel sure, you will realise is scarcely fair, and are confident that having drawn your attention to same, you will take steps to rectify this. The varieties are Codsall Gem, Mrs. J. Chamberlain, Mrs. Kerr, Mrs. T. G. Baker, Sunset, Viscountess Newport, and Warrior. *Baker's, Wolverhampton.* [The list was official and supplied us by the Secretary of the R.H.S.—EDS.]

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 16.—The Floral and Orchid Committees of this Society met on Tuesday last at the Vincent Square Hall, but there was no display other than that provided by the plants submitted for Certificate. The object of holding such meetings at a time when a general display is considered inappropriate is to provide means for inspecting novelties that cannot be expected to last in flower until the first meeting in January, which this season will not be until January 13.

The plants were all grouped in the library on this occasion, and the meetings of the Floral and Orchid Committees were held in succession at the large table where the Scientific Committee usually meets in the afternoon; the Floral Committee sat first, probably because it is the older body.

Floral Committee.

Present: H. B. May, Esq., in the chair, and Messrs. W. Bain, E. H. Jenkins, John Dickson, J. Jennings, W. Howe, Thomas Stevenson, W. J. James, R. Hooper Pearson, J. Moorman, Geo. Reuthe, J. F. McLeod, C. R. Fielder, W. P. Thompson, George Gordon, E. A. Bowles, and J. Green.

AWARDS OF MERIT

were recommended to the two novelties described below:—

Carnation Philadelphia.—A reddish-pink flower of the American type, with fringed florets. Shown by Messrs. W. WELLS.

Chrysanthemum Bertha Lachaux.—A large reflexed flower with full centre, the florets having an appearance of smoothness, but the form lacking refinement. The colour is pale mauve. Shown by Messrs. WELLS.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair, and Messrs. Jas. O'Brien (hon. secretary), Gurney Wilson, W. Bolton, A. McBean, W. H. Hatcher, S. W. Flory, H. G. Alexander, T. Armstrong, A. Dye, De B. Crawshay, Stuart Low, R. A. Rolfe, J. Charlesworth, R. G. Thwaites, W. Cobb, W. H. White, F. J. Hanbury, J. E. Shill and Sir Harry J. Veitch.

The centre of attraction was the beautiful white Cattleya Percivaliana alba Lady Holford, shown by Lieut.-Col. Sir GEO. L. HOLFORD, K.C.V.O. (gr. Mr. H. G. Alexander) (see Awards), who also showed Cypripedium Swallowtail (Mons. de Carte × Fairrieanum) and C. Troubadour (of unknown parentage).

Sir TREVOR LAWRENCE, Bart., K.C.V.O., Burford (gr. Mr. W. H. White), sent a pan of four pretty specimens of the new scarlet Habenaria Roebelenii.

Earl STANHOPE, Chevening Park, Sevenoaks, showed four hybrid Calanthes obtained by crossing C. Veitchii and forms of C. vestita.

Baron BRUNO SCHRODER, The Dell, Englefield Green (gr. Mr. J. E. Shill), showed his fine Odontoglossum ardentissimum Ebor, which had previously secured a First-class Certificate, and which is one of the finest hybrid Odontoglossums. The plant was an excellent example of fine culture.

Messrs. CHARLESWORTH AND CO., Haywards Heath, showed Odontoglossum eximium augustum, a grand dark variety, with a spike of eighteen flowers; O. eximium xanthotes, pure white with yellow spots as in O. crispum xanthotes; Lælio-Cattleya Britannia var. Melanie (C. Warscewiczii Frau Melanie Beyrodt × L.-C. Canhamiana alba), a pretty hybrid with pure white sepals and petals and light purple lip.

Messrs. J. AND A. MCBEAN, Cooksbridge, showed their handsome Lælia anceps Schröderæ McBean's variety; a very fine Odontoglossum Doris, Sophro-Cattleya Saxa, and some brightly-coloured Odontiodas, O. Euterpe McBean's variety (O. Uro-Skinneri × C. Noezliana), being of large size and coloured carmine red.

FRED J. HANBURY, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews), showed as Cypripedium Hanburyanum a hybrid said to be between C. Leeanum giganteum and C. Maudiæ, but in which none of the latter could be detected.

E. R. ASTON, Esq., Broadlands, Tunbridge Wells, showed Odontioda Royal Gem Broadlands variety, with yellowish ground colour blotched with red-brown.

Messrs. ARMSTRONG AND BROWN, Tunbridge Wells, showed Cypripedium Sandhurst (concolor Regnieri × Fairrieanum), a very pretty and distinct hybrid of good shape. Ground colour creamy-white closely lined and tinged with claret red.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya Percivaliana alba "Lady Holford." A superb flower and a great advance on former white forms shown, the flowers being large, well formed, and clear white, with a deep orange colour in the tube of the lip. The plant was a fine example of cultural skill and bore four flowers.

AWARD OF MERIT.

Odontonia Langowoyi (*Miltonia Schröderiana* × *Odontoglossum Uro-Skinneri*), from Messrs. CHARLESWORTH AND CO., Haywards Heath. A very distinct and pretty hybrid in form nearest to Miltonia, and bearing an erect spike of flowers, each about two inches across. The lanceolate sepals and broader petals were chocolate purple, with the blotching as in O. Uro-Skinneri, showing in a darker tint. Lip purple at the base, expanded in front into a broad white blade with a few rose-coloured spots.

Cypripedium nitens-Leeanum smaragdinum (*nitens Sallieri Hycanum* × *Leeanum giganteum*), from F. J. HANBURY, Esq., Brockhurst (gr. Mr. Matthews). Flowers of the character of C. aureum Surprise; emerald green with white tip to the dorsal sepal.

Odontoglossum Cleopatra (*Carmania* (*Harryanum* × *cristatellum*) × *Vuylstekei*), from DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables). A desirable and distinct novelty of good shape, size and colour. The sepals and petals are uniformly coloured light reddish-purple, with narrow primrose margin and tips. The lip, much like that of O. Harryanum, is broad, white in front, and closely marked with purple on the basal half.

Cypripedium Bourtonense (*insigne Horefield Hall* × *Blanche Moore*), from G. F. MOORE, Esq., Bourton-on-the-Water (gr. Mr. Page). A large flower with greenish ground colour, the upper half of the dorsal sepal and borders of the broad lower sepals being white. The petals and lip are tinged with purple.

NATIONAL CHRYSANTHEMUM.

CONFERENCE ON OUTDOOR CHRYSANTHEMUMS.

DECEMBER 10. — A Conference on Outdoor Chrysanthemums was held under the auspices of the National Chrysanthemum Society on the 10th inst., at the Essex Hall, Strand.

Mr. E. F. HAWES, who occupied the chair, referred with regret to the absence of the President through indisposition.

DEVELOPMENT OF THE OUTDOOR CHRYSANTHEMUM.

The first paper was by Mr. NORMAN DAVIS, and the subject was the development of the outdoor Chrysanthemum. Mr. DAVIS spoke as follows:—

I would first call attention to what many old growers must regret, viz., the neglect of the old hardy types of Chrysanthemums that, forty years ago, flowered so freely in gardens during the month of November, and often well into December. The varieties were those of the very old reflexed type, such as Cottage Pink, the Christines, and Dr. Sharp, certain of the Anemone-flowered varieties, such as Gluck and Mr. Astie, and practically all those of the Pompon class. In country districts many are still grown in cottage gardens, but in town and suburb they seem to have been discarded or to be grown only in greenhouses, much to their detriment.

After referring to circumstances in the remote history of the Chrysanthemum, Mr. DAVIS proceeded as follows:—

Notwithstanding that we continually find plants sporting from a late to an early type, there does not appear to have been any instance of an effort to perpetuate them. The history of Madame C. Desgrange, the first large early variety to create attention, is interesting, if only from the fact of its seeming unwillingness to be-

come a candidate for popularity. Madame C. Desgrange was a chance seedling, such as I have described, among a batch of late varieties. Its raiser finds no interest in it, and it passes into the hands of a French nurseryman, M. Lemoine, who appears simply to have made use of it as a gift plant—the custom of French nurserymen, at all events in those days, being to present something gratis. Hence we find it was distributed to his customers in this country. It was never listed in any of the French catalogues, and probably never grown there afterwards. Madame C. Desgrange eventually passed into the hands of Mr. Robert Parker, of Tooting, and its value was then recognised. Probably no other Chrysanthemum has been so largely cultivated in this country.

For the present race of early varieties we are indebted principally to the efforts of the late Simon Delaux, of Toulouse. In 1882 this nurseryman introduced three Japanese varieties that flowered in August. These may have been obtained by crossing with the Early Pompon section, but I consider that they were simply the result of seeding the early break bud of the ordinary Japanese variety with successive selections. These three varieties were the first introductions, and were named Mons. Pynaert van Geert, Simon Delaux, and Isidore Feral. I exhibited all three varieties, together with a trained specimen plant of Madame C. Desgrange, at the Crystal Palace Fruit Show in the autumn of 1883—the first exhibit of early varieties.

In this early venture I was joined by the late Mr. W. Piercy, whose friendship I enjoyed for many years to my profit and experience in early Chrysanthemums. Mons. Simon Delaux continued to send us other varieties, until in the year 1891 he distributed no fewer than 125 varieties, followed the next year by several more. It would be useless to recall all their names. A few that still remain or have not been discarded long are M. Gustave Grünerwald, Vice-President Hardy, Madame Eulalie Morel, and Albert Chaussin in the first set, and Wm. Holmes and Madame Marie Masse a little later.

The next introductions from the Continent of importance were those of Mons. Auguste Nonin, of Châtillon. To this noted raiser we owe such varieties as Perle Rose, Champ d'Or, Glacier, Le Pactole, Normandie, Perle Châtillonaise, Provence, Roi des Blancs, Savoie, Tapis de Neige, and others.

I will now refer to the work of raisers in this country, and no record would be complete without paying a tribute to the late Mr. W. Piercy, not to the great number of his introductions, but to the impetus he gave the growing and popularising of the flower by his voluminous writing. Of the early Pompon varieties I will only mention a few raised in this country, that, for a time, gave an impetus to the cultivation of this section. These are Mrs. Cullingford and Early Blush, both raised by Mr. W. H. Cullingford, an amateur; Blushing Bride, a seedling of my own, Piercy's Seedling, Anastasia, Alice Butcher, and Longfellow. Unfortunately these useful little flowers have passed somewhat out of favour.

Of the large-flowered section a few acquisitions by various raisers were Harvest Home (Owen), Market White and Mychett White (Russell), Queen of the Earlies (Godfrey), Lady Fitzwygram (Agate), Caledonia and Lady Mary Hope (Smellie).

Next we come to the Goacher seedlings distributed by Messrs. W. Wells and Co., and I need hardly say that these introductions were of great value, and did much to popularise this section. They have all the good points of garden varieties. Of these we still grow Goacher's Crimson, Goacher's Pink, Carrie, Lillie, Harrie, Leslie, Miss Burchfell, Polly, and Patricia.

I have left the important work of my friend Mr. H. J. Jones until last. It is thirty years since I made the acquaintance of Mr. Jones. He was then deeply interested in early Chrysanthemums, and I do not think that his interest has ever slackened. One of his first introductions was Rvecroft Glory. In Nina Blick we have one of the hardiest of Chrysanthemums; R. Pemberton, Brilliant, Joyce, Improved Masse, and Mrs. Tom White are but a few of the Rvecroft introductions.

In mentioning "Framfield Early White," one of my own recent introductions, it is with the hope that it may prove as useful as some declare it to be.

In all these introductions, together with their numerous sports, we have obtained a large and comprehensive collection. Large size is not desired in garden varieties, but we have seen a steady improvement in colour and hardiness.

To market growers we are indebted for a new race, and I think we may look forward to the advent of a later section of hardy varieties to take the place of those mentioned above. A few of these introductions have found their way into the early section, such as Dolores, Almirante, Juliet, Dorothy Ashley, all border varieties. But those I more particularly refer to are of the type of "Cranfordia" and Cranford Yellow. If we can get more of this class they will fill a void in gardens, for after all, November seems to me to be the month for Chrysanthemums rather than the months of August and September.

(*To be continued.*)

Obituary.

Martin John Sutton, J.P., F.L.S.— Horticulturists throughout the world will learn with regret of the death of Mr. Martin

THE LATE MARTIN JOHN SUTTON.

John Sutton, who was for many years head of the firm of Messrs. Sutton and Sons, Reading. It was but a few days ago that Mr. Sutton attended the Smithfield Show, and although it was known to his friends that his health was no longer robust, it was hoped that he had yet many years of active and useful life before him. He was taken ill, however, after undergoing a dental operation, and died in London on December 14.

Born at Reading in 1850, Martin John was the eldest son of the late Mr. Martin Hope Sutton, who with his brother, Alfred, laid the foundations of the great firm. In the middle of last century most boys began the business of life at an early age, and accordingly Mr. Sutton entered on his business career when he was sixteen years old. On his coming of age in 1871 Mr. Sutton was taken into partnership by his father and uncle, and in 1887 he became the head of the firm. In this position he remained until a few years ago, when having seen the business expand to its present world-wide dimensions, and having the certainty that a younger generation was ready to carry on his work, he and his brother Arthur resigned the direction of the firm's affairs into the hands of their younger brother, Leonard, Martin John's eldest son, Martin H. Foquet Sutton, and Mr. E. P. F. Sutton. Although no longer responsible for the management and organisation of the business, Martin John continued till the end to take an active interest in, and to advise upon, the more general aspects of the work of the house of Sutton. In these days of a narrower specialisation it might well be thought that the work of a great business must monopolise all the energies of an individual; but Mr. Sutton belonged to a more robust generation. His interests were wide, and he played a conspicuous part in the agricultural, educational and religious life of the community, and also in the civic life of his native town, in much the same way as Mr. Arthur W. Sutton has devoted time to horticultural and scientific work.

The events which led to Mr. Sutton's resignation from the Council of the Royal Agricultural Society demonstrate at once his foresight and determination. Convinced that it was a mistaken policy to replace the perambulatory show of the Society by a fixed show, he resigned in order to emphasise his disapproval of the scheme for making Park Royal the permanent home of the Society's show. Shortly after its foundation Mr. Sutton became a member of the Council of the college (now University College) at Reading. To his counsel and generosity the College is deeply indebted, but perhaps the deepest debt which members of the staff owe to Mr. Sutton is the encouragement which he gave them in their efforts to bring science and practice into closer touch with one another. Not sanguine as to the immediate benefits which a young science is likely to confer on an old industry, nevertheless Mr. Sutton, like his colleagues and successors in the business, was ready always to encourage investigations, and to put the experience and resource of the great Reading establishment at their service. A quick generosity was a marked characteristic of the men, and we ourselves remember not a few examples, of which one must suffice. Some 10 or 11 years ago, when, in spite of its limited resources, the College determined to establish a horticultural department, and ordered its first stock of seeds and implements from Messrs. Sutton's, a receipted bill was returned instead of an invoice. Mr. Martin John Sutton was a frequent contributor to the Press, both on agricultural and on other subjects. His best-known volume on *Permanent and Temporary Pastures* has passed through numerous editions, and is recognised as a standard work. Mr. Sutton was Mayor of Reading in 1904, and was a freeman of the borough. He was a Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England, and Chevalier of the Legion of Honour. His generosity to the town of Reading was great, and included the presentation of a fine statue of King Edward VII. A man of strong build, with pale, grave face, he seemed severe to those who had not yet discovered that the appearance of severity masked a true kindness of heart, and served to conceal from the world at large the contending qualities of determination and of modesty which, however, were not hidden from nor ignored by his friends. His work for horticulture and agriculture will endure, for like his leading contemporaries he held that the proper conduct of a seedsman's business consists in the rejection from commerce of all but the best.

The funeral took place at Sonning on Wednesday last, and a memorial service was held on the same day at Greyfriars Church, Reading, the memorial service being attended by the Deputy Mayor and Corporation of Reading, and representatives of the numerous societies with which Mr. Sutton was associated.

John Pearson.—Mr. John Pearson, gardener at Beechwood, Murrayfield, Midlothian, died there on the 10th inst., aged 70 years.

George David Clark.—An inquest was held at Dover on the 16th inst. concerning the death of Mr. G. D. Clark, a market gardener, living in Buckland Avenue, but having gardens towards Watersend and elsewhere, who died as the result of injuries caused by a gas explosion occurring at his house early on the 12th inst. Much sympathy was expressed for his widow and family. He was well known in the trade, but must not be confused with Mr. George Clark, the famous florist of Dover.

MARKETS.

COVENT GARDEN, December 17.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.]

Cut Foliage, &c.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum Fern (Maidenhair), best, per doz. bunches ..	5 0- 6 0	
Agrostis (Fairy Grass), per doz. bunches ..	2 0- 4 0	
Asparagus plumosus, long trails, per half-dozen	1 6- 2 0	
— medium, doz. bunches ..	12 0-18 0	
— Sprengeri ..	6 0-12 0	
Carnation foliage, doz. bunches ..	3 0- 5 0	
Croton foliage, vrs., doz. bunc.		12 0-15 0
Cycas leaves, artificial, per doz.		3 0-12 0
Eulalia japonica, per bunch ..		1 0- 1 6
Honesty, per doz. bunches ..		10 0-12 0
Moss, gross bunches ..		6 0 —
Myrtle, doz. bnchs. English, small-leaved ..		6 0 —
— French.. ..		1 0 —
Smilax, per bunch of 6 trails ..		1 0- 1 3

French Flowers.

	s. d.	s. d.
Anemones, double pink, per doz.	2 0- 2 3	
Lilac white, per bunch	3 6- 4 0	
— mauve, p. bnch.	5 0- 6 0	
Marguerites, yellow, per dozen bunches ..	1 9- 2 0	
Mimosa (acacia), per pad	6 0- 7 0	
— — per bunch	0 9- 1 0	
Narcissus, Paper White, per pad	6 0- 7 0	
— — — per doz. bunches ..	1 9- 2 0	
— Soleil d'Or, per pad	6 0- 7 0	
Narcissus, *Continued:*		
— Sol d'Or, per dozen bunches		1 6- 2 0
Ranunculus, scarlet, per dozen ..		10 0-15 0
— Barbaroux ..		3 6- 4 6
— carmine ..		3 0- 4 0
— orange		10 0-12 0
— yellow		10 0-12 0
Roses, Safrona, per packet (24) ..		1 3- 1 6
Violets, single, per pad		5 0- 6 0
— — per dozen bunches ..		1 6- 1 9
— Parmas, large bunch		3 0- 3 3

Cut Flowers, &c.: Average Wholesale Prices.

	s. d.	s. d.
Arums, per doz. ..	3 6- 5 0	
Azalea, White, per doz. bunches ..	4 0- 5 0	
Camellias, per doz.	1 6- 2 0	
Carnations, per dozen blooms, best American varieties ..	1 9- 3 0	
— smaller, per doz. buaches ..	15 0-18 0	
— Carola (crimson), extra large	4 0- 5 0	
— Malmaison, per doz. blooms:		
— — pink ..	6 0- 9 0	
Chrysanthemum:		
— White and coloured, large specimen blooms	4 0- 5 0	
— Special blooms	2 0- 2 6	
— Medium blooms	1 3- 1 9	
— Bunch, white, per doz. ..	6 0- 8 0	
— — coloured, per doz. ..	5 0- 8 0	
Daffodils, single, per doz. bnchs	15 0-18 0	
Eucharis, per doz.	2 6- 3 0	
Freesias, per dozen bunches ..	3 6- 4 0	
Gardenias, per box of 15 and 18 blooms.. ..	4 0- 6 0	
Lapageria alba, per doz. blooms ..	2 0- 2 6	
Lilium auratum, per bunch ..	2 0- 2 6	
— longiflorum, per doz., long..	2 0- 2 3	
— — short ..	1 9- 2 0	
— lancifolium album, long ..	1 6- 2 0	
— — short ..	1 3- 1 6	
— rubrum, per doz., long ..	2 0- 2 6	
— — short ..	0 9- 1 0	
Lily-of-the-Valley, per dozen bunches:		
— extra special ..		15 0-18 0
— special		12 0-14 0
— ordinary ..		9 0-10 0
Orchids, per doz.:		
— Cattleya ..		15 0-18 0
— Cypripedium ..		2 0- 3 0
— Dendrobium Phalænopsis ..		1 6- 2 0
— Odontoglossum crispum ..		3 0- 4 0
Pelargoniums, per doz. bunches, double scarlet		9 0-10 0
Pointsettias, per doz. blooms ..		10 0-12 0
Roman Hyacinth, per doz. spikes		0 9- 1 0
Roses: per dozen blooms, Bridesmaid		2 0- 2 6
— Kaiserin Augusta Victoria		3 0- 4 0
— Liberty ..		4 0- 5 0
— Mme. Carnot..		2 6- 3 0
— Madame A. Chatenay ..		3 0- 4 0
— Melody ..		3 0- 4 0
— Niphetos ..		1 6- 1 9
— Richmond ..		3 0- 5 0
— Sunburst ..		2 6- 3 0
— Sunrise ..		2 6- 3 6
Spiræa, per doz. bunches ..		6 0- 8 0
Stephanotis, per spray of 72 ..		3 0- 3 6
Tuberoses, per gross		4 0- 5 0
Tulips, per dozen bunches, scarlet		9 0-12 0
— — — yellow ..		10 0-12 0
— — — white ..		9 0-12 0
Violets, English, per dozen bunches		1 0- 1 6
— Princess of Wales per doz. bunches		2 0- 3 0

REMARKS.—Trade has improved, and during the next few days we may expect a busy time. A fair amount of flowers has been despatched to the provinces this week. White Chrysanthemums in bunches appear to be more plentiful than coloured blooms. Prices for those of best quality have advanced, especially for good yellow and bronze varieties. Carnations are a little more plentiful, except scarlet varieties, which are a very short supply. The price for Arum is higher than for Liliums. Supplies of Camellias, Roman Hyacinths, Lily-of-the-Valley, and Daffodils are, so far, sufficient for the demand. Gardenias are becoming very scarce, and are consequently dear. Roses such as Madame Abel Chatenay, Richmond, and a few blooms of Liberty are arriving in a good condition, and their prices are a trifle firmer, especially for those with long stems. Freesias continue to sell well. Bunch Tulips and Tulips on the bulbs are fresh subjects this week, and these should find a ready sale for the Christmas and New Year's trade. Larger consignments of flowers are arriving from France, and the quality generally is good. Single Violets are at their best condition. For these, also Anemones and Ranunculus, there should be plenty of business in the foreign flower market.

Plants in Pots, &c.: Average Wholesale Prices.

	a. d.	a. d.
Aralia Sieboldii, dozen	6 0- 7 0	
Araucaria excelsa per dozen ..	18 0-21 0	
Asparagus plumosus nanus, per dozen	10 0-12 0	
— Sprengeri ..	6 0- 8 0	
Aspidistra, per doz., green	18 0-30 0	
— variegated ..	30 0-60 0	
Azalea, per doz. ..	30 0-36 0	
Begonia Gloire de Lorraine, 48's, per dozen ..	9 0-12 0	
Cacti, various, per tray of 15's ..	4 0 —	
tray of 12's ..	5 0 —	
Chrysanthemuma:— 48's, per doz. ..	6 0-10 0	
Cocos Weddeliana, per dozen, 60's	6 0-12 0	
— larger, each ..	2 6-10 6	
Croton, per dozen	18 0-30 0	
Cyclamen, 48's, per dozen	10 0-12 0	
Cyperus alternifolius, per doz.	5 0- 6 0	
— laxus, per doz.	4 0- 5 0	
Dracæna, green, per dozen ..	10 0-12 0	
Erica gracilis, per dozen	9 0-12 0	
— hylmalis ..	10 0-15 0	
— nivalis, per doz.	10 0-15 0	
— small, in thumbs, per dozen ..	4 0- 6 0	
Ferns, in thumbs, per 100.. ..	8 0-12 0	
— in small and large 60's ..	12 0-20 0	
Ferns, in 48's, per dozen	5 0- 6 0	
Ferns, choicer sorts, per dozen ..	8 0-12 0	
— in 32's, per doz.	10 0-18 0	
Geonoma gracilis 60's per dozen..	6 0- 8 0	
— larger, each ..	2 6- 7 6	
Kentia Belmoreana, per dozen	5 0- 8 0	
— Fosteriana, 60's, per dozen ..	4 0- 8 0	
— — larger, per dozen	18 0-36 0	
Latania borbonica, per dozen ..	12 0-30 0	
Lilium lancifolium rubrum, per dz.	12 0-18 0	
— lancifolium album	15 0-18 0	
— longiflorum, per dozen ..	12 0-18 0	
Lily-of-the-Valley	18 0-21 0	
— 48's, per dozen	21 0-30 0	
Marguerites, in 48's, per doz., white	6 0- 7 0	
Pandanus Veitchii, per dozen ..	36 0-48 0	
Phœnix rupicola, each	2 6-21 0	
Poinsettias, per dozen 48's ..	10 0-12 0	
Roman Hyacinths, per doz. ..	1 6- 1 9	
Solanums, 48's per dozen	6 0-10 0	
Spiræa japonica, per dozen pots	6 0- 8 0	
— pink	10 0-12 0	
Tulips, on bulb, per doz. scarlet	1 3- 1 6	
— — — yellow	1 0- 1 3	
— — — white	1 0- 1 3	

REMARKS.—The salesmen have disposed of large numbers of plants this week, and good business is expected to continue. Erica hyemalis, Solanum capsicastrum, Cyclamens, Poinsettias, Marguerites, and Azaleas are the chief flowering plants on sale. The trade in Palms and Ferns is also very good, and large consignments of these plants are being despatched to the provinces. Prices for flowering plants are firmer.

Fruit: Average Wholesale Prices.

	a. d. s. d.	s. d. s. d.
Apples, English Dessert, ½ bushel..	5 0- 8 0	
— cooking, per bushel	5 6- 8 0	
— Cox's, per ½ bush.	8 0-10 0	
— Cox's Orange Pippin, pr. case	16 0-18 0	
— American, brls.	36 0-38 6	
— Californian Newtown Pippin, case	10 6-11 6	
— Nova Scotian, barrel	24 0-28 0	
— Oregon, Newtowns, case ..	13 6-15 0	
— Wenatchee, case	14 6-15 6	
Avacado pears, per dozen	12 0-18 0	
Bananas, bunch:		
— Double Ex. ..	17 0 —	
— Extra	15 0-16 0	
— Extra medium	13 0 —	
— Giant	20 0-22 0	
— Medium ..	12 0 —	
— Red, per ton ..	£25 - £28	
— Jamaica, p. ton	£11 - £12	
Cranberries, Cape Cod, per case ..	9 6-12 6	
Custard apples, per doz. ..	6 0-12 0	
Dates, dozen boxes	4 0- 4 6	
— per cwt. case..	20 0 —	
Figs, Kadrowi. cwt.	11 0 —	
Grapes—English:		
— Gros Colmar, per lb.	0 10- 2 6	
— Black Alicante	0 10- 1 6	
— Canon Hall Muscat ..	1 3- 4 0	
— — Special, per lb.	6 0-10 0	
— Muscat of Alexandria	1 3- 4 0	
— — Special ..	6 0-10 0	
Grapes, *continued:*		
— Almeria, per barrel		16 0-21 6
— — per dozen lbs.		5 6 —
Grape Fruit, case: — 96's .. — 80's .. — 64's .. — 54's ..		12 6-18 6
Lemons, Messina, per case ..		12 6-26 0
— Malaga ..		21 0 —
— Murcia, p. case		16 0-22 0
Limes, per case ..		4 6- 5 6
Lychees, box ..		1 6 —
Nuts:		
— Almonds, sack		64 0-65 0
— Barcelona, sack		44 0 —
— Brazils, cwt. ..		95 0 —
— Chestnuts, Naples, per bag ..		12 0-20 0
— Cobnuts, English, per lb. ..		1 3- 1 4
— Cokernuts, per 100		18 0-22 0
— Grenobles, bag		8 0- 9 0
— — French, bag		8 0- 9 0
Oranges, Jamaica..		9 0-11 0
— Denia, per case		16 6-24 0
— Jaffa, per case		9 0 —
— Mandarines, box		1 0- 4 0
— Mercia, p. case		8 6- 9 6
— Vera, per case .		15 6-35 0
Pears, Californian, box		6 6-20 0
— Stewing, ½ bus.		3 0- 4 6
Persimmons, p. box		1 6- 2 6
Pineapples, St. Michael ..		3 0- 4 0
Holly, per bunch..		2 6-10 0
Mistletoe, per crate		13 0-15 0

REMARKS.—English dessert Apples are now limited to a few fruits of Cox's Orange Pippin. Of cooking varieties the chief are Dumelow's Seedling, (Wellington) Newton Wonder, and Bramley's Seedling. Apples from Nova Scotia to hand this week arrived in an excellent condition, the bulk being packed in barrels. There are also large consignments of Apples from the United States and Canada. California is sending large supplies of boxed fruits. Pears and seedless Oranges. Supplies of black Grapes from English and Belgian growers are well maintained, but English Muscats are a decreasing supply. English Tomatos are still available in limited quantities. Fewer Tomatos have been received from the Canary Islands this week. Nuts are a shortage from all sources, with the exception of Naples Chestnuts. Forced vegetables include Asparagus, English and French Beans, Peas, Potatos, Seakale, Cucumbers, and Mushrooms. Salads are available in fairly large quantities for the season of the year. Rhubarb from Yorkshire is an increasing quantity daily. The commoner vegetables are all still very plentiful.—*E. H. R., Covent Garden, December 17, 1913.*

Vegetables: Average Wholesale Prices.

	a. d.	s. d.
Artichokes, Globe, per dozen ..	2 0- 3 0	
— ground, ½ sieve	1 0- 1 3	
Asparagus, Paris green	4 3- 4 9	
— Cavillion ...	2 10- 3 0	
— Sprue	0 6- 0 8	
— English bundle	3 0- 7 0	
Beans, Guernsey, lb.	1 6- 2 0	
— Madeira, per basket	5 0- 6 0	
— French canes..	4 6- 5 0	
Beetroot, per bushel	2 0- 2 6	
Cabbages, per tally	2 6- 4 0	
Carrots, (English), bags	3 0- 4 0	
Cauliflowers, per dozen	1 6- 2 6	
— St. Malo heads, per dozen ..	2 0- 3 0	
Celeriac, French, per dozen ..	1 6- 2 0	
Celery, per doz. ..	7 0-10 0	
Chicory, per lb. ..	0 3-0 3½	
Cucumbers, per doz	12 0-15 0	
Endive, French, per dozen	1 6- 2 0	
Garlic, per strike..	3 0- 4 0	
Horseradish, 12 bundles ..	9 0-10 0	
Leeks, per dozen ..	1 6- 2 0	
Lettuce, English, Cos, per score	1 3- 1 6	
— English, round, per score ..	0 6- 1 0	
— French crates	2 0- 3 6	
Mushrooms, cultivated, per lb...		0 10- 1 0
— Broilers ..		0 8-0 10
— Buttons ..		1 0- 1 3
Mustard and Cress, per dozen punnets		0 10- 1 0
Onions, picklers, per ½ bushel ..		1 6- 2 0
— Dutch, bags ..		5 0- 5 6
— English, bags..		6 6 —
— Spanish, cases		7 0- 7 6
Parsley, per dozen bunches ..		1 6- 2 0
Parsnips, per bag..		3 6- 4 0
Peas, Guernsey, lb.		2 0- 2 6
Radishes, per doz.		1 0- 1 3
Rhubarb, Leeds, forced, dozen bundles ..		2 0- 2 6
Sage, per dozen ..		2 0 —
Savoys, per tally ..		4 6- 6 0
Seakale, per punnet		1 3 —
Spinach, per bushel		1 6- 2 0
Sprouts, ½ bushel..		1 0- 1 3
— ½ bags		2 0- 2 6
Stachys tuberosa, lb.		0 4- —
Tomatos, English, per dozen lbs.		5 0- 6 0
— Canary, bundle		20 0-24 0
Thyme, per dozen bunches ..		2 0- 6 0
Turnips (English), per bag ..		2 0- 2 6
Watercress, per doz.		0 4- 0 6

Potatos.

	s. d.	s. d.
Bedford, per cwt.	3 6- 3 9	
Blacklands	2 6- 2 9	
British Queen ..	3 6- 4 0	
Dunbars	4 6- 5 0	
Evergood	3 0- 3 3	
Langworthy, per cwt.		5 6 —
Kent		3 0- 3 6
King Edward ..		3 3- 3 9
Up-to-date		3 6- 3 9

REMARKS.—Trade is only good for best quality tubers; others are very cheap and sell with difficulty. Stocks in London are very heavy, and the growers are sending large consignments. *E. J. Newborn, Covent Garden and St. Pancras, December 18, 1913.*

THE WEATHER.

GENERAL REMARKS.

December 16, 1913.

Weather.—The general conditions were dry over England, although the sky was usually cloudy or overcast. In the north and west of Scotland rain was frequent, and in Ireland and the western portions of Great Britain there were few days without a measurable quantity.

Temperature was low in Scotland at the beginning of the week, but soon rose rapidly, so that the mean for the week was in excess of the normal over the entire Kingdom, the greatest difference being 6° in the Midland Counties. The highest of the maxima were recorded on the 8th or 9th, and ranged from 59° in Scotland East to 54° in England South-West. The lowest of the minima, which occurred on the 7th in the north and east of Great Britain, and the 13th elsewhere, varied from 5° in Scotland East (at Balmoral), 17° in Scotland North, and 20° in England North-East to 35° in England South-West, and to 44° in the English Channel. The lowest grass readings were 3° at Balmoral, 14° at West Witton, 15° at Crathes, 17° at Durham, and 19° at Marchmont and Newton Rigg. Over the Kingdom generally the temperature of the soil was still above the average both at a depth of 1 foot and 4 feet.

Mean Temperature of the Sea was again above the normal on almost all parts of the coast, the mean for the week ranging from 53° at Plymouth, 52° at Newquay, and about 50° at Scilly, Cleggan, and Seafield to 43° at Kirkwall. Cromarty and Scarborough. At nearly all the stations the water was warmer than in the corresponding week of last year.

Rainfall was less than the average in all districts. Over the eastern half of England the fall was less than 0.05 inch, and at several stations the week was rainless.

Bright Sunshine was below the normal except in Scotland East. The percentage of the possible duration in that district was 18, but in Scotland West and Ireland North it was only 6, and in Scotland North only 4. Over the major portion of the Kingdom the daily mean was less than 1 hour, and in Scotland North only 0.3 hour.

Barometer and Wind.—At the commencement of the week a high pressure ridge extended from the Bay of Biscay region to beyond the north of Scotland, the wind being moderate from the westward in Ireland, but light and variable over Great Britain. By Monday, however, the high pressure had retreated to the Continent and the wind had become south-westerly or southerly over these islands, and the force increased. From this time onward the barometer was highest to the southward or south-westward of this country, while the centres of large depressions travelled eastward from Iceland to northern Europe. The main wind direction consequently became westerly, and its force varied from a light to fresh breeze in the south to a strong breeze or a high wind in the north-west and north. In Scotland, the north of England, and the north of Ireland the force of a gale was experienced at times.

THE WEATHER IN WEST HERTS.

Week ending December 17, 1913.

Another Unseasonably Warm Week, and the Thirteenth in succession.—This was another warm week, and the thirteenth of the series. During the last ten days there has not been a single unseasonably cold day, nor a single unseasonably cold night. The ground is at the present time 3° warmer than is seasonable, both at 1ft. and 2ft. deep. No measurable quantity of rain fell during the week, and less than ¼in. since the beginning of the month. There has been no measurable percolation through either of the soil-gauges during the past four days. The sun shone on an average for two hours, six minutes a day, which is nearly an hour a day longer than is usual at the same period in December. On one day (the 13th inst.) the sun was shining brightly for 5¾ hours—or, with two exceptions, for a longer time than in any December day for fifteen years. The winds were as a rule of moderate strength, and came exclusively from some westerly point of the compass. The mean amount of moisture in the air at 3 p.m. fell short of a seasonable quantity for that hour by 4 per cent. *E. M., Berkhamsted, December 17, 1913.*

GARDENING APPOINTMENTS.

Mr. T. Howden, for the past 8 years Gardener at Denton Court, Canterbury, as Gardener to A. Du Cros, Esq., M.P., Craigweil House, Aldwick, Bognor, Sussex. [Thanks for 1s. for R.G.O F. box.—Eds.]

Mr. H. B. Johns, previously with E. Craig, Esq., M.P., Alsager, Cheshire, as Gardener at Primley Hill, Paignton, S. Devon.

REPLY.

Primula malacoides and Skin Irritation.—In answer to the enquiry by *W. F.*, p. 432, Primula malacoides does cause irritation of the skin. I have been affected by the plant for a month at a time, whilst a friend of mine has suffered similarly for six weeks. The irritation is worst at night, and may continue till the morning. The trouble starts from the fingers and runs down to the toes. Thin gloves should always be worn when handling this Primula. *John E. Stott.*

Answers to Correspondents

Artificials for Gravelly Soil: *W. J. F.* In view of your soil being gravelly, artificial manures are not the most economical fertilisers to employ, unless the ground contains a good basis of farmyard manure, in which case the humus would retain some of the manurial properties of the fertilisers. A dressing of basic slag may be applied now. Quick-acting manures, such as nitrate of soda, may be applied in small quantities at intervals, and only in the spring, for they would be washed away in the drainage water now.

Bowling Green: *T. D.* A full-sized bowling-green is 40 yards square, which gives six rinks of 20 feet each, and players are enabled to play across and transversely, allowing the ends at which most wear and tear occurs a rest, say, every alternate week, and so keep it in good condition If there is not enough space for a full-sized bowling-green, a smaller, say, three, two, or only one-rink green may be made. Each rink should be 20 feet in width and 40 yards long, but if there is only to be one rink it is advisable to allow 2 or 3 feet over at each side, especially if bowls of larger bias than three degrees are played with. In our issues of January 18 and 25, 1913, you will find full details for the making of bowling greens.

Chrysanthemums for Marketing: *F. S.* The following list of Chrysanthemums includes varieties that will furnish a supply of cut blooms for marketing from early in September to well into the New Year:—September and October (*white*): Roi des Blancs, White Countess, Framfield Early, Madame Desgrange, Cranford White, Quintus (excellent for sprays); (*yellow*) Carrie, Madame Desgrange, Sunshine, Ryecroft Glory, Cranford Yellow, Soleil d'Octobre (October and November); (*pink*) Betty Spark, Cranford Pink; (*red*) Goacher's Crimson, Crimson Polly. November and December (*white*): Souvenir Petite Amie, Mrs. Roots, Moneymaker, Mrs. J. Thompson, Heston White; (*yellow*) Bonnie Dundee, Emblème Poitevine, Golden Age, December Gold; (*pink*) Framfield Pink, Winter Cheer; (*red*) Market Red; (*bronze*) Octobre, Nina Blick, Sydney Peto, and Heston Bronze. The varieties mentioned under the side heading of September and October are suitable for flowering out-of-doors, though in some seasons it may be necessary to protect the flowers of Soleil and Bronze d'Octobre and Cranford Pink from the effects of frost with canvas, while the varieties named under the side heading of November and December are for transplanting under glass in October. The varieties flower in the order in which their names appear.—The *Horticultural Trade Journal* is printed and published by the Horticultural Printing Co. at the Horticultural Printing Works, Burnley, Lancashire.

Lawn: *Lignum.* If your soil is naturally well drained there is no value in retaining the layer of ashes, but if the ground is heavy and likely to be excessively damp in winter the ashes may be allowed to remain. The depth of soil spread over the ashes need not exceed 6 inches, provided you have means of watering the turf in times of drought. In the case of the border around the lawn, it will be best to remove the ashes and prepare the ground thoroughly by digging deeply and manuring. Sometimes turf is laid specially on a layer of ashes with a view to making it drier in winter and spring, but this is an inefficient method of draining.

Names of Fruits: *P. H. R.* 1, Royal Jubilee; 2, Roundway's Magnum Bonum; 3, Dean's Codlin; 4, Bismarck; 5, Gascoyne's Scarlet; 6, Beurré Diel; 7, Hacon's Incomparable.—*J. M.* 1, Blenheim Pippin; 2, Beauty of Kent; 3, Hormead's Pearmain; 4 and 5, Reinnette Grise; 6, Decayed.

Names of Plants: *Nemo.* 1, Nephrodium setigerum; 2, Selaginella Braunii; 3, Carex scaposa; 4, Nepeta Glechoma variegata.—*Supporter.* Tibouchina macrantha, generally called Lasiandra in gardens. The flowers would probably expand better at this season in a warmer house. Afford water with extra care in winter. *A. T. R.* 1, Vanda alpina; 2, Saccolabium ampullaceum; 3, Dendrobium nobile; 4, Dracæna marginata.

National Sweet Pea Society's Trials: *S. S., Mitcham.* Write to the secretary, Mr. H. D. Tigwell, Harrow View, Greenford, Middlesex, and he will give you the information you require.

Peas Diseased: *C. S. and Co.* Suspecting the Peas to be affected with the bacterial disease which Miss Cayley is investigating at the John Innes Institution (see p. 107), we submitted them to her, and she has replied as follows:—"The seeds enclosed show marked signs of a bad attack of the bacterial disease which I am investigating. So far I have found no cure, and diseased seeds should not be sown. They only infect the soil and make matters worse. A large number of varieties of Peas are very susceptible, especially the Marrowfats, Duke of Albany and Ne Plus Ultra. Also many of the dwarfs, like Little Wonder and Best of All. The organism, so far as I can see, is a soil organism, and hence very difficult to deal with. It occurs in most soils. Early sowing is advisable, as the bacteria can only develop rapidly in warm weather."

Phosphorescent Centipede: *Inquirer.* Your record is of much interest, as although certain Myriopods—e.g., Geophilus electricus—and other allied species are well known to give off a phosphorescent light, this remarkable phenomenon is not very often observed. It is strange, moreover, that a beetle should attack such a repulsive-looking creature, and we would venture to suggest that if the specimens are still in your possession you forward them to Professor E. B. Poulton, Wykeham House, Oxford, who is much interested in the subject of insects and their prey, and would fully appreciate any help you may be able to give him in this direction.

Poinsettia pulcherrima: *A. K. T.* The failure of the Poinsettias is probably due to the "liquid manure, such as drains from stable manure." This liquid is of very uncertain strength; sometimes it may be exceedingly strong, and in some cases it may even contain injurious chemicals arising from the disinfectants largely used in stables and cow houses. Too often the farmyard drainage is used undiluted, and trouble sooner or later is sure to arise. The roots of the plant you send are dead. The Camellia flower is of C. japonica (type). The Carnation certainly resembles the variety Lady Allington very closely, but we cannot undertake to say if it is identical. Send flowers to some grower who will compare them with stock plants.

Primulas: *Devros.* The stems of the Primulas have been completely tunnelled by larvæ of some kind, but the only "maggot" which accompanied the injured plants was so completely smashed as to render its specific identity impossible. It is possible, however, that the injury may be due to the larvæ of a weevil belonging to the genus Otiorhynchus, but if you are desirous of having the insect identified send us more material. Needless to say, it is most difficult to suggest a remedy of a thoroughly practical nature, as the grubs are so completely protected; but you might by way of experiment inject a small quantity of bisulphide of carbon into the tunnels of a few plants and watch the result. It is just possible that the reagent may destroy the plants; but it is at least worth a trial, and as the Primulas are, in their present condition, almost useless no very serious harm can be done. We venture to suggest that the pest in question was introduced in the potting material (turf); if so, care should be taken in future to avoid using grub-infested soil without subjecting it to the action of heat.

Unsatisfactory Fig Tree: *W. M.* Take out a semi-circular trench about 2 feet deep, 30 inches from the stem of the tree, and cut clean away all roots protruding outside this space. At the same time, undermine the ball of earth and roots to some extent, and sever with a sharp knife all downward-growing roots that are found. This done, fill in the trench, adding a little lime-rubble or wood-ashes to the excavated soil. Afterwards place a layer a few inches thick of half-rotted stable manure over the circumscribed space as a mulch. Towards the end of April, when the tree is bursting into leaf, do what pruning is necessary, as the wounds will then bleed but very little. Moreover, it can then be easily ascertained which of the shoots are best furnished with young fruits. Cut out as many of the old shoots or branches as will allow of a like number of this year's growths being trained to the wall at about six inches apart, one shoot of the current year being trained in between these branches in due time. Pinch the points out of all extra strong shoots when about 18 inches long, and the weaker ones at 2 feet to promote a balance of growth in the tree as well as the formation of fruit buds for the following year and assist the swelling up of the fruit then on the tree. With this latter object in view the mulching should be renewed, and copious supplies of water given at the roots during this stage of the tree's growth, good drainage being provided.

Vines Failing: *Colonel W. B., Dalton-in-Furness.* A reply to your query was published in the issue for October 25, p. 298. We have since written to you by post, but presumably the address you furnished was insufficient.

Vines: *S. H. G.* The sulphur of iron will do no harm if it is applied whilst the vines are dormant. It will be best to prune the rods before spraying them. The material may be dissolved in luke-warm water.

Communications Received.—B. T. W.—H. S.—C. P. M. D., Holland—G. W. W.—A. N.—G. D.—H. H., Hastings—S., Frankfurt-am-Main.—Constant Reader—A. C. S. M. [Thanks for 1s., which will be placed in the R.G.O.F. box.—Eds.]—W. H.—H. N. K.—G. F.—H. B.—G. K. K.—G. H.—W. H.—M. B., Java—B. L.—G. W. H.—C. E. P.—D. F., Washington—F. W.—W. B., Malta—H. T.—G. J. N.—G. D. H.—C. H. H.—R. W. C.—G. H.—A. G.—G. F. G.—C. F. C.—E. O.—M. B.—A. S.

CYCLAMEN LATIFOLIUM "ST GEORGE"

[The variety gained an Award of Merit (R.H.S.) on January 21, 1913, for its effective foliage.]

THE
Gardeners' Chronicle

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ILLUSTRATIONS.

IS THE EARTH DRYING UP?

THE paper bearing this title, which was read by Professor J. W. Gregory at a recent meeting of the Royal Geographical Society, is a notable contribution to our knowledge of an important and difficult subject. No one denies that in the past the distribution of the two major elements of climate, temperature and rainfall, have undergone great variations, and that in consequence the distribution of vegetation has changed from time to time. But it is a far cry from the warm-temperature conditions of carboniferous times to the ice-sheets of the glacial period, or from the glacial period to the climate of our own time. We know from independent evidence that these changes took tens and hundreds of thousands of years, and the proposition that continuous changes of the same sort, of magnitude sufficient to vary the volumes and areas of streams and lakes, to modify vegetation, and so eventually to cause considerable migrations of the human race, have occurred over large areas since the dawn of history, is difficult of acceptance.

Yet it cannot be denied that in many parts of the world there are appearances which go to support this proposition. Many travellers in the arid regions of the globe bring news of shrunken lakes and streams, of dying vegetation, and of long-deserted cities; and draw, as it seems irresistibly, the conclusion that rainfall has diminished. Again, students of biblical and classical history have compared present conditions with those described in contemporary records, to find that Mesopotamia and Palestine, Egypt and Greece have so diminished in productiveness through shortened water supply that it is now impossible for them to maintain the population they once did. And these are no vain imaginings of the uninstructed; they are associated with the names of Kropotkin, Aurel Stein, Ellsworth Huntington, Myres, and a host of skilled pioneer explorers and surveyors.

Professor Gregory has, with immense labour, sought out and summarised the facts, and in this alone he has rendered a great service. The "list of references" appended to his paper contains many dozens of entries, and it is independent of the detailed references to Scripture and the classics in the text, in which the author has had the expert assistance of such authorities as Professor Stevenson, Mr. A. W. Gomme, and Principal George Adam Smith. But he has not merely collected the material: he has subjected it to searching and exhaustive criticism, and the criticism is, as it proves, destructive. The conclusion quite clearly set forth is that "there have been many and world-wide climatic changes in late geologic times, while in historic times there has been no world-wide change of climate."

It is not practicable within the limits of space at our disposal to give even an outline of the methods employed by Professor Gregory; different methods are elaborated for almost every one of the separate regions of which he treats. A few examples must suffice to indicate their ingenuity and delicacy, and, we may add, their effectiveness.

To decide a question of secular variation of climate a more precise test is necessary than can be afforded by the variation of lakes or the ruin of cultivated lands or cities; for these occur in marginal regions of climate, it may be in consequence of catastrophic events such as earthquakes, or minor accidents like movements of wind-blown deposits, or even (in the two last cases at least) from political or geographical causes operating altogether outside the area concerned. A better test is best afforded by changes of vegetation of a kind not wholly destructive, such as changes which have taken place in the range of food plants or fruit trees in the countries of which we have the longest written records. Palestine furnishes a very good test case of such a nature. Professor Gregory produces a formidable array of authorities to show that no conclusions based on definite numerical statements given in scriptural writings can be maintained; and then proceeds to review the evidence obtained by Schouw, Arago, Forbes, Eginitis and others from the distribution of the Date-palm. The Date-palm has three limits of growth which are determined by temperature; it only reaches full maturity and produces ripe fruit of good quality at or above a mean annual temperature of 69° F. Between 69° F. and 62° F. the fruit is usually so unripe as to be inedible. Below 62° the Date-palm is grown only for its foliage; it does not fruit. Now the mean annual isothermal line of 69° crosses Southern Algeria near Biskra; it touches the northern coast of Cyrenaica, near Benghazi, passes Egypt near the mouth of the Nile, and then bends northward along the coastlands of Palestine. The isotherm of 62° F. enters Europe in south-western Portugal, passes south of Nice, skirts the north-western coast of Italy to Naples, crosses Northern Greece, and enters Asia Minor in Smyrna. Hence at Benghazi the Date-palm is fertile, but produces fruit of poor quality; at Palermo and Algiers the fruit ripens occasionally; at Rome and at Nice the Palm is only grown as an ornamental tree. Dates grow on the coast of Palestine, and in the deep depression round the Dead Sea; but the Palm does not produce fruit on the highlands of Judæa.

In biblical times Jericho was "the city of Palm trees," and the fact that the Palm has died out since must be merely the result of neglect, for it could not have grown if the climate was moister and cooler. Engeddi, on the western shore of the Dead Sea, also had Palm trees; and the Date-palm certainly grew on the highlands of Palestine. But there was no Date crop. Dates are not once referred to in the text of the Bible. The Palm tree is praised for its beauty and erect growth; it is used as a symbol of victory, but not of plenty. If then the climate had been seriously different either way from what it is now Jericho would not have held the distinction of *the* city of Palm trees; for in a hotter and drier climate Dates would have ripened on the highlands; in a colder and moister they would not have ripened at Jericho.

The evidence of the Vine supplements that of the Date. Where the mean annual temperature is above 72° the Vine requires artificial shade and protection. In Cairo, for example, it must be kept cool and moist. Palestine lies to this day on the extreme edge of Vine-cultivation, just as it did when the twelve spies returned from Eschol with the clusters of Grapes. There can have been no change of any practical importance in the climate of Palestine since the days of the Patriarchs and of the Jewish Kings.

In North-Western Europe and the British Isles the methods applicable are necessarily somewhat different. The engineering works of the Romans suggest that British rivers carried very much the same volumes of water in Roman times as they do now. Records of "severe" winters and "hot" summers are uncertain things at the best, and if they do suggest that the climate of Denmark and Southern Scandinavia shows a diminished range of temperature during the last thousand years—and the fact seems still scarcely established—there appears to have been no appreciable change in the average annual temperature or in the mean rainfall. Much has been made of the disappearance of Vine-cultivation for wine-making in England, but there is even now no difficulty in cultivating the Vine in the open; the trouble is with the quality of the vintage. As Professor Gregory wisely remarks: "In the Middle Ages people were contented with

worse wine and ate sourer Grapes than they will now, when the superior produce from Southern Europe can be bought at a cheaper price than the inferior local product."

Professor Gregory's methods of treating the evidence from marginal areas near the arid regions are no less illuminating and conclusive, and the whole paper is exceedingly suggestive. It is remarkable, by the way, that none of the long-period records of instrumental observations of temperature or rainfall, which now cover periods of 100 to 150 years with reasonable precision, give any hint of secular change.

But we fear that Professor Gregory must expect not to be believed. It has been proved to demonstration that the weather is not fore-ordained or predetermined by the phases of the moon, and that there are no such things as equinoctial gales, yet, knowing these things to be mere superstitions, we continue steadfastly to believe in them all the same. *D.*

FLORISTS' FLOWERS.

NOVELTIES IN PERPETUAL FLOWERING CARNATIONS.

AT the show held on the 3rd inst. a few really good novelties were to be seen, and seven varieties gained Awards of Merit, five of them not being yet in commerce. I have grown the remaining two varieties here and can recommend them, especially Queen Alexandra. This is a sport from Scarlet Glow, a lovely bright salmon colour. It is quite the best of its colour, and has no equal for general decorative purposes. Enchantress Supreme, the other variety to secure an Award, is an American sport from the old favourite. It is rather deeper in colour and has a better calyx than Enchantress, and the calyx does not split. Of those not yet in commerce two come from America, and both should prove acquisitions. Champion, Mr. Dorner's new scarlet, secured the medal for the best vase in the show. This is the scarlet which has long been looked for. Gorgeous is one of Mr. Peter Fisher's novelties, and if we can judge it by the blooms exhibited, it is a variety with a very great future. The colour is bright cerise and the flower is of giant proportions.

Cinderella was exhibited by its raiser, Mr. Fairbairn, and appeared a very pretty variety. It might be called a Mikado with bright scarlet markings. Lady Fuller was exhibited by its raiser, Mr. Wall, and I think will prove the best of the Lady Allington type. It is a much brighter colour and has a stiff stem.

Pioneer, the other variety to get an Award, is one of Mr. Engelmann's seedlings. It is of a rose-pink colour, and the blooms and plants exhibited suggest that it will be a good commercial variety.

Among others which were not staged for awards, the best I noticed were Circe, Scarlet Carola, Variegated Carola, and Wivelsfield White. Of the latter variety I had the pleasure of seeing several thousand plants growing at Wivelsfield, doing well. It is a rather more solid flower than White Wonder, and at Wivelsfield was certainly freer and quicker in growth. Another variety which was looking extraordinarily well at Wivelsfield was Mary Allwood. No one who visited the show could have failed to admire the many vases of blooms of this lovely variety, and I am sure it has a future. Other novelties sent out this year which are worth notice include the best British raised white, Fanny; a fine fancy, Mrs. A. F. Dutton, which I consider one of the best Carnations ever introduced; and Salmon Enchantress.

Of the older varieties the best are White Wonder, White Perfection, Scarlet Glow, Carola, Triumph, Lady Northcliffe, Enchantress, Mrs. Ward, Rosette, Mikado, Benora, Sunstar and May Day. *H. E. Usher, Ranston Gardens, Blandford.*

CYPRIPEDIUM BOURTONENSE.

OUR illustration (fig. 158) represents on a reduced scale the C. Bourtonense (insigne Harefield Hall × Blanche Moore), for which the raiser, G. F. Moore, Esq., Bourton-on-the-Water (gr. Mr. Page) received an Award of Merit at the Royal Horticultural Society's meeting on December 16 last. The flower has a greenish ground

FIG. 158.—CYPRIPEDIUM BOURTONENSE. (Reduced.)
(R.H.S. Award of Merit, December 16, 1913.)

colour, tinged and spotted with chocolate-purple, the upper part of the dorsal sepal and half of the lower sepals being white. The latter are unusually strongly developed, a character which may be found to be subject to variation.

THE STERILISATION OF GRASS SEED.—Experiments on the effects of antiseptics on grass seed led SCHRODER to conclude that so strong a solution as 5 per cent. silver nitrate produced no ill effect on germination, and he suggested, therefore, that silver nitrate would prove to be a valuable agent for sterilising the coats of grass seed. More recent experiments by BIRCKNER (*Biol. Cbl.*, 33, 1913), show that 1.7 per cent. solution of silver nitrate reduces the germination to 80 per cent. of the normal. Solutions of one-tenth this strength are also injurious if allowed to act on the seeds for eight hours; but if seed be exposed to the dilute solution (0.17 per cent.) for a shorter time no ill effects are produced.

GARDEN DESIGN.

Mr. EDWARD WHITE delivered a lecture on "Garden Design" at a meeting of the Royal Horticultural Society on December 2.

He said that notwithstanding the complexity of the subject of garden design there was one issue which was quite simple. One always desired to arrange in a garden a few principal pictures, dominated by the house, with which were combined a number of secluded scenes of a specialised character; one condition being that the latter should not destroy the breadth of the principal views. The enduring charm of the garden depended upon variety and individuality, derived preferably from some characteristic natural to the site. Instead of adopting conventional ideas and methods, there should be impressed on every garden a character as distinct as possible from that of any other. If this condition were accepted, it followed that the continued aim of the landscape gardener should be to cultivate his own imagination and stimulate the same quality among his clients. Thousands of years ago people realised the charm of an ordered arrangement of flowers as an accessory to a building, and the originator of the idea of a garden, Mr. White thought, would have been gratified if he could have foreseen the development of his conception through the ages, and interested to follow the discussions connected with garden design. The lecturer mentioned that at the early period of the invention of printing the art of gardening was well established in this country, and in many respects there was little difference between the plan of the earliest flower gardens and those of the present day.

There had since been many sharp controversies on the subject of garden design, and in view of the virtues attributed to gardening, it was curious that the discussion of its principles should often be conducted with acrimony and unfairness, some distorting views from which they differed to an unfortunate extent. It was good to study every opinion, but it was desirable that conflicting statements should be put one against another by the student of garden planning, who should reserve his judgment until he had had sufficient experience to form independent opinions. It would be understood that those remarks referred particularly to the well-worn discussion on the respective merits of formal and informal gardens. In his opinion sufficient service had already been performed by argument. They knew that there existed in this country many beautiful specimens of each style which the ablest advocate of either system would hesitate to alter in favour of one more acceptable to himself, and from this they might infer that either form might be right in the right place and that the two systems were not necessarily in conflict. Informal gardens, he remarked, were specially suited to a climate like ours, which was favourable to the luxuriant growth of grass and shrubs. He did not hesitate to advocate either system in the place to which it was best fitted.

Proceeding to define the two styles, the lecturer said it was well to understand what they meant by the words formal and informal. Formal gardens in some minds meant only a system of expensive parterres and conventional design, but the definition he suggested gave a more liberal interpretation. As he understood it, it was one in which the designers frankly disciplined Nature. They allowed her no voice in the shape of the garden, which was intentionally artificial, and thus accepted no practical guidance from her as to the kind of picture they created. Formality implied methodical arrangement, and generally carried with it a character of symmetry and regularity. There was no reason why the formal garden should be lacking in touches of a tender nature. In the informal garden they affected to indulge Nature, but in reality they tried to coax her into a mood of their own

choosing. They did not pretend to copy Nature, but they accepted hints from her, and arranged their masses and groups in forms which they knew Nature could develop to the most picturesque advantage. Informal gardens should bear evidence of care and attention, because it was advisable to give an air of effect and refinement in keeping with the character of the house.

The standard test of suitability was that there should be a feeling of complete unity between the house and the garden. It must also be remembered that fitness of the site was essential. No definite rules could be laid down, but there were certain conditions under which one style or the other might be more appropriate, since there were wide differences between various types of architecture and sites. The lecturer referred to the classical style of mansion and other types of houses, with terraces necessitated by steep slopes, and said that flat sites required no such artificial support. When the distance view was of dominant importance in the outlook the effect might be weakened by introducing intricate garden details in the foreground. When there was no distant view, or an uninteresting one, a formal garden could generally be employed to advantage, as also when the only view was confined to a narrow vista on a central axis. A small site with no external view could generally be made more interesting when treated formally, and its limitations could be concealed by sub-division and variation of level. Speaking generally, he thought one might say a formal garden could be arranged legitimately when it did not entail the destruction of any existing trees or other natural features which were particularly worth preserving; when the area was limited, or when the external scenery was not such that it must always be of greater importance in the main picture than the garden.

Speaking of informal gardens, the lecturer said that many had been constructed on wrong principles, a complaint of long standing, as a century ago they found a poet satirising effects which the maker of informal gardens was constantly being urged to avoid at the present day. It was an elementary condition of the garden, he said, that it should be united harmoniously with the house—that is, neither garden nor house should appear to be isolated, and each should rely upon the other to give a sense of completion. The first means to this end was to ensure that the walls or the building should be incorporated with a strong base, and that the garden also should seem to derive its inspiration from the same source. This base was usually called the terrace, but it should be understood to consist not only of the raised part on which the house stood, but the whole foundation and setting of the building. Most houses were improved by a certain elevation above the garden, but a perched-up effect should be avoided. The terrace should not be so broad as to cut off the view. If the levels necessitated three terraces, the lowest should be the widest. An important means of creating a sense of unity was to extend the axial lines of the house into the garden, so that from all the principal exits one looked into a vista picturing the heart of the garden. Other means were to frame the house attractively from a few points of view, and to arrange the tour of the garden in such a way that one could leave the terrace at one end and rejoin it at the other without retracing one's steps in the circuit. If such a feature as a fine old tree could be associated with the terrace or combined with a path connected with the latter a feeling of stability was created. The framing of the house by trees, the use of climbing plants on the building and of shrubs at the point of connection between the terrace and garden, were valuable aids to unity.

On the subject of garden planning the lecturer emphasised the importance of the lawn, and said it was a medium which united and gave stability. It was not surprising that no substitute could be found to compete with grass as a foreground in garden landscape. Whenever one was in doubt what to do with ground in front of a house no safer expedient could be adopted than establishing greensward. Many gardens were spoiled by the idea that this was the situation calling most loudly for the introduction of brightly-coloured flowers. The placing of the right trees and shrubs in the right places was a matter of commanding importance. Another matter referred to was the balance and proportion obtained by the proper combination of trees and shrubs and grass. A great problem was to dispose grass and plants in such a way that the limitation of neither would be noticeable. One must try to establish an intricacy which was midway between uniformity and confusion. The site was sometimes so restricted that it offered opportunities for no more than one principal picture, and in such a case it was better to concentrate on this one picture. A landscape effect was more satisfactory when it was based on one dominating line of view, because scenes in which two or three vistas competed for notice produced a distracting and confused result. The position of the chief masses of planting must first be settled. This would be decided more or less arbitrarily by the necessity of finding shelter from winds, screening unsightly objects, etc. Other masses would be arranged to provide a rough balance of composition, small groups being placed to connect larger masses, and still smaller groups and trees and shrubs being utilised to complete the sense of continuity. Boundaries would not be planted continuously except for some necessary reason, and openings would be left to frame some distant object, such as a church spire, or bridge, or other feature. Many external objects which scarcely occasioned remark when we saw them in open country became treasured possessions when framed in the garden picture.

The texture, shape and colour of the leaves and habit of the tree had to be considered. A good result was effected by the planting of large masses of the same kind of tree of unobtrusive shape and texture, as they formed a backbone to the garden and helped to emphasise neighbouring trees of a more conspicuous character. A group of trees should generally consist of a larger proportion of such foliage than of the lighter and more feathery kinds. Dark and heavy greens could be used for groups in association with old buildings, and lighter shades where a less serious treatment was required. The feathery kinds were best planted near water. There were so many trees of beautiful form and texture which had lovely flowers in the spring and a wide range of tints in the autumn that the balance was in favour of their use rather than that of an excessive number of trees of brilliant foliage. A combination of foliage in colours which were rightly contrasted was generally more effective than that in which the shades were somewhat similar. It might be asked, in giving such dominant importance in the arrangement of a garden to trees and shrubs, was he not going to grow flowers, on which depended so much of the pleasure of a garden? Provision for flowers would, of course, be made, but Mr. White pointed out that the informal garden was generally more picturesque and inviting in winter than the formal garden, and if this result was to be obtained large areas in central lines of view could not be utilised for flowers, as the effect of these areas was bare and desolate in winter. There were opportunities for symmetrical arrangements on the terrace, and large masses of flowers could be arranged with groups of shrubs. Other flower-beds could be placed at the intersection of paths, and special gardens—rose gardens, rock gardens, and water and other gardens—constructed in secluded parts. The informal garden did not lack facilities for the introduction of as many flowers as one would wish, and the style need not necessarily represent a mere collection of trees and shrubs, which naturally were insufficient to satisfy most people's idea of a garden.

There were not many of the largest gardens in England which could be described as either strictly formal or informal. The style now recognised as distinctively English was expressed by a happy combination of all styles, assimilating them in harmonious manner. Mr. White referred to the formal gardens of Italy and France, and said the revolt against the French and Dutch styles facilitated the great revolution effected by informal landscape gardeners a century and a half ago. The style of Le Nôtre, the great French garden architect, however, must have had world-wide influence, as was evident from operations under his own control, in Sweden, Germany and France. The general principle of those gardens designed originally by Le Nôtre was very similar, and the expense of construction must have been enormous. Considered from our present point of view, the result was scarcely worth the outlay. He described one of the gardens of the King of Sweden. There were avenues of magnificent old Limes, deficient in places, upon which Mr. White said he was asked to give an opinion concerning the suggestion to cut down the remaining trees and replant the avenues with young trees. Such an idea would not be entertained in England, and he suggested suitable treatment of the roots and the addition of vigorous young trees where required. He was next asked his opinion as to reinstating the old plan, and he thought the idea was justifiable and preferable to working out a new design. The great principle of construction was the formation of a strong central vista, which extended for a distance of about 1½ miles, ending in a pavilion on the top of a hill. In the garden at Berlin the most was made of the central picture on the line of the main avenue, and other improvements were outlined. In reference to the influence of formal gardens of this nature in England, they required for their full effect such immense areas of flat land that in many situations they would be impracticable even if one would wish to have them. They were dignified, and the avenues offered many fine effects, but these gardens did not compare, from the point of view of a lover of horticulture, with English gardens, which had less formality and more intimate feeling.

Mr. White illustrated his lecture with a number of excellent lantern slides of English gardens which enabled the audience to appreciate the varieties of design. One gave a view of a Japanese garden. Mr. White said that we called them Japanese gardens in this country, but he did not think they were very like real Japanese gardens, which were largely symbolical. A distinguished Japanese gentleman was taken to a place in England where there was such an English version of a Japanese garden, and when he left he assured his host there was nothing like it in all Japan.

FOREIGN CORRESPONDENCE.

ARTEMISIA SACRORUM VIRIDIS.

PLANTS of Artemisia sacrorum viridis (see p. 385) in these gardens have remained uninjured by 10° of frost. The foliage is very decorative, and is especially useful for arranging with Chrysanthemums. This elegant plant always attracts attention, and is worthy of extended cultivation. Your correspondent omitted to mention that the leaves are agreeably scented. *H. Rabjohn, Twickel Castle Gardens, Delden, Holland.*

PLECTRANTHUS CILIATUS.

A SPECIMEN of this pretty African plant, imported from Basutoland, is sent by Mr. Willy Müller, Naples, with the following remarks:—"For autumn and winter-flowering Plectranthus ciliatus is a very lovely plant. It is now in fine flower with me, and in my houses this is the

only showy plant now in bloom. The habit is compact; the stems covered with purple hairs, and the underside of the broad, bright-green leaves coloured purple red. The white flowers

FIG. 159.—ODONTOGLOSSUM CLEOPATRA; SEPALS AND PETALS COLOURED LIGHT REDDISH-PURPLE.

tinged with lilac spots are very lovely, and last a long time in bloom." It appears to be a very useful species, and as it can be propagated readily would make a good subject to grow in quantity for winter flowering.

SCOTLAND.

A WINTER GARDEN FOR EDINBURGH.

A SUB-COMMITTEE of the City of Edinburgh Lord Provost's Committee has resolved to recommend the erection of a Winter Garden at the east end of the West Princes Street Gardens. The plans have been prepared by the City Superintendent of Works and Mr. J. W. M'Hattie, the Superintendent of the City Parks. It is estimated that the building will cost about £10,000, exclusive of certain other items, such as the laying out of the grounds and furnishing. The plans show a handsome building, with considerable seating accommodation, and provision for promenades. *Correspondent.*

ODONTOGLOSSUM CLEOPATRA.

THIS beautiful Orchid was granted an award of Merit by the R.H.S. Orchid Committee on the 16th inst., when exhibited by Mr. de Barry Crawshay. The sepals and petals are coloured light reddish-purple, with a narrow primrose margin and tip. The parents were O. Carmania and O. Vuylstekei. O. Carmania was raised from Lucasianum × Harryanum, and not cristatellum, as stated on p. 449. The lip of O. Cleopatra resembles that of O. Harryanum, being broad, white in front and marked with purple on the basal half.

Photograph by W. J. Vasey.

FIG. 160.—DAHLIA KAISERIN AUGUSTA VICTORIA IN HAMPTON COURT GARDENS.
(One of the best white garden Dahlias.)

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Grower to Sir TREVOR LAWRENCE, Bart., Burford, Dorking.

CHYSIS.—The pseudo-bulbs of Chysis aurea, C. bractescens, C. lævis, C. Limminghii, and the rare hybrids C. Sedenii and C. Chelsonii having attained to their full size, the plants should be suspended in a light part of the cool resting house. The amount of water afforded the roots should be diminished gradually until, when the leaves have fallen, and the new pseudo-bulbs become properly ripened, scarcely any water will be needed. The flower spikes develop in spring and early summer in conjunction with the young growths. Plants that are still growing actively should be placed in a warm, moist atmosphere until the pseudo-bulbs are matured.

ODONTOGLOSSUM CITROSMUM requires a long period of rest and should be treated as advised for Chysis.

PERISTERIA ELATA.—The Dove Orchid grows best in a warm temperature in company with deciduous Calanthes. Immediately the pseudo-bulbs become matured, remove the plants to the drier atmosphere of the Cattleya or Mexican house. The rooting compost should be kept on the dry side, as the plant requires a long period of rest, and if this is not afforded blooms may fail to develop.

CYRTOPODIUM.—C. Andersonii, C. St. Ledgerianum and C. punctatum have almost completed their growths, and the plants may be dried off gradually until water is withheld entirely. Cyrtopodiums require a very warm temperature when in active growth, but whilst at rest they should be placed in the same house as Chysis.

THUNIAS have now cast their leaves, and the old shrivelled stems from which the current season's growths have sprung should be cut down to their bases and the new stems trained to neat sticks placed at even distances apart. While the plants are dormant they may be placed with the deciduous Dendrobiums that are resting.

DECIDUOUS CALANTHES.—When the plants have finished blooming, place them on a rather dry shelf or stage in a house having an atmospheric temperature of about 60°. Water may be withheld from the roots entirely until the plants need re-potting in the spring. Previous to removing them to their resting quarters examine each pseudo-bulb carefully for the presence of white and brown scale insects. The deciduous Eulophias should be treated similarly.

MISCELLANEOUS ORCHIDS.—The pretty Comparettia macroplectron is in bloom; after the flowers have faded afford the roots but very little water, but give plenty at the stage of active growth. It thrives best in small, shallow pans, filled with only a thin layer of finely cut Osmunda-fibre. Plants of Miltonia vexillaria are in full growth and should be examined occasionally for the purpose of slitting the sheaths around the bases of the leading growths, to permit the young roots to grow unrestricted. The leaves also often cling to each other and need separating carefully. Should their tips turn brown and damp off, keep the roots drier for a few days, and do not sprinkle much moisture between the pots. M. Roezlii, M. Phalænopsis, M. Charlesworthii, M. Bleuana, and M. Hyeana make their growth at this season, therefore the roots need plenty of moisture. They grow best in the Cattleya house during the winter months. The new pseudo-bulbs of Odontoglossum pulchellum are mature and the plants may be rested; the roots are prone to decay if the compost is kept very moist at this stage. A light position in the intermediate house is suitable for them at all seasons.

Cochlioda vulcanica is now in bloom in the cool house; the graceful spikes of rose-coloured flowers have a pretty effect, suspended just above the foliage of the Odontoglossums. Other Cochliodas, including C. Noezliana, C. sanguinea, C. rosea, and C. stricta, are developing new growths and some of the plants may need re-potting in shallow pans or pots that can be suspended near to the roof-glass. Half fill the receptacles with drainage materials and for the compost employ equal parts of Osmunda-fibre and Sphagnum-moss. These Orchids require plenty of light and an abundance of water at the roots at all seasons. Other Orchids that need similar attention include Maxillarias, many of which are commencing to grow. The plants require as much air and moisture as the other occupants of the cool house. Any plants of Sophronitis grandiflora that need re-potting should be attended to immediately after the flowers have faded.

PLANTS UNDER GLASS.

By F. JENNINGS, Gardener to the DUKE OF DEVONSHIRE, Chatsworth, Derbyshire.

CINERARIA.—The earliest plants are on the point of flowering and should be arranged in the greenhouse or conservatory, regulating the temperature according to the time they are wanted in bloom. Feed the roots with a suitable concentrated fertiliser, alternated with soot-water and liquid cow-manure until the flowers show colour, when clear water only should be used. After the plants are housed they should be fumigated at once, and again at regular intervals.

GARDENIA.—Plants on which the flower buds are swelling should be fed in the same manner as advised for Cinerarias, to give strength to the blossoms, which should be disbudded of small side ones. They should be grown in a night temperature of from 65° to 70°. Should mealy bug be present, syringe with an insecticide containing paraffin before the flower buds are far advanced. Soluble paraffin may be employed, or the old-fashioned method of a thumb potful of paraffin to three gallons of water with soft soap added. The contents of the bucket must be kept stirred, otherwise the paraffin will rise to the surface and may be drawn into the syringe unmixed with the water, in which case it will destroy the foliage. Old-established Gardenias planted out in pits should be watered on mild days, and the roots afterwards soaked with manure water.

THE FLOWER GARDEN.

By EDWARD HARRISS, Gardener to Lady WANTAGE, Lockinge, Berkshire.

POTTING BEDDING PLANTS.—The cuttings of Pelargonium, Iresine, Ageratum, Salvia, Coleus, Fuchsia, and other bedding plants rooted in boxes or pans in the autumn may be potted into small pots. Having decided upon the general scheme of bedding for next season, the work of propagating the various plants may be proceeded with. Cuttings of Iresine, Ageratum, Lobelia, Fuchsias, Salvia Glory of Zurich, and Heliotrope will readily root now, and most of them will make good plants by the time for planting. Lantanas must be kept growing in a warm, moist house, including those intended for standards. Calceolaria amplexicaulis is a very effective subject when trained as a standard, and some of the best of the young plants which were rooted in cold frames should be selected and potted into 4½ inch pots for the purpose. Stand the plants in a light position in a house having a minimum temperature of 50°, and treat them as advised above.

A RETROSPECT.—The past season cannot be said to have been unfavourable to the majority of flowering plants out-of-doors; indeed, in many respects it was distinctly suitable. Nearly all kinds of plants flowered profusely, and a notable feature was that most of them continued in bloom for a much longer period than usual. The year has been marked by extraordinarily long periods of sunless weather. June was the hottest and driest month. Since June 30th the thermometer has only reached 80° on three occasions. In September we registered 75° on two occasions and 70° on only seven days. The longest period of drought occurred between May 14 and July 7. No appreciable amount of rain fell during the whole of that time, and as on most days brilliant sunshine prevailed, plants suffered from drought, especially in gardens with a limited supply of water. Border plants were affected most. The value of lifting hardy herbaceous plants every two or three years for the purpose of digging and well manuring the ground was never more apparent. The season proved favourable for Roses of all kinds. Many varieties flowered during the whole of the season, and at the time of writing (Dec. 18) there are plenty of good blooms in these gardens. The plants have grown well, but the shoots are not hard, and severe frosts may injure the more tender sorts. It will be wise, therefore, to have in readiness plenty of protecting materials now that the season is far advanced.

THE HARDY FRUIT GARDEN.

By B. GOODACRE, Gardener to Sir ERNEST CASSEL, Moulton Paddocks, Newmarket.

THE ORCHARD.—Orchard trees should be examined for the presence of American blight, which is easily detected whilst the tree is defoliated. In cases of bad infestations scrub the branches with Gishurst Compound, made fairly strong with warm water. Apply the specific whilst it is still warm by means of a soft scrubbing brush. In many cases the worst infestations will be found on the trunk at the base of the tree. Where this is the case the soil should be removed to the depth of several inches and the bark washed thoroughly with the insecticide. Fill in with fresh loam, mixed with lime. The discarded soil may be infested and should be carted clear away or sterilised by burning. Where only an occasional colony of the blight is noticed this can easily be destroyed by damping the affected parts with methylated spirits. Whenever old buildings are demolished or repaired, the mortar rubble and some of the broken bricks should be secured for the fruit garden. The materials are valuable for incorporating with the soil of fruit borders, and more especially new borders formed of fresh loam. Iron trellis work which has become corroded with rust, also new galvanised wire, should either be painted or tarred before the trees are fastened in position. Certain birds are becoming troublesome, more especially the bullfinch. If two bullfinches only commence on an orchard or fruit plantation they will do enormous damage in a very short time. Bush trees which have been planted in plots can be protected by netting; the buds of Plums and Pears, which these birds despoil in particular, should be dressed with some distasteful material. In times of bad weather, when work outside is stopped, prepare labels, resharpen and paint stakes, boil new wall nails in oil to prevent them from rusting, and pick out the best of the old nails and shreds for use again.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith Palace, Midlothian.

PINEAPPLES. — Fruiting plants of the Queen variety intended to furnish ripe fruits early next season, having been kept dry at the roots, and grown in a minimum temperature of 55° to 60°, should, between this date and the middle of January, receive a thorough watering at the roots. Increase the night temperature to 70°, taking advantage of sun heat to raise it 10°. The bottom heat should be maintained at as near 90° as possible. Increase the amount of moisture in the atmosphere by sprinkling the paths and walls two or three times each day, but do not allow water to enter the centres of the plants. Suckers potted last August and September are well rooted, and must be rested until the beginning of February in a house having an atmospheric temperature of 55° to 60°, when they may be potted into their fruiting pots. In the meantime examine them occasionally to see if water is required, for the soil must not become excessively dry. Winter-fruiting Pines with fruit swelling should be grown in a minimum atmospheric temperature of 70°, and at least 85° bottom heat. Maintain a moist atmosphere, and examine the plants weekly for watering, keeping the soil in a moderately moist condition, and using weak guano water at each application. Suckers of these winter varieties (from which the fruits have recently been cut), if potted into 6 or 7 inch pots and rooted in bottom heat, will develop into good plants by next June.

STRAWBERRIES.—The earliest plants, which were plunged in a mild bottom heat in November, are throwing up their flower spikes, and should be placed on shelves, near the roof-glass. The temperature of the house should be 55° to 60°. Spray the plants both morning and afternoon with warm water. A little Quassia Extract may be placed in the water occasionally to destroy aphides and mildew. Weak manure water will provide a suitable stimulant for the roots. Successional plants may be placed on shelves near to the roof-glass in the early Peach house or vinery. Care must be taken to keep the Strawberries free from insect pests, as these may spread to the vines or Peach trees and cause considerable injury. Where other houses are available, Strawberries should be grown for as short a time as possible, in either vineries or Peach-houses.

THE KITCHEN GARDEN.

By JOHN DUNN, Foreman, Royal Gardens, Windsor.

CARROTS.—The Carrots sown in July are still growing, but a portion of the crop should be lifted and placed under cover before severe frosts occur. The remainder may be left in the ground for another month, covering the plants in very cold weather with dried Fern fronds or other light material. Parsnips may be treated in the same manner. This vegetable is a light crop in many gardens in consequence of the dry weather of June.

LETTUCE.—Plants raised from seed sown in pits in September should be transplanted in light soil in a cold pit at a distance of 9 inches apart each way. Water the roots afterwards to settle the soil, and when the plants commence to grow again ventilate the pit freely, or many may damp off. Stir the surface of the bed at frequent intervals with the Dutch hoe, and keep a careful watch for slugs during dull, damp weather. Lime is the best deterrent for these destructive pests. A sowing of May King, Pioneer, and Golden Ball varieties should be made in a cold pit to furnish plants for setting out of doors in the early spring.

ENDIVE.—Late-sown Endive may be lifted from the open garden and placed in cold pits where free ventilation may be afforded. Damping must be guarded against. When the plants have grown to their full size the leaves may be tied together to blanch them, allowing about ten days for etiolation.

CHICORY should be lifted and placed in a dark chamber for forcing. The young growth damps readily, therefore excessive moisture either in the soil or atmosphere must be guarded against. Place the crowns about one inch above the soil. Slugs are fond of this salad, but hot lime placed along the edges of the bed serves as a protection.

SEAKALE.—When the roots are lifted for forcing select suitable portions of the roots for next season's crop. These should be straight and clean, and may be cut into portions each about 7 inches long. Place them closely together in a horizontal position, and cover them with four inches of sharp, sandy soil. Nothing more will be necessary until frosts occur, when they may be covered with dry fern or ashes. Seakale roots should be placed in the forcing pit every eight days in order to maintain a continuous supply. A temperature of 55° is suitable.

CAULIFLOWER.—It is not too late to pot the remainder of the plants growing in cold pits if they are wanted. Employ 60-sized pots filled with a mixture of rich loam and leaf-mould. A sowing of the varieties Dean's Early Snowball, Magnum Bonum, and Great Dane may be made now in boxes. The last-named variety is of recent introduction, and proved a valuable crop at Frogmore early in the summer.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER**, 41, Wellington Street, Covent Garden, W.C.

Editors and Publisher. — *Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents. — *The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last Fifty Years at Greenwich, 38.3°.

ACTUAL TEMPERATURES:—

LONDON, *Monday, December* 22, (6 p.m.): Max. 39°; Min. 32°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London, *Tuesday, December* 23 (10 a.m.): Bar. 30.2; Temp. 42°. *Weather.*—Dull.

PROVINCES.—*Monday, December* 22; Max. 42°, Lancaster; Min., 36° Yarmouth.

SALES FOR THE ENSUING WEEK.

MONDAY AND WEDNESDAY—

Rose Trees, Shrubs, Perennials, Lilies, etc., at Stevens's Rooms, King Street, Covent Garden, at 12.30.

THURSDAY—

Special Sale of Roses at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 1.

FRIDAY—

Bulbs, Herbaceous Plants, Roses, Fruit Trees, etc., at 67 and 68, Cheapside, E.C., by Protheroe and Morris, at 12.

STOP PRESS.—Since these pages were sent to press, news has reached us of the death of Sir Trevor Lawrence, Bart., V.M.H., late President of the Royal Horticultural Society.

1913.

The years, as they form the turned pages of the book of the past, leave behind them strangely varied impressions. One large event stamps a particular year with its prestige and we remember it by the event. Such a one is 1912, which to all good horticulturists is the year of the Great Exhibition. Other years, marked by no striking circumstance, fade away into oblivion almost unnoticed. Yet to the sober observer who lacks the flamboyant temperament the grey years are often more significant than are those with purple patches. The latter are the fat years, the former the lean years; and as the lean kine ate up the fat kine, so the sum of the minor events of the grey years, when set in Time's perspective, dominate the large-looming and isolated occurrences of the years of purple patches. Such will be—as we conceive—the judgment of horticulturists of the future on the year now waning: a year of enduring good work rather than one of brilliance like its precursor. Nor is it strange that memory and judgment should record contrary verdicts: for memory leaps to the achievement, whilst judgment applauds the preparation. Memory recalls the grace and perfume of the flowers; judgment approves more coolly yet more enduringly the prosaic preparations of the seed-bed and the sowing of the seeds in due season. The year 1912 was a year of flowering, 1913 one of spade-work and seed-sowing.

During the present year those who seek the advancement of Horticulture have been active in many directions. At the Ghent Quinquennial Show international Horticulture demonstrated the advances which it is making. At Chelsea our own growers showed that they had learned much from the exhibition of the previous year: and perhaps the most interesting exhibition of all has been the new departure of the National Rose Society—the May show of Roses grown under glass.

The past year has witnessed a notable advance in horticultural education. In the National Diploma, established jointly by the Board of Agriculture and the Royal Horticultural Society, the young gardener has open to him a means of proving his skill and, as is to be hoped, of improving both his own status and that of his profession.

The Horticultural Branch of the Board of Agriculture, "whose interests"—to quote the Right Hon. Walter Runciman—"shall be devoted entirely to Horticulture and nothing else," has passed through the first year of its existence, and though it has not yet had time to do more than make a commencement of the big task which it has undertaken, we may hope that it will include in that task such important questions as railway rates, market facilities, and the horticultural aspect of small holdings and allotments.

The most noteworthy horticultural event in the Dominions has been the establishment of a Botanic Garden in the Cape Peninsula. The formation of the garden by the Union of South Africa is due to the persistent and tactful advocacy of Mr. H. W. W. Pearson and to the powerful support of Sir Lionel Phillips. At home, the Society for the formation of National Reserves has met with conspicuous success in its efforts to preserve as open spaces tracts of country of scenic or scientific interest. Blakeney Point, in Norfolk, and Box Hill, in Surrey, have, thanks to its initiative and to private generosity, been secured for the use and enjoyment of the nation. Similarly, the Crystal Palace, the fate of which has remained dubious for so long, has become a national possession, a satisfactory ending that is due in a large measure to the generous liberality of the Earl of Plymouth.

During the past year Rothamsted—the pioneer agricultural research station—has celebrated the centenary of its founder, Lawes, and has appealed with considerable success to horticulturists for assistance in rendering its equipment yet more complete. The Cambridge School of Forestry has shown great activity during the past year; but national schemes for afforestation of suitable waste land seem to be as slow in maturing as is timber itself.

For the Royal Horticultural Society the year has been eventful and memorable. It witnessed the retirement of the president, Sir Trevor Lawrence, from the office which he had filled for so long and with such distinction, and it was the occasion of the celebration of the Rev. W. Wilks' twenty-five years of service to the society and to Horticulture. The work of the Diploma Committee, convened by the Royal Horticultural Society, has been referred to already. Another committee, called in order to advise the Council on the ways in which the Society may assist practical scientific Horticulture, has presented its report, and its findings, which cannot fail to prove of importance, are now under consideration.

To the students and lovers of "florists' flowers" the Primula Conference was the most important meeting of the year, and the Royal Horticultural Society rendered a considerable service in publishing in full the papers read at the conference.

Although no horticultural discovery of outstanding importance has been made during the year, nevertheless scientific Horticulture has made steady advances along many different lines. Of those advances, details of which are to be found in these pages, mention may be made of Mr. Pethybridge's investigations of the sexual spores of Phytophthora infestans; those of Miss Cayley at the John Innes Institution, and of J. J. Taubenhaus and Thos. F. Manns in America on streak disease of Sweet Peas; Professor Bottomley's work on the manurial value of "bacterised peat"; the contributions made by various investigators and observers on the etiology of Silver Leaf disease; and the application of electricity to the intensive cultivation of plants.

The necessity for horticultural investigations grows more apparent every year; in one department alone—that of plant pathology—there is pressing need for experiments in the destruction of such pests as Eelworm, Black Scab of Potatos, American Gooseberry mildew, big bud of Currants, Silver Leaf and Bitter Pit of Apples.

Of events of the year of general interest the most prominent is the retirement of Sir Harry Veitch, but we are happy to know that, though withdrawing from business, Sir Harry is by no means retiring from the beneficent work which he has done for so long for the advancement of Horticulture and for the benefit of aged gardeners in need of assistance.

The subtle influences of climate in every department of gardening have been responsible for many disappointments in the past season. Early spring was marked by weather conditions that baffled the most skilful cultivator in his efforts to preserve the blossom of hardy fruits, and June was a month of uninterrupted drought that from another point of view was equally troublesome. Consequently our annual report showed that the crops were less plentiful than for very many years past, Apples alone amongst the larger fruits producing anything like an average yield.

The hand of death has been heavy on horticulturists and men of science during the past year. Of the latter we have to mourn the loss of Alfred Russel Wallace and of Lord Avebury. Of the former, Mr. Amos Perry, Mr. Martin John Sutton, Mr. R. Sydenham and Mr. Edward Webb have passed away.

Our Almanac.—As a supplement to next week's issue we shall publish the *Gardeners' Chronicle* Almanac for 1914. *In order to make it as useful as possible for reference we shall be obliged if Secretaries of Horticultural, Botanical, and Allied Societies, or any of our correspondents, will send us* IMMEDIATE INTIMATION *of all fixtures for the coming year.*

NATIONAL CHRYSANTHEMUM SOCIETY.—The National Chrysanthemum Society will hold two exhibitions at the Crystal Palace during 1914, the dates being fixed for October 7 and 8, and November 4, 5 and 6 respectively. There will also be a show at the Essex Hall, Strand, on December 9, followed by a conference. The Executive Committee will meet on September 21, October 19, November 23 and December 14, whilst the following dates are fixed for the meetings of the Floral Committee :—September 21; October 7, 19 and 26; November 4, 16 and 30; and December 9.

THE CENTENARY OF THE DEATH OF PARMENTIER.—*La Vie Agricole* (No. 2, December, 1913), recalls in an interesting article the services which PARMENTIER rendered to agriculture. Born at Montdidier (Somme) in 1737, PARMENTIER died on December 17, 1813. The writer of the article, M. BALLAND, recalls the fact that this great man devoted his life to the common good. "To feed the people is my first care; my object, to improve the quality and reduce the price of food." PARMENTIER'S first works were devoted to the study of plants which could be used as food in time of drought. He showed how starch could be extracted from all manner of plants, and that even when obtained from poisonous plants it may be used for food. But PARMENTIER is remembered best by his efforts to popularise the Potato as an article of diet, and a summary of his instructions for the cultivation of this plant from the pen of M. ANTOINE PARMENTIER appears in the number of *La Vie Agricole* already cited.

FLOWERS IN SEASON.—Blooms of Cyclamen latifolium of the fimbriated type are sent us by Mr. HAWKES, Osterley Park Gardens, Isleworth. Mr. HAWKES states that they are the result of several years' selection.

STREAK DISEASE OF SWEET PEAS.—The National Sweet Pea Society is offering a prize of ten guineas and the Gold Medal of the society to the first person who can prove to the satisfaction of the committee that he or she has a cure for streak disease. As arrangements are now being made for testing preventives or remedies, anyone who has discovered a cure should communicate with the secretary, Mr. H. D. TIGWELL, Greenford, Middlesex.

"THE BOTANICAL MAGAZINE."—The following plants are illustrated and described in the issue for December :—

MORENIA CORALLINA, tab. 8,527.—The Morenias are graceful Palms, closely allied to Chamædorea, and the six members of the genus are all Andine. M. corallina, which is a native of Colombia, grows from 12 to 20 feet high and bears a crown of graceful, arched leaves, each about 6 feet long. The fruits are coloured bright pink, each being about two-thirds of an inch across. The cluster of berries, as shown in the illustration, are very handsome.

GENISTA HISPANICA, tab. 2,528.—The Spanish Broom is not quite hardy, but it grows well in gardens in the South of England, and makes a good shrub for the rockery, the habit being dwarf and the dark-green shoots attractive at all seasons. In May the beautiful racemes of yellow flowers appear and then the plant is doubly attractive. The habitat is not confined to the Iberian peninsula, for wildings are met with from Portugal to Liguria, in Italy.

RHODODENDRON NIGROPUNCTATUM, tab. 8,529.—This miniature species is a native of the mountains of Szechuan, Western China, and was introduced to this country by Messrs. JAMES VEITCH AND SONS, through their collector, E. H. WILSON. It is described as the dwarfest and neatest of all Rhododendrons, and a charming plant for the rock garden. The flowers are coloured pale purple and borne either singly or in pairs. The plant grows only 10 inches high, the leaves and flowers being proportionately small.

DERRIS OLIGOSPERMA, tab. 8,530.—This plant, which has been in cultivation at Kew for more than 25 years, has proved somewhat puzzling to botanists. When first it flowered it was regarded as a new species of Wistaria and was given the name of W. involuta. As such it was described by Mr. SPRAGUE in the *Gardeners' Chronicle*, August 27, 1904, p. 141. Later, when fruits were available, it was found to belong to Derris, and was called D. involuta. But it is nearer to D. scandens and was accepted by some authorities as that plant. However, it now becomes D. oligosperma, for it is declared to be different to the true D. scandens of India and Indo-China. The plant appears to have but little horticultural value, as it is a shy bloomer, even in such favourable conditions as are provided by the Temperate House at Kew. The racemes of pale pink and white flowers are about 5 inches long.

CIRRHOPETALUM MASTERSIANUM, tab. 8,531.—This well-known Orchid has been frequently described in these pages. The plant flowers at intervals throughout the year, sending up a slender scape bearing an umbel of yellowish flowers flushed with umber brown, the lip being the most conspicuous feature.

HORTICULTURAL ACTIVITIES IN BIRMINGHAM.—At the annual dinner of the Birmingham and Midland Counties' Chrysanthemum, Fruit, and Floricultural Society, which took place a few days ago, the Treasurer, Mr. THOMAS HUMPHREYS, Curator of the Botanic Garden, Birmingham, responding for the society and its officers, stated that the association was in a healthy and safe condition. The society had been in existence something like half a century, and the financial position was satisfactory. Birmingham was in a sense unique. It had been said that it was not a horticultural centre, but it held a position possessed by no other city, with the exception of London. It had a number of societies devoted to the cultivation of particular varieties of flowers. About twenty-four years ago the Midland Carnation Society was created in the district; six years afterwards came the Daffodil Society, which was now recognised as the best of its kind in the world; then there was the Midland section of the National Auricula Society; and 99 years ago a society was formed for the cultivation of the Gooseberry. This was composed almost entirely of working men, and they did very useful work in keeping some of the finest varieties of the fruit in existence. In addition, the speaker had seen a circular relating to the probable establishment of another society devoted to the cultivation of a popular flower which could be cultivated by anyone who possessed a plot of ground. It should also be mentioned that there was in Birmingham an organisation known as the Birmingham Gardeners' Mutual Improvement Society. The receipts of their own society last year showed an increase of £58 over the previous year, of £99 over 1911, but of £67 below 1906. They were particularly anxious that next year the 1906 figure should be exceeded. The society tried to instil into the minds of the young a love of horticulture, and last year 6,000 children under the care of the Birmingham Education Committee, and from the outlying districts, visited Bingley Hall. On the second morning there were four queues, reaching from the entrance of the hall into Broad Street. Mr. HUMPHREYS made sympathetic reference to the death during the year of Mr. ROBERT SYDENHAM, who was a generous supporter of the society.

GREEN COLORATION OF WOOD BY FUNGI.—In Lower Normandy quite three-fourths of the Pear trees have their wood coloured green. The author finds that this is due to the presence of a parasitic fungus, Helotium æruginascens, which has previously been found to colour Oak and Beech wood, and also the wood of Betula alba and B. verrucosa. Another species of Helotium, H. æruginosum, occurs in similar situations and produces the same colour. Such green-coloured woods are often met with in the genera Fagus, Quercus, Castanea, Betula, Alnus, Picea, Abies, and other trees. These colouring Discomycetes were classified by Notaris under the name Chlorosplenium; but the author shows that this is not a specific genus. The C. æruginosum of Notaris is a Helotium; the C. versiforme and C. atrovirens are Coryne, and C. kriegerianum is a Rustræmia. The two species Helotium æruginosum and H. æruginascens are distinguished by the dimensions of the asci and spores. The appearance of the green colour is not an indication of disease in the trees, but rather of old age. Although it is known in France as "green rot" the term is a misnomer, for the wood is firm and hard, and its texture is in no way destroyed nor its durability affected. In fact, from its handsome permanent colour, it becomes more valuable for cabinet making and similar purposes. Probably this green Pear-wood would be valuable and much appreciated for artistic cabinet work. *P. Vuillemin* (*Comptes rend.*, 1913, 157, 323), see abstract in *Pharmaceutical Journal*, August 30, 1913.

MILDEWS, RUSTS AND SMUTS.*—This volume will prove of great service to the student of plant diseases. Whilst not attempting to cover the ground traversed by his earlier works, Mr. MASSEE has treated of the important groups—viz., the Peronosporaceæ, Erysiphaceæ, Uredinæ, and Ustilaginæ—in such a thoroughgoing manner that the student should have no difficulty in identifying species. To those who are not conversant with recent work in mycology, the large number of parasitic species which occur in certain genera—for example, in Puccinia—will appear extraordinary. Thus of the 229 pages in the present work no fewer than 70 are occupied with the synopsis of the genus Puccinia, and when it is remembered that many of the parasites of this genus—like those of other genera of rusts—attack more than one plant, a just and impressive idea of the ravages wrought by fungous-attack is evoked. We could have wished that Mr. MASSEE had included in his book a larger section of the "Pyrenomycetes." His treatment of the Erysiphaceæ is so good, and the section on the Perisporiaceæ is owing to the small number of European species so brief, that an inclusion of more of the Ascomycetes would have been most welcome. The statement on p. 129 with respect to the heterœcism of Puccinia pruni-spinosæ requires amendment. The discovery that this species of rust has two hosts was made by TRANZSCHEL. The author showed that the æcidiospores from plants of Anemone coronaria infect the Almond, and BROOKS—not BIFFEN, as stated by Mr. MASSEE—confirmed the observation by inoculating Victoria Plums with æcidiospores from the Anemone. The plates, including the coloured frontispiece, add materially to the value of this very useful volume.

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* *Mildews, Rusts and Smuts.* By G. Massee, assisted by Ivy Massee. (Dulau and Co.) Price 7s. 6d.

THE BAMBOO GARDEN.

(See Fig. 161 and Supplementary Illustration.)

THE cultivated species of Bamboo—of which there are about 50, belonging to three genera, Arundinaria, Bambusa and Phyllostachys—are, for the most part, quite hardy except in the bleakest parts of these islands. Their decorative value is beyond question, and they possess incomparable grace and charm. Provided they are planted in a sheltered position in a rich, retentive soil, there is little doubt but that they will thrive and become objects of extreme beauty. Bamboos are especially valuable in the landscape, as one sees them in many famous gardens in the south and south-west of England and Ireland, particularly at Fota, in the south of Ireland, and in such famous Cornish gardens as Menabilly and Penjerrick, where one sees them growing into very large specimens, particularly in the case of Arundinaria Falconeri, A. Simoni, A. Kumasasa, Phyllostachys fastuosa, P. flexuosa and P. nigra. At Penjerrick there was a huge specimen of Arundinaria Falconeri, which in 1905 was over 30 feet in diameter, the centre of the plant being a solid mass of canes and over 12 feet through. In other gardens Bamboos have been collected together to form a distinct feature by themselves or combined with other Japanese and Chinese plants requiring similar conditions. Examples of these are to be found at Kew and Gunnersbury Park. At both of these places the possibilities of the Bamboo are realised to the full and shelter for the plants is provided by belts of large trees. The larger growing sorts are used as isolated specimens, whilst grouped around them or massed for effect are the smaller kinds. Some of the larger of the grasses are also included, such as Arundo Donax and its variegated form; Miscanthus japonicus and its variety zebrina, M. sacchariferi, and several forms of the Pampas Grass. An avenue of Bamboos at Gunnersbury Park is a feature of these fine gardens.

Phyllostachys fastuosa, one of the tallest species, is usually of erect habit, but occasionally spreading slightly at the top. Clumps of this plant when in good condition send up canes 20 to 25 feet high. The nearest approach to this plant in height are Arundinaria Simoni and A. Falconeri, which will sometimes reach 20 feet. The former is one of the hardiest and best Bamboos in cultivation and should be included in all collections where space is unlimited. The stems are of a rich green colour, branched freely nearly down to the base and bearing a dense mass of rich Olive-green leaves. Other tall-growing species useful for making single specimens are Arundinaria Hindsii and its variety graminea; A. anceps, a real gem with erect or sub-erect stems and spreading habit; A. nitida, one of the most elegant of Bamboos with beautiful arching stems of a glaucous-grey colour, lightly clothed with pale yellowish-green foliage, inclined to be tufted in habit and forming a most beautiful object when grown as a single specimen. The plant commonly cultivated as A. nobilis in many parts of the South-West, especially in Cornwall and Devon, is the true A. Falconeri; it makes a huge specimen when grown under suitable conditions, but is too tender for general culture. Most of the specimens of this plant in the British Isles flowered a few years ago, and many years must elapse before younger plants attain to full size. Another large-sized species is A. Kumasa, the largest leaved of the hardy sorts. The habit is spreading, numerous rhizomes being pushed up sometimes a yard away from the parent clump. The stems are somewhat spreading, sparsely branched, and bearing six to ten large Olive-green leaves 10 to 12 inches long and 2 to 4 inches in diameter. The canes will sometimes run up to 10 or 12 feet high. A. Hookeriana, A. falcata and A. intermedia are tender species of large size when grown in favourable conditions, and are used frequently for decoration as pot plants.

Several species of Phyllostachys readily form large specimens. P. fastuosa has been previously mentioned as being the strongest growing of all. P. Quilioi, P. aurea, P. nigra, P. Henonis and P. flexuosa form large handsome specimens, and are somewhat similar in habit and effect. Their stems arch over in a graceful manner and are green when young, but change with age to some shade of brown, and in the case of P. nigra to almost black. The foliage is of a pale yellowish-green colour and rather small. P. Quilioi var. Castillonis (P. Castillonis of gardens) is a remarkably fine plant with brilliantly variegated stems and

[*Photograph by C. P. Raffill.*

FIG. 161.—BAMBOO GARDEN, KEW, IN SUMMER.

leaves. The stems are striated with yellow alternating with bright green, and the leaves to a lesser degree, but with rather more green. In P. viridi-glaucescens we have a strikingly distinct Bamboo, with rich Olive-green leaves glaucous-grey on the undersides, borne on slender, densely-branching canes, sometimes 12 feet high. The habit is somewhat spreading and numerous rhizomes are pushed up far away from the parent plant. It is a rapid grower and exceedingly hardy.

Bamboos of Dwarfer Habit.

Numerous species of dwarf habit are worthy of note. Bambusa disticha is probably the dwarfest of all, being rarely more than 2 feet high. B. Fortunei is only known in its variegated form; it makes a fine effect when grown in a mass and varies from 1 to 4 feet high. It readily conforms to pot culture and is frequently grown for indoor decoration on account of its bright, variegated leaves and dwarf, free-branching habit. Arundinaria (Bambusa) auricoma is another dwarf plant with bright yellow-variegated leaves. A group of this species is a conspicuous object in the garden. The canes are slender, of a pale purple tint, sparsely branched and from 2 to 5 feet high. A. Veitchii is a distinct plant having a close affinity to A. Kumasasa, but of dwarfer habit, the leaves having the curious habit of dying around the edge and forming a margin of pale brown with a dark green centre. The leaves are 6 to 10 inches long, borne on long, slender, erect or spreading, sparsely-branched stems from 2 to 5 feet high. The dead tissue of the leaves, when viewed from a distance, is most striking and effective, and has much the effect of variegation. Several other Arundinarias of dwarf habit are useful either for grouping or front-row plants. The best of these are A. pygmæa, A. pumila and A. humilis; these vary from 1 to 4 feet in height and are dark green in colour. Phyllostachys (Bambusa) ruscifolia is one of the most striking and beautiful dwarf Bamboos. It is certainly distinct from anything else in cultivation. The stems are erect and crowded together, seldom rising more than 2 feet high, even in favoured conditions, and bearing a dense mass of rich, dark-green leaves.

Hints on Cultivation.

The cultivation of Bamboos is of the easiest provided they are planted in a sheltered position in a rich soil. A rich loamy soil inclined to be heavy and retentive of moisture suits them best. Propagation is carried out either by division of the clumps, rhizomes, or by seeds. The extent to which these plants may be divided, even down to a single cane, and yet root and make a plant in a short period, is astonishing. The best times for this work are March and April if the use of a light glass structure can be obtained. For outdoor propagation one cannot be so drastic in one's methods, and one must take care to retain a fair amount of soil attached to the roots. Given the use of a well-heated greenhouse, the plants may be put into small pots, heading back the longest canes and placing them rather thickly together. Frequent syringings and abundance of atmospheric moisture are essential at this stage. A brisk heat should be maintained, and slight shade afforded until the plants are well advanced with their new growth. Little or no air should be given for some weeks after starting, as it is important to prevent the leaves and canes from shrivelling in the early stages. Once they become established they can then be gradually hardened off and eventually planted out again.

The flowering of Bamboos is rather an unusual occurrence, and in most cases is the end of the life-cycle. Most of the cultivated kinds appear to flower when about 30 years old from seed. This has proved to be the case in a number of the very finest species, such as Arundinaria Falconeri, A. falcata, A. Simoni and Phyllostachys Henonis, which flowered in British gardens between the years 1903 and 1908, and one has to deplore the loss of many fine specimens in many gardens in consequence. Seeds are produced in abundance, but are greedily devoured by sparrows; in fact, in several cases it was difficult to find a few seeds left in order to provide for the next generation. Although it is usual for the whole plant to suddenly burst into flower, several species, such as Arundinaria Hookeriana, A. falcata and Dendrocalamus strictus will flower on individual canes for a period of several years before the whole plant is involved. A large clump of A. falcata growing in the Temperate House at Kew flowered annually on a cane or two for over 10 years, then the whole plant suddenly burst into flower, ripened seeds and died.

A noticeable feature with Bamboos when about to flower is that they invariably lose the greater part of their leaves. *C. P. Raffill.*

HOME CORRESPONDENCE.

Periodicity of Rainfall.—Bruckner's weather cycle is a very old theory. Bacon, in his essay, "Of the Vicissitudes of Things," 1625, says: "They say it is observed in the Low Countries (I know not in what part) that every five-and-thirty years the same kind and suit of years and weathers come about again, as great frosts, great wet, great droughts, warm winters, summers with little heat, and the like, and they call it the prime. It is a thing I do the rather mention, because, computing backwards, I have found some concurrence." So the author of the essay on "Gardening" has forestalled the German professor. *C. Hindmarsh, 23, Nottingham Place, W.*

Aponogeton distachyon.—It may be of interest to record the profuse flowering of the Cape Pond Weed, Aponogeton distachyon, which luxuriates in a large pond in the grounds of this estate. For the greater part of the year almost the entire surface of the water has been covered with the foliage and the curious, though delightfully scented, flowers of this hardy aquatic. The blooms first appeared in May and the flowering continued until late in August, when it was decided to clear the foliage and leave the surface of the water free of weed for the rest of the year. This was done in the first week of September by means of a "Dreadnought" weed cutter. To my surprise, in less than a month the water was again almost completely covered with flower and foliage, and up to the time of writing (December 16) it is still in full glory, and the rich Hawthorn-like perfume can be noticed at a distance. Three degrees of frost do not seem to have affected the plants in the least. It is interesting to note that whereas Aponogeton distachyon is generally described as a shallow-water plant, and should be planted in from 18 inches to 2 feet of water, our lake varies in depth from 2 feet to 4 feet, and is even deeper in places, while no difference can be seen in the growth or vigour of the plants, which form an unbroken sheet of flower and foliage from bank to bank. *H. F. Nobel, Castle Hill Gardens, Rotherfield, Sussex.*

Primula malacoides and Skin Irritation (see pp. 432, 452).—I have never known P. malacoides to affect the skin in any way whatever. I have grown the plant for many years, and this season have flowered some thousands side by side with P. obconica and have had not the slightest trouble with the skin, nor have I ever heard of it from the growers. I notice that Messrs. Bees, Ltd., received the R.H.S. Award of Merit recently for a double form of P. malacoides. It may be of interest to record that I have had several good double-flowered plants this season and of good colour. *J. F. Groves, Cambridge Nursery, Bridlington.*

Late Dessert Apples.—I fully endorse all that *Southern Grower* says in favour of D'Arcy Spice (page 417) as a late dessert Apple. The flavour is first-rate, although the somewhat unattractive appearance would hardly recommend the variety for market purposes. Unlike those belonging to *Southern Grower*, our trees require but very little pruning, and they fruit well annually. This I attribute to root pruning and transplanting, operations somewhat difficult to carry out, perhaps, in extensive plantations. The fruits should not be gathered until very late (I gathered ours late in October this year), otherwise they will shrivel. As grown here the fruit keeps well into May, and I regard this variety as far superior to Duke of Devonshire. The finest late keeping dessert Apple known to me is King of Tompkins County. The Apple is of the best flavour and appearance, and I have had it good into June. The tree is of strong growth, but somewhat prone to canker; still, in localities where it will succeed it has no superior as a late dessert Apple. Lady Henniker is another late ripening variety (almost as late as King of Tompkins County) of fine flavour, while the tree grows quite free from canker. *Wilmot H. Yates, Rotherfield Park Gardens, Hants.*

Sweet Peas Trained on Wire.—As a reader of the *Gardeners' Chronicle* for many years, and an observer of helpful and interesting ideas, I am prompted by Mr. Tuck's note on page 420 to give my experience, which may be helpful and interesting to some, of wire as an economical and new means for the training and support of Sweet Peas. Many gardeners have a prejudice against the use of galvanised wire for training plants, believing it to be harmful. I, like Mr. Tuck, have used wire for the purpose, but not wire netting. I found that tying Sweet Peas to canes took up much time when other work was pressing, so I had spiral wires made to a given size—a few at first to see how they would answer, and eventually, this year, I had all my Sweet Peas growing on them—about 450 plants in all. These wires are neater than canes, more durable, and can be purchased at the same price as canes of the same length. They are easy to put up. I place larch poles 3 inches in diameter in prepared trenches, 12 feet apart and 9 or 10 feet above the level of the ground. Two rows of Sweet Peas are planted in each trench at a distance of 12 inches apart either way. When planting is finished, I stretch three stout wires from end to end of the row, one at the top, one in the middle, and one at the bottom, making them fast at one end and slipping them through staples in the middle posts. These wires are tightened with raidisseurs, which are fastened to the posts with pieces of wire. The raidisseurs are cheap, and by their use the wire can be tightened to any extent. Eight of the spirals are fastened to the stretched wires with thin, tar twine or raffia. I fasten them in my case 6 inches apart, as I train two shoots from each plant, introducing the point of each main shoot to a spiral. Every other day the shoots are directed towards the middle of the spiral, and all side growths removed. This year the plants grew to a height of 10 feet 6 inches, showing that the wire had not hindered their progress. *James Robb, The Gardens, Woodleigh, Altrincham.*

Failure with Chrysanthemums.—With reference to Mr. W. E. Kearn's question on p. 426 as to the failure of his Chrysanthemums to bloom, it is due, in my opinion, to errors of cultivation. In the first place, your correspondent states that he provided everything that should make a suitable compost; after enumerating ingredients (which make many a private gardener envious) he goes on to state that, the soil not being over rich, he placed a small quantity of manure over the crocks. Therein may lie the source of some of his trouble. Possibly he may have overfed the plants, inducing coarse growth, especially if the soil was not well rammed when potting. It would probably have been better for him to have commenced with a poorer compost and have fed the roots as growth proceeded. Chrysanthemums can also be overpotted, certain varieties making fewer roots than others, and having a tendency to become waterlogged. Are the plants shaded from the sun in any way? It is absolutely necessary for the wood to be ripened during the summer. Did the plants receive a check from want of water? Stopping too late is also to be guarded against. Was stopping of the shoots carried too late into

the season? If some varieties receive a check during the time the bud is forming they fail to develop the bloom. Lastly, are the plants lifted from the open ground and planted in the greenhouses? Many varieties resent this treatment, and never seem to survive the disturbance. *P. E. Cornish, Downs House Gardens, Yalding, Maidstone.*

Silver Leaf.—In reply to *J. F. N.* (p. 426), there is no evidence of this disease being due to dryness of the soil. On the contrary, the tremendous attack of 1913 was after one of the wettest of seasons—1912-13. There is more evidence in favour of farmyard manure predisposing trees to the malady, and it would be interesting if growers of Victoria Plums would state whether they have noticed the development of the disease following closely the application of this manure. I regret that I cannot find any note of the first appearance of silver leaf in my oldest Plum orchard, planted in the autumn of 1900. In 1905 the field had a good dressing of farmyard manure; but it was not till the autumn of 1910 that I began experiments in relation to the disease. I know that previously—perhaps two or three years before—I had dug up two or three trees affected with silver leaf, and possibly I may have noticed it as early as 1907, two years after the application of the manure. The orchard had 18 tons per acre of London dung in the autumn of 1911, artificials having been used between 1905 and 1911. But no fresh trees in the orchard were affected in 1912 or 1913, I think. In the younger orchard, where I had a very much more extensive attack of silver leaf than I have had in the older one, on Victorias planted some three years and others five years, fully 17 tons per acre, partly of cow and pig manure and partly of London dung, had been applied in the autumn of 1912. This widespread attack, affecting fully one-third of the trees (one to three branches each as a rule) on half an acre of Victorias, it will be seen, followed closely the application of farmyard manure. But it also followed directly after the extremely wet season of 1912-13, and it seems to me that the wet state of the ground for months at a time is quite as likely as the manure to have encouraged the disease. Each possibly influencing factor would encourage profuse and sappy growth, and the two combined would, of course, have a double effect. Victoria is by far the most profuse grower of any among the Plums that I grow, and I believe that rank growth encourages silver leaf. The fact that grafts of Apples on trees headed back often become affected with the disease supports this impression, as all the sap that would have sufficed for the great head of a tree cut off for grafting concentrates its force upon about half a dozen scions. With respect to Mr. Taylor's suggestion as to sulphur being possibly a remedy for silver leaf, it might be tried in small doses (large ones being dangerous); but I have used superphosphate and sulphate of ammonia (with potash) almost every year, and in 1912 and 1913 I sprayed the younger orchard named above with lime-sulphur so profusely that the ground around every tree was thoroughly whitened by the wasted spray stuff. I should be more disposed to try frequent dressings of potash; but then the soil of the orchard in which I had the worst attack is heavy, and should not lack potash. Besides, it has had kainit alone or with other manures two or three times in the last five years. Now that several institutions have been endowed for experiments and research, I think we may fairly expect that a thorough investigation of this mysterious disease should be begun without delay. *A Southern Grower.*

Timber Production in Britain.—In his article on "The Paris Forest Congress and British Forestry," in the *Gardeners' Chronicle* of December 6, Mr. D. E. Hutchins states, regarding the importation of timber into Britain, that "the Coast Erosion Commission of 1909 told us that we were sending some £30,000,000 a year out of the country for timber and forest products which might be produced within our borders," and he goes on to say that the evidence on which their report was founded is "conclusive reading." However grave my doubts may be as to the conclusiveness of the evidence, I have no doubt whatever about the unsoundness of the deduction which the Commission drew as to our being able to "produce £30,000,000 worth a year in timber and forest products" in this country. Why, it is more than the annual production of timber from the 34¾ million acres of forest land in the German Empire! The thing is preposterous. The annual yield in timber from the German forests (which is not, by a long way, sufficient for the country's requirements) is, according to Professor Gayer (Nisbet, *The Forester*, p. 84), about 2,120,000,000 cubic feet, worth about £20,000,000 to £22,500,000, or, on an average, about 12s. per acre; but as approximately one-third of this sum is spent on cost of management, etc., the net income per acre is somewhere about 8s. And this is got, be it remembered, from forests which are perhaps more skilfully managed than any other forests in the world. Now, supposing it were possible to afforest all the waste land in Great Britain and Ireland, in addition to the three million odd acres now under timber, it would be impossible on this basis of 12s. per acre to get a return of even one-half this amount. But it is well enough known that only a comparatively small fraction (Dr. Nisbet estimates it at about one-fifth, i.e., 3,342,156 acres, and the Coast Erosion Commission at nine million acres) of the total area of our waste land could be afforested with a fair chance of profit, so that, including what is now classed as land under timber, the total area of such profit-yielding timber land would, taking the Coast Erosion Commission's figures, amount to less than 12½ million acres, and to yield £30,000,000 annually would require to produce, not 12s. worth of timber per acre, but four times that amount, which, of conrse, it cannot do. Mr. Hutchins draws a comparison between timber and mutton production which, I think, will not bear examination. He seems to forget that the cost of production, rent of the land, etc., over a long period are all locked up at compound interest in the timber crop, whereas there is nothing of the kind in the case of the mutton. It does not understate, but greatly overstates, the case from the forestry point of view, though, no doubt, there are many instances where timber would give better returns than sheep-grazing. *A. D. Richardson, Edinburgh.*

Journeymen Gardeners and Low Wages.—The remarks of *A. M.* are, to my mind, somewhat sweeping. It is news to me that the average "fully-fledged" journeyman's wage is from 14s. to 16s., with bothy. In your advertisement columns of the same issue I see 18s. with bothy, etc., offered, both for inside and outside men. Occasionally one sees 19s. or 20s. offered. I admit that one sometimes sees 14s. offered for journeymen, but after the gardener has waited for several weeks, and at length engages a man, it would be interesting to know if the newcomer is equal to the improver whom the gardener already employed. My experience leads me to think that the majority of bothies are not what they were in the "Good old days"—little better than hovels—but properly constructed dwellings, and even if they are as *A. M.* asserts, only worth 3s. to 4s. per week, the upkeep of such bothies is a considerable item, especially where a large staff is employed. Times out of number I have met youths who prefer 18s. with bothy to 23s. without bothy. In conclusion, I venture to say, if it were not for the support given by private owners, half the nursery workers would have to look for their 22s. per week elsewhere. *Sidney Legg, Newstead Abbey Gardens.*

——In fairness to employers in private gardens, I feel bound to contradict *A. M.'s* statement that journeymen are paid but 14s. to 16s. weekly, with bothy, for an average of 60 hours and duty besides. Take, for example, my own employer—and I can name many others. There are eight young men in bothies, one receives 23s., one 19s., three 18s., one 17s., one 16s. weekly wage. The other, an improver, has 13s. per week, with bothy. The working hours are for summer 6 a.m. to 6 p.m., less 1½ hours for meals, for five days, and Saturdays 6 a.m. to 1 p.m., less ½ hour for breakfast. In winter, 7 a.m. to 5 p.m., and Saturdays 7 a.m. to 1 p.m., less same time as in summer for meals. I fail to see how *A. M.* can make an average of 60 hours per week. With regard to overtime duties, six have one week's duty each every sixth week, and, as usual, they assist each other on Sundays in the busy time of the year. Surely the nursery employee, with his 18s. to 22s. weekly and lodgings to pay, is no better off. So far I am convinced that the journeyman in the private garden, who has a keen interest in his work and his employer's interest at heart, has as good a chance of success as the nursery employee and those in many other occupations. *Thos. Beeson, Headley Park Gardens, Epsom.*

Mealy Bug on Vines.—Having vines badly infested with Mealy Bug, and seeing the article by *J. H. Y.* in last week's issue respecting hydrocyanic acid gas and its efficacy, I would like to know the proportions to use in safety per 100 cubic feet. When the proportions become known generally, few, I think, would hesitate to employ the gas because of the danger, especially if it is an effective, cheap and easy remedy.—*A. J. H.* [The proportions in which cyanide may be used for fumigating dormant vines are:—Potassium cyanide, 3 ozs.; sulphuric acid (concentrated), 5 fluid ozs.; water, 8 ozs., per 1,000 cubic feet. A convenient apparatus is referred to in *Gardeners' Chronicle*, April 26, 1913, p. 280. See also *Gardeners' Chronicle*, February 17, 1912, p. 101.—Eds.]

——With reference to the note on p. 427, I have a house of Codiæums (Crotons), and the plants are infested with Red Spider. Would hydrocyanic acid gas kill the insect, and would it injure the plants in any way? If it is effective, I should be glad to learn the particulars as to the method of cyaniding, and the quantities to use in, say, three vessels.—*Spider.*

——I have read with interest the correspondence on this subject, and although I have used with success, more than once, a mixture of tar and clay as a dressing for Grape vines infested with Mealy Bug, I agree with your correspondent that the best of all methods for the destruction of that pest is hydrocyanic acid gas. I have experimented with this gas in many ways, both indoors and out, and I am quite convinced that no other insecticide is so effective as a destroyer of Mealy Bug. *J. H. Y.* says there is no danger in using the gas. I should not care to make such a bold statement, although I have done cyaniding in the way suggested by your correspondent. But would every operator have sufficient knowledge of the nature of the gas to take the necessary precautions to prevent possible accident? I am afraid not. At the same time, I am of the opinion that when cyaniding is better understood it will be much more largely employed. *J. H. Y.* states that vineries and other houses containing fruit must not on any account be "cyanided." Why not? Some few years ago I wrote to an expert asking him if it would be safe to eat Grapes after cyaniding; if so, how long after. In his reply I believe he said it would be safe to eat Grapes in less than an hour, provided the house were properly ventilated afterwards. Your correspondent speaks of keeping houses warm for a few days to hatch the eggs. I hope that he has not forgotten that this would also stimulate young female bugs to start egg-laying, unless it was very late in the season. From my experience the best plan is to paint the rods carefully with a camel-hair brush and neat methylated spirit, taking care that each nest of eggs is saturated with the spirit. After this operation the eggs will be destroyed. Cyaniding can be done before or after this operation, and may be repeated in a few days. Hydrocyanic acid gas has many uses besides the killing of Mealy Bug. It is valuable for the fumigation of nursery stock, and for use on outdoor plants, such as fruit trees. Neither spraying nor any other method is so effectual as the gas treatment. It is well known that, like the leaves of some plants, it is a matter of difficulty to get fluid sprays to wet some insects, such as Woolly Aphis, but gases enter the smallest cavities. Some light, gas-proof material is required for outdoor plants, arranged on a light framework, so that a fruit or other tree can be easily and quickly covered, and I do not see why low-growing plants like the Brassicas could not be operated on or even soil pests.

The best time to use the gas is when plants are in a dormant condition, for then there is little respiration, a condition that may be brought about by low temperatures and a dry atmosphere. *J. G. Blakey, Holmwood Gardens, Redditch.*

The Value of Thatched Roofs.—Farmers, landowners, and all who love the country must feel an interest in this subject; and a copy of the little pamphlet recently issued, containing a few from among many letters from persons well qualified to speak, will gladly be sent by me to anyone on receipt of a postcard. The value of thatch as a roofing for all kinds of stock is emphasised by men of the highest authority, as well as its general utility, and economy in the long run for houses, barns, and all rural buildings; while its beauty and fitness in rural surroundings cannot be surpassed. I am inclined to think that the complaint of the scarcity of men to do the work is exaggerated, for in many districts there are plenty of good thatchers, a recent Devon directory giving 123 in that county alone, and I know that they are not all old men; and, needless to say, when the demand increases, lads will learn thatching who would otherwise go into other callings. It does not seem to be generally known that Lloyd's will insure thatched buildings of stone, brick or cob at only half-a-crown per cent. This minimises an often-urged complaint; while another objection to thatch, that of harbouring fleas, etc., can, I believe, be guarded against by dressings of corrosive sublimate. I will send particulars of fire-proofing preparations or insurance at the rate mentioned above to anyone interested in the subject, and shall be glad to receive any suggestions for maintaining the use of the beautiful, serviceable, and typically English roof-covering, beneath which millions of our forefathers lived and died. The pamphlet referred to contains the signatures of prominent agriculturists, medical men, architects, and artists, and architects of the highest standing are using thatch in many parts of the country, well knowing its intrinsic value, and rejoicing in its harmony with our matchless English countryside. *L. Mark Kennaway, "St. Helens," Teignmouth.*

The Science of Manuring.—Manure being a very interesting subject, it follows that the *Chronicle* for November 29 is a very fascinating number, owing to the large space it devotes to manuring. It may be remarked that the toxic theory which has been advanced of recent years is by no means novel; how old, at the moment, I cannot say. And it will be remembered that Ville's *Artificial Manures* (1879) is mainly occupied by discussions on the value of potash, phosphoric acid, nitrogen and lime, Ville's contention being that other plant constituents are derived apart from the cultivator's aid. As gardeners we have to be somewhat suspicious of manuring on agricultural and even market-gardening lines. Our methods exhibit wide dissimilarities. The agriculturist stirs the soil to a depth of 4 to 10 inches, and as a rule pulverises it less finely than the gardener who cultivates to a depth of 18 inches to twice that depth. Tull's dictum that soil-pulverisation is the basis of all beneficial cultures has never been negatived. Hence, garden soil may be capable of producing fair crops for a series of years without periodical manuring. There are many instances of Strawberries having remained on the same ground for a long series of years, at least 40, without any cultivation more than keeping the plants clean by an annual digging. I myself have grown Brussels Sprouts for 15 years in succession without either manuring or digging, and on suitable soils it is possible to produce good crops of Onions year after year on the same ground. On the contrary, it is clear that the amount of manure sufficient for a farm crop is altogether inadequate for some garden crops. We see Vegetable Marrows under ordinary field culture fully as prolific as Marrows in a garden which has received many times more manure, with, perhaps, in addition, irrigation. Or, take the Onion. When we go in for large bulbs as distinguished from ordinary ones, it is not only important but essential to keep on feeding, with or without water applied, else the bulbs would fail to swell to the desired proportions. In pot cultures, were it possible to measure the amount of plant food some species not only receive but require, it would be seen to be far beyond the amount the chemist deems sufficient. There is another point about manuring worth noting. It must have been often evident to those of an observant turn that a very slight application of superphosphate or of a nitrogenous manure has set a crop agoing which showed signs of exhaustion, or at least standing still. Give each plant of a slow-moving lot of Cabbages in early March as much sulphate of ammonia as can be lifted between the thumb and two fingers, and they assume a briskness not previously evident, and once started they never stop. Or, say, Chrysanthemums in early September, which seem to have exhausted everything in their respective pots, a pinch of the same material will carry them on for weeks, restore the lack-lustre foliage to a deep green, and advance the plants to the acme of vegetable health. Surely it is not the manure as a manure that effects these remarkable changes, but rather it brings other manurial agents hitherto latent and inactive within the range of the plant's activities. Further, there is the question of root activity. I have frequently restored vigour and health to a decayed shrub growing in soil to all appearance exhausted of every item of fertility and ramified with roots by simply laying leaves round about its stem. In less than twelve months very little of the applied material was left, but evidence of an abundance of young roots, with the result of the shrub assuming a healthy appearance, making normal growth, and becoming altogether an object that one could look upon without a feeling of commiseration as heretofore. Now, were the benefits confined to the period occupied by the shrub in assimilating the food contained in the dressing there would be nothing wonderful, but when the benefit is obvious for several years is it not also obvious that the young roots instead of rendering the soil toxic to vegetation have, on the other hand, by their means opened up a store of plant food which for a time it had been unable to reach? The merest sprinkling of fine soil applied to masses of Saxifrages, Sedums, Hutchinsia, Alpine Phloxes and other dwarf plants effects in them an immediate change for the better. The little moisture-loving Nertera depressa can be kept in perfect health for an indefinite period by exactly similar means. Above all, how wonderful is it that a slight application of sand to grass causes a thickened growth of darker green. These are all instances of the immense benefit of new roots in searching for food. Those who have not tried dressing worn-out cutting boxes of bedding plants with a little soil scattered among the plants in spring will find it a ready means of proving the efficacy of new root action in promoting healthy top-growth. Potash applied to grass in a little Apple orchard I have found to be more beneficial to the grass than to the Apples, Cocksfoot (Dactylis) rising to a height of 5 feet. Rotted manure and soil spread all over the turf in another orchard has been equally good for the trees without stimulating the grasses unduly. With regard to the application of ferric oxide to Apple trees, I find its use advocated as long ago as 1868, and it will be remembered that Mr. Tonks, of Birmingham, recommended it as a cure for canker quite a number of years ago. Whether 6 feet from the stem of the tree be too near or too far depends on the age of the tree. We have trees the roots of which extend many yards beyond the spread of the branches, and a much wider circumference would need to be dressed for these to benefit them. With regard to soot, it is an excellent Carnation manure, and anyone who has applied it three or four times during the season of growth to border Carnations must have observed how healthy the plants remain, and also how it invigorates growth. That it increases the size of the flowers I should not like to say. It is of the nature of a stimulant, and therefore its application to Perpetual Carnations should cease in September because its continued use results in split calyces. It must not be forgotten that light and heat have a powerful influence on assimilation, and so in the period when direct sunlight is a factor scarcely worth considering and heat at its lowest ebb, Carnations and other plants should be very carefully nourished, perhaps never stimulated. *R. P. Brotherston.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

CONFERENCE ON OUTDOOR CHRYSANTHEMUMS.

(*Concluded from p.* 450.)

Mr. Thomas Bevan introduced his subject by stating that he had been asked to deal with the Chrysanthemum from the point of view of cultivation for outdoor garden decoration, and to give illustrations of his methods and results.

Proceeding, he said it may be mentioned that this aspect of Chrysanthemum culture is seldom referred to by the professional grower of exhibition blooms, and is generally neglected. For more than twenty-five years I have grown a considerable number of "Earlies" for outdoor decoration, and all who have seen them have pronounced them as at least satisfactory, and to a certain extent successful. My remarks are intended for the gardener or amateur of limited space and means, and to show that a good display of Chrysanthemums can be had in the garden for at least five to six months in the year without any artificial heat whatever.

The following are the varieties used, and will be referred to again later :—

Early Varieties.—Crimson Masse, Marie Masse, Wells' Masse, White Masse, Orange Masse, Horace Martin, Ralph Curtis, White St. Crouts (October), Piercey's Seedling, Piercey's Seedling Sport, Ladysmith (October and November), The Dome, Mme. Desgrange, Mrs. Hawkins, Rose Wells, Blush Tint (single), Anastasia, Anatasia Sport (bronze), Anatasia Sport (gold tricolor), Norbet Purvey, Soleil d'Octobre, Soleil d'Octobre (bronze), Mad. C. Perrier, Nanum, Cactus, L'Ami Conderchet, L'Ami Corderchet (primrose), Goacher's Crimson, Mrs. Stacey, Mrs. Selby, Polly, Little Bob, Blushing Bride, Blush Beauty, Flora, La Petite Marie (yellow), Nina Blick, Bijou (rose), Tonkin, Kitty, Champ d'Or, Harrie, Eden, Tapis d'Or, Benjamin Guinddism, Tapis de Niege, Mabel (apricot), Charles Jolly, Pride of Keston, Perle Rose (August), George Boness, Lillie, Howard H. Crane, Kitty (small single blush), Champagne (ruby red), Auguste, Ryecroft (scarlet), Sœur Melaine, Little Dott, Cemetery (white), Mme. Lefort, Fred Pele (these last five bloom in October), Single Red (September), Cranford Yellow, Cranford Pink (when disbudded these two bloom in September and October), Champ de Niege, Jardin des Plantes (white, July), Jardin des Plantes (yellow, July), Parisiana, White Pet, Mme. L. Lassail, Harvest Home, Single White (seedling, August), Mme. Lefort (October), Alexander Dufour (October), Dolores, Hortus Tolosanus, Almirante, Betty Spark, Carrie, Countess, Crimson Polly, Dorothy Ashley, Robbie Burns, Hector, La Neva, Le Pactole, Mignon, Perle Châtillonnaise, Pluie d'Argent, Roi de Précoces, Roi des Blancs, Verona, Canarie.

Early Singles.—A. J. Foster, A. W. Seabrook, Clarice, Ena, Firebrand, Hypatia, Joan Carter, Kate Carter, Kate Westlake, Lily Ovenden, Merstham Glory, Mrs. Earle, Parapan, Pink Gem, Richard, Snowstorm, Surrey, and W. A. Cull.

In the month of December we lift as many old stools, with mould attached, as required, cut them down to about one foot of the ground, and stand them close together against the foot of a wall, placing about one inch of light soil over them, but do not plant them in the ground. If any of the roots have much mould upon them it is not necessary to cover them with more soil, simply standing them close together. Here they remain until towards the end of February, when the necessary number of "root" cuttings are taken off, pricked into pots or boxes, and placed where some slight protection can be given to them. About the first week in April all the plants should be planted out, in about two inches of soil, in an open frame at a distance of about two inches apart each way. A garden mat should be used for protection at night and removed during the day. About the middle of May the plants should be taken up, and such as are required for specimen blooms potted singly into 48 sized pots, and afterwards stood in an open, sunny place. Soleil d'Octobre and its bronze-coloured sport, Cranford Yellow, Cranford Pink, and some others of this class are suitable for the purpose. The remainder should be planted where they are required to bloom, or set 18 inches apart in nursery beds for lifting when in flower. Those in pots should be grown on and trained to a single stem, to be planted as soon as the first break shows, with the smaller varieties either as dot plants or in rows at 2 feet apart. All side shoots should be removed, reserving only the three growths from the break, and these to be watched very closely for the first buds forming, which should be taken immediately they can be handled. If it is desired to

lengthen the season a portion of the growths may be cut off and a bud of the succeeding shoots taken a month afterwards.

The first buds are generally ready by the second or third week in June, and they will show colour in the first week of July. Several varieties, including Soleil d'Octobre and Bronze, Cranford Pink, Cranford Yellow, Polly and Goacher's Crimson were in bloom on July 20. On July 25, in addition to those mentioned, were Champ des Neige, Little Bob, Flora, Jardin des Plantes, White and Yellow Kitty and others. On August 1 second buds were taken of Soleil d'Octobre and Bronze, Cranford Pink and Cranford Yellow. On August 15 the first flowers of Wells' Masse and Soleil d'Octobre were open, with single white and red florets. On August 28, in addition to those named above, Blush Tint (single), Nanum Cactus, L'Ami Conderchet, Mrs. Stacey, Mrs. Selby, Le Petite Marie, Primrose Yellow, Blush Beauty, Mrs. J. Fielding, and others were in bloom, whilst on September 20 the first buds on Soleil d'Octobre and Cranford Yellow and Cranford Pink were fully expanded, whilst the second buds were 2 inches across, all the Marie Masse family in full bloom. After this date all the other varieties followed in quick succession.

GENERAL CULTIVATION.

One of the principal details in the successful cultivation of these plants is not to over-feed them at any time during the season, but to have the soil fairly rich, such as would grow satisfactory crops of vegetables. No artificial manure of any kind, and very little stable manure should be applied at any time, for should this be done the result will be disappointing. The wood would be coarse and the flowers loose, bad in shape, and generally overgrown.

Should the ground become so dry as to cause the plants to flag much, a copious watering should be given; a little flagging does good in checking strong growths and hardening the flowering wood. During the summer months the plants should be grown in an open, sunny situation. They should never be planted against shrubberies or in large herbaccous borders unless they are kept well away from the other occupants of the border. I recommend that the bulk of the plants grown should be set out in the nursery or kitchen garden, and about August or September lifted and planted in the flower garden in place of Pelargoniums and the usual summer bedding plants. All the Chrysanthemums can be removed and transplanted when in bloom.

Many varieties that produce flowers of only medium size can be improved by disbudding. Those of the Masse family, Goacher's Crimson, Polly, Blush Beauty, Mad. C. Perrier, Norbet Purvis, Tonkin and George Bowness are suitable for this purpose.

The small-flowering varieties, such as Little Bob, Piercy's Seedling, White St. Crouts, L'Ami Conderchet and its primrose sport, Flora, Anastasia (bronze sport), and a golden tricolor sport of my own, are all useful varieties, requiring no staking.

To make up the deficiency in colour, not attainable in the Chrysanthemum, we plant a good breadth of Aster "Melba" (deep blue), which flowers at the same time as the Chrysanthemums and lifts well.

A selection for prolonging the season can be made from both old and new varieties.

DISCUSSION.

The discussion on Mr. Bevan's paper was opened by Mr. T. STEVENSON, who spoke of the very able manner in which Mr. Bevan cultivated these flowers

He ventured to ask the reason Mr. Bevan potted certain of his plants into 48 size pots after being planted out in frames, as he thought it would be better to keep them in the open ground all the time. He also stated that his experience with early-flowering Chrysanthemums led him to believe that after the flower buds were taken plants would assimilate benefit by more manure than those grown in pots, whereas Mr. Bevan said they required very little manure.

Mr. BEVAN stated that his reason for potting the plant at this stage was because the ground he used for planting the Chrysanthemums in the open air was usually occupied by other subjects, and the plants were simply placed in pots till such times as the ground was clear. As to the manuring question, he usually manured for the other crops that were on the ground, and found this to be quite sufficient for the Chrysanthemums.

Mr. FROGBROOK said it was very difficult to lay down hard and fast rules as to manuring, for different soils required different treatment. His own soil, which was very porous, required to be manured heavily for all kinds of plants.

Mr. HAWES, in closing the conference, said that great interest had been shown by the members in the two lectures. He thanked them for their contribution to the discussion.

COVENTRY CHRYSANTHEMUM.

DECEMBER 11.—A satisfactory report was presented at the annual dinner and meeting of the above society, held on the 11th inst. Mr. G. Griffin (secretary) gave the members details showing the position up to the present time. He said that the expenditure reached nearly £150. At the time the statement was prepared the income totalled £156 16s. 5d., and there was a small profit already on the year's working notwithstanding the record expenditure. The prize money amounted to £70 12s. 9d. Mr. Griffin referred to the increased competition in groups as a satisfactory feature of the exhibition, and in conclusion said that as the result of the show he hoped to be able to add from £8 to £10 to the society's funds. The president, Alderman A. H. Drinkwater, J.P., congratulated the members upon the excellence of their exhibition, and referred to the high opinion which the citizens had of the event. During the evening the fact was mentioned that Harold Twist, Esq., had presented the society with a handsome silver cup for competition.

DUNDEE CHRYSANTHEMUM.

DECEMBER 12.—The annual general meeting of this society was held in Lamb's Hotel on the 12th inst. The President, W. S. Melville, Esq., in moving the adoption of reports, which showed a profit on the year's working of £10 1s. 5d., said that it was so far satisfactory, but they could not hide the fact that this balance had been obtained by strenuous economy. He had already referred to the apathy of the general public in patronising the Chrysanthemum Show.

Mr. David Dickie, F. L. McGrady, D. C. Hutcheson, Alexander Mackay, and Thomas Maitland were elected Vice-Presidents, while Messrs. James Bethel and James Steward were elected members of the committee. Mr. Will F. Hill was re-elected Secretary and Treasurer. It was decided to hold the next year's Chrysanthemum Show on November 27 and 28.

UNITED HORTICULTURAL BENE FIT AND PROVIDENT.

DECEMBER 8.—The monthly meeting of the above society was held at the R.H.S. Hall on the 8th inst., Mr. Arthur Bedford presiding. Five new members were elected. Four members were allowed to withdraw from their deposit account sums amounting to £15, and one member double the amount of interest, viz., £2 13s. 6d. A report on the members in permanent ill-health was read by the secretary; it was shown that one member had been on the funds for 19 years, during which time his sick pay had amounted to £268 3s., and he still had a deposit of £81 17s. 4d. Other individual members had received £213 16s., £167 18s., £145 18s., £108, £72 5s., £56 8s., £37 18s., and £28 10s., while one member who only joined the society some six years ago had received upwards of £70 in sick pay.

BRITISH GARDENERS' (EDINBURGH BRANCH).

THE monthly meeting of this branch of the B.G.A. was held on the 8th inst. Mr. David Anderson, of College Garden, Liberton, read a paper on "The Study of Nature: Its Influence on the Lives of Men." Office-bearers for the ensuing year were elected as follows:—President, Mr. Morland, and secretary, Mr. Harris. Committee:—Messrs. Anderson, McCutcheon, Munday, Jeffs, and Stuart. The next meeting will be held on January 12, when a paper on "Spring Flowers at Belvoir Castle" will be contributed by Mr. W. H. Divers, V.M.H.

MARKETS.

COVENT GARDEN, December 23.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report.

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.
Aralia Sieboldii, dozen	6 0	7 0
Araucaria excelsa per dozen	18 0	21 0
Asparagus plumosus nanus, per dozen	10 0	12 0
— Sprengeri	6 0	8 0
Aspidistra, per doz., green	18 0	30 0
— variegated	30 0	60 0
Azalea, per doz.	30 0	36 0
Begonia Gloire de Lorraine, 48's, per dozen	9 0	12 0
Cacti, various, per tray of 15's	4 0	—
tray of 12's	5 0	—
Chrysanthemums:—48's, per doz.	6 0	10 0
Cocos Weddeliana, per dozen, 60's	6 0	12 0
— larger, each	2 6	10 6
Croton, per dozen	18 0	30 0
Cyclamen, 48's, per dozen	10 0	12 0
Cyperus alternifolius, per doz.	5 0	6 0
— laxus, per doz.	4 0	5 0
Dracæna, green, per dozen	10 0	12 0
Erica gracilia, per dozen	9 0	12 0
— hylmalis	10 0	15 0
— nivalis, per doz.	10 0	15 0
— small, in thumbs, per dozen	4 0	6 0
Ferns, in thumbs, per 100	8 0	12 0
— in small and large 60's	12 0	20 0
Ferns, in 48's, per dozen	5 0	6 0
Ferns, choicer sorts, per dozen	8 0	12 0
— in 32's, per doz.	10 0	18 0
Geonoma gracilis 60's per dozen	6 0	8 0
— larger, each	2 6	7 6
Kentia Belmoreana, per dozen	5 0	8 0
— Fosteriana, 60's, per dozen	4 0	8 0
— — larger, per dozen	18 0	36 0
Latania borbonica, per dozen	12 0	30 0
Lilium lancifolium rubrum, per dz.	12 0	18 0
— lancifolium album	15 0	18 0
— longiflorum, per dozen	12 0	18 0
Lily-of-the-Valley	18 0	21 0
— 48's, per dozen	21 0	30 0
Marguerites, in 48's, per doz., white	6 0	7 0
Pandanus Veitchii, per dozen	36 0	48 0
Phœnix rupicola, each	2 6	21 0
Poinsettias, per dozen 48's	10 0	12 0
Roman Hyacinths, per doz.	1 6	1 —
Solanums, 48's per dozen	6 0	10
Spiræa japonica, per dozen pots	6 0	8 0
— pink	10 0	12 0
Tulips, on bulb, per doz. scarlet	1 3	1 9
— — — yellow	1 0	1 0
— — — white	1 0	1 3

Cut Flowers, &c.: Average Wholesale Prices

	s.d.	s.d.
Arums, per doz.	3 6	5 0
Azalea, White, per doz. bunches	4 0	5 0
Camellias, per doz.	1 6	2 0
Carnations, per dozen blooms, best American varieties	1 9	3 0
— smaller, per doz. bunches	15 0	18 0
— Carola (crimson), extra large	4 0	5 0
— Malmaison, per doz. blooms:		
— — pink	6 0	9 0
Chrysanthemum:		
— White and coloured, large specimen blooms	4 0	5 0
— Special blooms	2 0	2 6
— Medium blooms	1 3	1 9
— Bunch, white, per doz.	6 0	8 0
— — coloured, per doz.	5 0	8 0
Daffodils, single, per doz. bnchs	15 0	18 0
Eucharis, per doz.	2 6	3 0
Freesias, per dozen bunches	3 6	4 0
Gardenias, per box of 15 and 18 blooms	4 0	6 0
Lapageria alba, per doz. blooms	2 0	2 6
Lilium auratum, per bunch	2 0	2 6
— longiflorum, per doz., long	2 0	2 3
— — short	1 9	2 0
— lancifolium album, long	1 6	2 0
— — short	1 3	1 6
— rubrum, per doz., long	2 0	2 6
— — short	0 9	1 0
Lily-of-the-Valley, per dozen bunches:		
— extra special	15 0	18 0
— special	12 0	14 0
— ordinary	9 0	10 0
Orchids, per doz.:		
— Cattleya	15 0	18 0
— Cypripedium	2 0	3 0
— Dendrobium Phalænopsis	1 6	2 0
— Odontogloasum crispum	3 0	4 0
Pelargoniums, per doz. bunches, double scarlet	9 0	10 0
Pointsettias, per doz. blooms	10 0	12 0
Roman Hyacinth, per doz. spikes	0 9	1 0
Roses: per dozen blooms, Bridesmaid	2 0	2 6
— Kaiserin Augusta Victoria	3 0	4 0
— Liberty	4 0	5 0
— Mme. Carnot	2 6	3 0
— Madame A. Chatenay	3 0	4 0
— Melody	3 0	4 0
— Niphetos	1 6	1 9
— Richmond	3 0	5 0
— Sunburst	2 6	3 0
— Sunrise	2 6	3 0
Spiræa, per doz. bunches	6 0	8 0
Stephanotis, per spray of 72	3 0	3 6
Tuberoses, per gross	4 0	5 0
Tulips, per dozen bunches, scarlet	9 0	12 0
— — — yellow	10 0	12 0
— — — white	9 0	12 0
Violets, English, per dozen bunches	1 0	1 6
— Princess of Wales per doz. bunches	2 0	3 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.
Adiantum Fern (Maidenhair), best, per doz. bunches	5 0	6 0
Agrostis (Fairy Grass), per doz. bunches	2 0	4 0
Asparagus plumosus, long trails, per half-dozen	1 6	2 0
— medium, doz. bunches	12 0	18 0
— Sprengeri	6 0	12 0
Carnation foliage, doz. bunches	3 0	5 0
Croton foliage, vrs., doz. bunc.	12 0	15 0
Cycas leaves, artificial, per doz.	3 0	12 0
Eulalia japonica, per bunch	1 0	1 6
Honesty, per doz. bunches	10 0	12 0
Moss, green bunches	6 0	—
Myrtle, doz. bnchs. English, small-leaved	6 0	—
— French	1 0	—
Smilax, per bunch of 6 trails	1 0	1 9

French Flowers.

	s.d.	s.d.
Anemones, double pink, per doz.	2 0-	2 3
Lilac white, per bunch	3 6-	4 0
— mauve, p. bnch.	5 0-	6 0
Marguerites, yellow, per dozen bunches ..	1 9-	2 0
Mimosa (acacia), per pad	6 0-	7 0
— — per bunch	0 9-	1 0
Narcissus, Paper White, per pad	6 0-	7 0
— — — per doz. bunches ..	1 9-	2 0
— Soleil d'Or, per pad	6 0-	7 0
Narcissus, *Continued:*	s.d.	s.d.
— Sol d'Or, per dozen bunches	1 6-	2 0
Ranunculus, scarlet, per dozen ..	10 0-	15 0
— Barbaroux ..	3 6-	4 6
— carmine ..	3 0-	4 0
— orange	10 0-	12 0
— yellow	10 0-	12 0
Roses, Safrona, per packet (24) ..	1 3-	1 6
Violets, single, per pad	5 0-	6 0
— — per dozen bunches ..	1 6-	1 9
— Parmas, large bunch	3 0-	3 3

Fruit: Average Wholesale Prices.

	s.d.	s.d.
Apples, English Dessert, ½ bushel..	5 0-	8 0
— cooking, per bushel	5 6-	8 0
— Cox's, per ½ bush.	8 0-	10 0
— Cox's Orange Pippin, pr. case	16 0-	18 0
— American, brls.	36 0-	38 6
— Californian Newtown Pippin, case	10 0-	11 6
— Nova Scotian, barrel	24 0-	28 0
— Oregon, Newtowns, case ..	13 6-	15 0
— Wenatchee, case	14 6-	15 6
Avacado pears, per dozen	12 0-	18 0
Bananas, bunch:		
— Double Ex. ..	17 0	—
— Extra	15 0-	16 0
— Extra medium	13 0	—
— Giant	20 0-	22 0
— Medium ..	12 0	—
— Red, per ton ..	£25 -	£28
— Jamaica, p. ton	£11 -	£12
Cranberries, Cape Cod, per case ..	9 6-	12 6
Custard apples, per doz. ..	6 0-	12 0
Dates, dozen boxes	4 0-	4 6
— per cwt. case..	20 0	—
Figs, Kadrowi, cwt.	11 0	—
Grapes—English:		
— Gros Colmar, per lb.	0 10-	2 6
— Black Alicante	0 10-	1 6
— Canon Hall Muscat ..	1 3-	4 0
— — Special, per lb.	6 0-	10 0
— Muscat of Alexandria	1 3-	4 0
— — Special ..	6 0-	10 0
Grapes, *continued:*	s.d.	s.d.
— Almeria, per barrel	16 0-	21 6
— — per dozen lbs.	5 6	—
Grape Fruit, case: — 96's .. — 80's .. — 64's .. — 54's ..	12 6-	18 6
Lemons, Messina, per case ..	12 6-	26 0
— Malaga ..	21 0	—
— Murcia, p. case	16 0-	22 0
Limes, per case ..	4 6-	5 6
Lychees, box ..	1 6	—
Nuts:		
— Almonds, sack	64 0-	65 0
— Barcelona, sack	44 0	—
— Brazils, cwt. ..	95 0	—
— Chestnuts, Naples, per bag ..	12 0-	20 0
— Cobnuts, English, per lb. ..	1 3-	1 4
— Cokernuts, per 100	18 0-	22 0
— Grenobles, bag	8 0-	9 0
— — French, bag	8 0-	9 0
Oranges, Jamaica..	9 0-	11 0
— Denia, per case	16 6-	24 0
— Jaffa, per cask	9 0	—
— Mandarines, box	1 0-	4 0
— Mercia, p. case	8 6-	9 6
— Vera, per case .	15 6-	35 0
Pears, Californian, box	6 6-	20 0
— Stewing, ½ bus.	3 0-	4 6
Persimmons, p. box	1 6-	2 6
Pineapples, St. Michael ..	3 0-	5 6
Holly, per bunch..	1 6-	10 0
Mistleto, per crate	10 0-	13 0

REMARKS.—English Muscats are, as anticipated, a very short supply. Holly and Mistleto are both plentiful.

Vegetables: Average Wholesale Prices.

	s.d.	s.d.
Artichokes, Globe, per dozen ..	2 0-	3 0
— ground, ½ sieve	1 0-	1 3
Asparagus, Paris green	4 3-	4 9
— Cavillion ...	2 10-	3 0
— Sprue	0 6-	0 8
— English bundle	3 0-	7 0
Beans, Guernsey, lb.	1 6-	2 0
— Madeira, per basket	5 0-	6 0
— French canes..	4 6-	5 0
Beetroot, per bushel	2 0-	2 6
Cabbages, per tally	2 6-	4 0
Carrots, (English), bags	3 0-	4 0
Cauliflowers, per dozen	1 6-	2 6
— St. Malo heads, per dozen ..	2 0-	3 0
Celeriac, French, per dozen ..	1 6-	2 0
Celery, per doz. ..	7 0-	10 0
Chicory, per lb. ..	0 3-	0 3½
Cucumbers, per doz	12 0-	15 0
Endive, French, per dozen	1 6-	2 0
Garlic, per strike..	3 0-	4 0
Horseradish, 12 bundles ..	9 0-	10 0
Leeks, per dozen ..	1 6-	2 0
Lettuce, English, Cos, per score	1 3-	1 6
— English, round, per score ..	0 6-	1 0
— French crates	2 0-	3 6
Mushrooms, cultivated, per lb..	1 0-	1 6
— Broilers ..	0 8-	0 10
— Buttons ..	1 3-	1 6
Mustard and Cress, per dozen punnets	0 10-	1 0
Onions, picklers, per ½ bushel ..	1 6-	2 0
— Dutch, bags ..	5 0-	5 6
— English, bags..	6 6	—
— Spanish, cases	7 0-	7 6
Parsley, per dozen bunches ..	1 6-	2 0
Parsnips, per bag..	3 6-	4 0
Peas, Guernsey, lb.	2 0-	2 6
Radishes, per doz.	1 0-	1 3
Rhubarb, Leeds, forced, dozen bundles ..	2 0-	2 6
Sage, per dozen ..	2 0	—
Savoys, per tally ..	4 6-	6 0
Seakale, per punnet	1 3	—
Spinach, per bushel	1 6-	2 0
Sprouts, ½ bushel..	1 0-	1 3
— ½ bags	2 0-	2 6
Stachys tuberosa, lb.	0 4-	—
Tomatos, English, per dozen lbs.	5 0-	6 0
— Canary, bundle	20 0-	24 0
Thyme, per dozen bunches ..	2 0-	6 0
Turnips (English), per bag ..	2 0-	2 6
Watercress, per doz.	0 4-	0 6

Potatos.

	s.d.	s.d.
Bedford, per cwt.	3 6-	3 9
Blacklands	2 6-	2 9
British Queen ..	3 6-	4 0
Dunbars	4 6-	5 0
Evergood	3 0-	3 3
Langworthy, per cwt.	5 6	—
Kent	3 0-	3 6
King Edward ..	3 3-	3 9
Up-to-date	2 6-	3

DEBATING SOCIETIES.

WATFORD HORTICULTURAL.—The usual monthly meeting of this society was held on the 12th inst. Papers were read by Mr. E. Winsor on "Chrysanthemum Culture," and Mr. H. Newman on "Preparation of Allotments."

CHELMSFORD AND DISTRICT GARDENERS'.—The fourth meeting of the winter session was held in the Agricultural Institute on November 14. Mr. Brown occupied the chair, and about fifty members were present. The secretary read a paper written by Mr. White, of Lawford Lane Nurseries, on "Strawberries." Mr. White recommended bastard trenching of land in November for Strawberries; working again in March, and planting with Potatos, after which the Strawberries should be planted. At the meeting held on November 28 Mr. J. T. West, of Tower Hill, Brentwood, delivered an interesting and instructive lecture on "The Dahlia." The lecturer traced the history of the Dahlia, and gave reasons for the change in style from the double-flowered Cactus varieties to those of the present-day Collerette type. Mr. West also gave valuable information in respect to the cultivation of Dahlias.

DERBYSHIRE GARDENERS'.—At the annual meeting of the above association the statement of accounts showed a credit balance of £34 to carry forward to next year's account. The date of next year's Chrysanthemum Show is fixed for November 6 and 7.

BRISTOL AND DISTRICT GARDENERS'.—A meeting of this association was held on the 11th inst., when Dr. Shingleton Smith presided. The lecturer for the evening was Mr. C. Neads, representing the Newport Association, his subject being "Work in the Kitchen Garden during the Winter Months." Mr. Witt won the 1st prize offered for two dishes of Apples. A collection was made at the meeting on behalf of the Royal Gardeners' Orphan Fund.

BATH GARDENERS'.—The annual meeting was held on the 8th inst., Mr. T. Parrott presiding. The annual report showed that the Society had had a most successful year, both from a financial point of view and also from that of increased membership. The meetings had been exceptionally well attended. The winner of the Society's Silver Medal was Mr. H. Roper, with a total of 100 points. Mr. T. Allen won the Bronze Medal with a total of 75 points. The president (Mr. C. T. Foxcroft), the vice-presidents, officers and committee of the Society were all re-elected.

ELSTREE HORTICULURAL.—At the meeting held on the 11th inst. a lecture on "The Potato" was given by Mr. R. H. Ayre, of Bushey Lodge Farm, near Watford, one of the largest Potato growers in the district. Mr. E. Beckett, V.M.H., presided. Mr. Ayre placed much importance on a change of "seed" annually from the North, and the sprouting of "sets" in boxes for both early and mid season varieties. Mr. Ayre stated that he has specially constructed buildings for this purpose capable of holding many tons of seed tubers for sprouting. The lecturer stated that Epicure, Eclipse and King Edward were his favourite varieties.

BIRMINGHAM AND MIDLAND GARDENERS'.—The autumn session of the above society concluded on the 17th inst. The evening was devoted to the discussion of various questions raised by the members. The questions elicited much valuable information. Spot on Orchid leaves was declared to be due to an excess of moisture in the house. The question of Red Spider on Cucumbers was discussed, and the best means of destroying the pest was stated to be a mixture of soft soap and sulphur: a damp atmosphere is inimical to the pest. One enquiry was, "How Ferns are crossed in order to produce new varieties." Messrs. Christie and Palmer were re-elected auditors.

GARDENING APPOINTMENTS.

[*Correspondents are requested to* **write the names of persons and places as legibly as possible.** *No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received, and an acknowledgment made in these columns.*]

Mr. W. Thomas, for 4 years Gardener to E. C. MEYSEY-THOMPSON, Esq., M.P., Spellow Hill, Knaresborough, Yorkshire, and previously in the Gardens at Clumber and Kedleston, as Gardener to G. E. STRINGER, Esq., Barton Seagrave Hall, Kettering, Northamptonshire.

Mr. F. H. Paulley, for the past 7 years Second Gardener to the late Mrs. HOOPER, Thorne House, Thorne, Yeovil, as Gardener to G. F. DEEDES, Esq., The Wash, West Coker, near Yeovil, Somersetshire.

Mr. Fred Tidman, for the past 3 years and 8 months Inside Foreman at Mote Park Gardens, Maidstone, Kent, and previously at Byrkley Lodge Gardens, Burton-on-Trent, Woodside Gardens, Darlington, and Newby Hall Gardens, Ripon, Yorkshire; as Gardener to GOODWIN HALL, Esq., Manor House, Alton, Hampshire.

Mr. William Jones, Gardener to the late Sir THEODORE MARTIN, afterwards in the service of the Trustees at Bryntysilio, Llangollen, as Gardener to GEORGE HARRISON, Esq. at the same place.

Mr. F. J. Brown, for the past 12 years Gardener at Cold Overton Hall, Leicestershire, as Gardener to MAJOR DUBERLY, Gaynes Hall, St. Neots, Huntingdonshire. [Thanks for 1s. for R.G.O.F. box.—EDS.]

Mr. T. W. Birkinshaw, for the past 9 years Gardener to Sir CHARLES HAMILTON, Bart., Hatley Park, Sandy, Bedfordshire, as Gardener to Colonel HORNSBY-DRAKE, Compton Bassett, Calne, Wiltshire.

Mr. Evan G. Jones, for 14 years Gardener at Homestall, Barley, Royston, Hertfordshire, as Gardener to Mrs. TAYLOR, Stoney Ware, Marlow, Buckinghamshire. [Thanks for 1s. for R.G.O.F. box.—EDS.]

Mr. J. Hextall, for the past 3½ years Gardener at Terrick House, Butler's Cross, Buckinghamshire, as Gardener to Colonel GOODALL, Dunton Hall, Aylesbury, Buckinghamshire.

Mr. David Smith, for 8½ years Gardener at Lanrick Castle, Doune, Perthshire, as Gardener to City of Leeds Training College, Yorkshire.

Mr. F. T. Rose, for two years Gardener to Sir BACHE CUNARD, Bart., Nevill Holt, Market Harborough, as Gardener to W. O. CARVER, Esq., Cranage Hall, Holmes Chapel, Cheshire. [Thanks for 1s. 6d. for the R.O.G. Fund.—EDS.]

CATALOGUES RECEIVED.

SEED LISTS.

DICKSON AND ROBINSON, Cathedral Street, Manchester.

ED. WEBB AND SONS, Wordsley, Stourbridge.

DOBBIE AND CO., Edinburgh.

DICKSON, BROWN AND TAIT, Cross Street, Manchester.

W. LAING, Sutton, Surrey

SUTTON AND SONS, Reading.

CLIBRANS, Hale, Altrincham.

JOHN K. KING AND SONS, Coggeshall, Essex.

WILLIAM BULL AND SONS, King's Road, Chelsea.

C. F. A. VAN DE SLUYS, Ramée, Guernsey, C.I.—Perpetual-flowering Carnations.

Foreign.

J. M. THORBURN & CO., 53, Barclay Street, New York, U.S.A.—Seeds.

SLUIS AND GROOT, Enkhuizen, Holland.—Seeds.

J. C. SCHMIDT, Erfurt, Germany.—Seeds.

W. ATLEE BURPEE AND CO., Philadelphia.—Seeds.

Obituary.

ERNEST LEGG.—We learn with regret of the death, on the 16th inst., of Mr. Ernest Legg, of Worple Nursery, Wimbledon. Death was due to blood poisoning, owing to diabetes, from which he had suffered for several years past. He is survived by his wife, three sons and one daughter.

PUBLICATIONS RECEIVED.—*Transactions of the Edinburgh Field Naturalists' and Microscopical Society.* (London: William Blackwood and Sons.) Price to non-members 4s.—*The Flora of South Africa.* By Rudolf Marloth. Vol. I. (London: Wm. Wesley and Son.) Price £2 2s.—*The Story of Plant Life in the British Isles.* By A. R. Horwood. (London: J. and A. Churchill.) Price 6s. 6d.—*Genera of British Plants.* By Humphrey G. Carter. (London: Cambridge University Press.) Price 1s.—*The Fungi Which Cause Plant Disease.* By F. L. Stevens, Ph.D. (London: Macmillan and Co., Ltd.) Price 17s. net.—*Report on Migration from Rural Districts in England and Wales.* Price 3d; *Annual Report on the Distribution of Grants for Agricultural Education and Research in the Year 1912-1913.* Price 8½d. (London: Board of Agriculture and Fisheries).

Answers to Correspondents

"There are few gardeners, and still fewer amateurs, who do not on occasion require immediate information upon various points of practice. But either from an unwillingness to inquire, or from not knowing of whom to make the inquiry, they too often fail to obtain the information they are in want of. And let no one be alarmed lest his questions should appear trifling, or those of a person ignorant of that which he ought to know. He is the wisest man who is conscious of his ignorance; for how little do the wisest really know!—except that they know little. If one man is unacquainted with a fact, however common, it is probable that hundreds of others in the same position as himself are equally in want of similar information. To ask a question, then, is to consult the good of others as well as of one's self."—*Gardeners' Chronicle, No. 1, Vol. I., January 2, 1841.*

A MONSTROUS RIBES.—*W. C.* The malformation of the shoot of Ribes is remarkable. The main shoot has produced tufts of innumerable branchlets, which are crowded together after the fashion of those in witches' broom. There can be no doubt but that the monstrous growth is due to damage of the growth-forming tissues of the plant, and the extent of the malforma-

FIG. 162.—WITCH KNOT ON THE BIRCH.

tion suggests that the damage was not produced by mechanical but by chemical means. This chemical damage—or poisoning—may be ascribed with certainty to some parasitic organism, either an insect or a fungus. Thus the malformation falls into line with witches' brooms and galls generally, which are due to the toxic action of a parasite on the formative elements of the plant. The illustration (fig. 162) shows a witch knot on Birch, caused in this case by a minute four-legged Acarus (Phytoptus), very similar to the one causing Big Bud in Black Currant.

BEECH DISEASED: *J. V., Derby.* The Beech Coccus is often confined to the trunk and main branches of the tree, when it can be eradicated by scrubbing the bark with a strong insecticide. In other cases scrubbing may not be practicable, and you must then resort to spraying. The following treatment is recommended by the Board of Agriculture:—(1) The trees should be sprayed, when in the dormant condition, with the following emulsion-soda wash, as used at the Woburn Fruit Farm: Paraffin, 2 gallons; soft soap, 1½ lb.; caustic soda (98 per cent.), 6 lb.; water, 28 gallons. In order to prepare the wash the soft soap should be dissolved in a gallon of boiling water; the paraffin should then be added, and the mixture churned thoroughly until a cream-like mass results. The thoroughness of the churning is important. The 6 lb. of caustic soda should next be dissolved in the remaining 27 gallons of water, and then poured into the paraffin emulsion. The whole should be well mixed and used immediately. Experimental work at Woburn, however, indicates that there are advantages in using a wash composed of: Sulphate of iron, ½ lb.; lime, ¼ lb.; paraffin (solar distillate), 5 pints; caustic soda (98 per cent.), 2 lb.; and water to make 10 gallons. This may be prepared for use by proceeding as follows: (*a*) Dissolve the sulphate of iron in about nine gallons of water; (*b*) shake the lime in a little water, and then add a little more water to make into a "milk"; (*c*) run (*b*) into (*a*) through a piece of coarse sacking to remove grit; (*d*) pour the paraffin into the mixture (*c*) and churn the whole thoroughly; (*e*) add the caustic soda in powdered form just before using, and stir thoroughly. In using either of these mixtures the face and hands must be protected, as the mixtures are caustic in character. One advantage of the caustic soda is that it helps to clear the tree of such growths as lichens and algæ.

CYANIDING VINERIES: *W. H. P. and C. M.* See note in "Home Correspondence," p. 462.

FORCING: *W. L. F.* To maintain a continual supply of bulbous and other forced flowers it is necessary to place a fresh batch of plants in heat every week. Daffodils should not be plunged directly in strong bottom heat, but grown first for about a week in an atmospheric temperature of 55° to 60°. Rhododendron sinense (Azalea mollis), Lilacs, Viburnums and Wistaria may now be forced with satisfactory results. Clumps of Anchusa italica, Dropmore Variety, should be lifted from the open ground, potted, and placed in a cold frame or vinery until they start into growth, when they should be brought into a greenhouse. Pæonies may be lifted and treated in much the same manner as Anchusas

GRAPES SHANKING: *A. B.* You ask what is the cause of shanking. There are many causes, but they all operate in the same way by bringing about a state of partial starvation at a critical time. A border containing too much nitrogenous matter in the early stages of the vine's existence will produce gross growth composed of large cells, which are inadequately filled with mineral and other matter, and consequently partially collapse at the time of ripening, when much of the water which has hitherto kept them turgid, is withdrawn As hardening takes place at the same time, the original form is never regained, and flattened, ill-shaped stems are the visible sequence, telling of internal obstruction. This is a frequent cause of shanking. Vine rods should be circular in form, as they will be if the feeding is faultless and all the leaves are produced in abundance of light, with no excess of heat during nights or dull days, nor of atmospheric humidity at any time. Another cause of shanking is want of aeration in the border owing to heavy mulchings, especially whilst the roots are inactive, or excessive damping when the roots are inside the house. Outside borders are sometimes cropped with vegetables or flowering plants, and many of the feeding roots are annually cut off with the spade. Or, again, it may be, as in the case of inside borders, too much mulching is applied. We have examined borders in which the soil had the consistency of liver, which took twelve months' exposure to the weather before becoming pulverised, yet the vines still lingered. Sometimes the roots, which are supposed to be confined to a prepared border, even if inside, may be found with their principal feeders in the vegetable quarter 40 feet or more away, where, if near the surface, they are doomed to periodical amputation. A good coating of cement will prevent them penetrating a wall, but bricks and mortar will not do so, and if there is a deficiency of lime in the border, they will enjoy feeding on the mortar. Another cause of shanking may be found in the mismanagement of growths, such as neglect of early stopping, followed by taking off too much foliage, thereby causing the growths to become hide bound and thus preventing circulation for a time. If this happens during the flowering period, it will prevent perfect fertilisation, which in itself is apt to produce shanking, though it may not be apparent before the stoning period or even later. Shanking may also be caused by too high temperatures at night before root action commences, which is always later than leaf action; by insufficient healthy foliage, by foliage so crowded that much of it cannot be reached by the sun's rays, or by a large proportion of foliage pressing against the glass, where it is alternately scorched and chilled. The trouble is sometimes caused by over-cropping, especially when the vines are young, and in this case they seldom recover, also by insufficient phosphoric or potassic manure, by a want of good drainage, which helps to aerate the soil and make it warmer, in fact, anything which prevents either the roots or leaves doing their part in feeding and assimilation will conduce to shanking. The malady may be ameliorated by lifting the roots and placing them in fresh soil, but it takes some time to effect a cure, and in bad cases it is best to start afresh with a new border and young vines. Where there is only one house it is sometimes advisable to renovate half the border and replant half the vines at one time.

NAMES OF PLANTS.—*J. D.* 1, 2, and 6, Cupressus Lawsoniana var.; 3, Juniperus chinensis; 4, Cupressus nootkatensis; 5, Thuya dolabrata.

PANDANUS VEITCHII: *L. D.* Old plants that have been used for decorative purposes in the dwelling-rooms and have become disfigured may be used for purposes of propagation. Select the best coloured side shoots or suckers and insert them singly in thumb pots filled with suitable soil. They will root in a gentle bottom heat in the stove or propagating pit. The old plants may be afterwards discarded.

PARK SUPERINTENDENTS AND DIRECT CONTROL.—Since the paragraph printed on p. 443 was published information has reached us to the effect that the superintendents of the parks in the following towns are directly responsible to the committee:—Birmingham, Bridlington, Cardiff, Dewsbury, Edinburgh, Glasgow, Leamington, Leeds, Southport and Stockton-on-Tees.

PEAT MOSS LITTER.—*J. H.* The material would be suitable for your purpose, especially as it is enriched with the fowls' manure.

RAISING AND PLANTING MELONS.—*H. J. G.* Sow the seed about the middle or end of January singly in 3-inch pots, in the manner described in your note, and grow the seedlings near to the roof-glass. Shift the young plants before they become pot-bound into 6-inch pots, using one part of horse droppings to about five parts of the loam you mention as a compost. When the plants have made about 15 inches of top growth they should be set in mounds of soil formed at 2 feet apart, and consist of five parts loam and rather more than one part of horse-manure and old lime-rubble or wood-ash. Place a thin layer of brickbats, clinkers, or coarse gravel over the stage for drainage, and on this some half-rotten stable litter. Set the plants one on each hillock the same depth in the soil as they were in the pots, pressing the soil quite firm. Train the plants up to the fourth or fifth wire before stopping them. In the meantime laterals will have developed regularly from either side of the stems. Remove the first fruits from the bottom laterals to ensure a regular set of fruit on each plant. When it is seen which are the best to leave, remove the others. Stop the fruit-bearing shoots at two joints beyond the fruit, pinching out the sub-laterals and all superfluous growths as they appear to prevent crowding of the shoots. As the roots push through the sides of the mounds a few inches thick of the aforementioned compost should be added, continuing to make such additions until the intervening spaces are filled up to within an inch or two of the top of each hillock. It is not wise to bury the stems of Melon plants in the soil when planting or top-dressing them, as is generally and properly done in the case of Cucumbers, as canker would then attack the collar of the plants. The composition of your soil for Cucumbers is suitable. The atmospheric temperature observed in your Cucumber houses will answer the requirements of the Melons, except when the plants are in flower, and again when the fruits are approaching maturity, when a somewhat dry and airy atmosphere should be maintained.

VIOLETS DISEASED.—*Constant Reader.* The plants are affected with the "spot" disease. See note from Mr. Spinks in the last issue, p. 449.

Communications Received.—W. H. W.—G. A. J.—E. S. S.—G. B.—E. O. O.—H. S. T.—C. G. H., Ottawa—E. H.—G. W. H.—G. M. T.—E. B.—T. H.—C. T. D.—H. S.—G. E. S.—B. T. W.—W. C.—B.C.—S.

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