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CONTRIBUTIONS

— TO —

HORTICULTURAL LITERATURE;

BEING A SELECTION OF
ARTICLES WRITTEN FOR GARDENING PERIODICALS,
AND PAPERS READ BEFORE VARIOUS SOCIETIES,
FROM 1843 TO 1892.

By WILLIAM PAUL, F.L.S., &c.

IN THREE PARTS.

PUBLISHED BY
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MDCCXCII.

To the Distinguished Horticulturist

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

this Volume is Dedicated

as a mark of respect and esteem arising from

a life-long friendship.

P R E F A C E.

I N publishing these CONTRIBUTIONS TO HORTICULTURAL LITERATURE it seems hardly desirable that everything I have written over the last fifty years should be included. I began writing at a very early age in response to an invitation from the late Mr J. C. Loudon, during his brief Directorship of "The Gardeners' Gazette." Copies of the articles written in early life were rarely kept, and it would be too much to expect that the memory should recall trifles often written on the spur of the moment and as quickly forgotten. Moreover, some contributions were of a merely transitory interest.

Of the articles selected, some contain lists of varieties of cultivated plants and flowers which were the best of that date, but which are now superseded by fashion or by the improvement of races by cultivation and selection. It was not, however, thought advisable in all cases to omit these lists, although the individuals have

to a large extent been superseded, as they are assumed to be of historical and scientific value, and in some cases, especially with roses, many of the discarded varieties are being restored to favour. To show which were the most generally cultivated varieties of any flower or plant at a given date, is to show by comparison (as some of the old kinds are sure to remain accessible, either as plants or plates) the degree of progress attained in this branch of scientific gardening.

The small number of articles, considering the lengthened period over which they extend, may by some be considered remarkable. To account for it the author would remind his readers that some of his writings have been published as separate volumes, and that writing with him was never a profession, but merely a hobby, pursued at intervals as time could be snatched from the duties of active business life.

With regard to the controversies, happily few, in which he has been engaged, he has not thought it desirable to introduce here the opinions of those who awakened them. It is however obvious that the names and dates of the periodicals in which they appeared may be gathered from the replies, so that those who may be sufficiently interested in the controversies to wish to follow them throughout may do so with but little research or inconvenience.

He now submits this book to his friends and the public. The search for and arrangement of the materials have been a matter of considerable labour. But the task has been one that has called up a host of pleasant associations, darkened only by the occasional reminder of the departure of valued friends and diligent fellow-labourers in the same field, who, while here, administered so much to the happiness of all who enjoyed their friendship.

WILLIAM PAUL.

WALTHAM HOUSE, WALTHAM CROSS,
20th September 1892.

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NOTE A, page 265.

The following RHODODENDRONS may be safely added to those named on pages 264-5:—Amilcar, Caractus, Charles Dickens, Congestum roseum, Countess of Wilton, Evelyn, Everestianum, Floretta, Frederick Waterer, General Cabrera, H. H. Hunnewell, James Marshall Brooks, Kate Waterer, Lady Claremont, Lord Clyde, Lord Palmerston, Michael Waterer, Mrs Fitzgerald, Mrs Frederick Hankey, Mrs J. Shuttleworth, Mrs John Clutton, Mrs Milner, Mrs R. S. Holford, Mrs Russell Sturgis, Old Port, Sappho, Sir Thomas Sebright, Stella, The Queen.

NOTE B, page 274.

The following CLEMATIS may be safely added to those named on pages 273-4:—Alba magna, Countess of Lovelace, Duchess of Edinburgh, Fairy Queen, Gipsy Queen, Henryii, Jackmanii alba, La France, Lady Caroline Neville, Lanuginosa candida, Lord Derby, Lord Neville, Lucie Lemoine, Madame Grange, Madame van Houtte, Mrs G. Jackman, Reine Blanche, Star of India, Velutina purpurea, Viticella rubra grandiflora.

NOTE C, page 285.

The following IVIES can be recommended in addition to those named on pages 282, 283, 284, 285:—Amurensis, Atro-purpurea, Aurea spectabilis, Emerald Gem, Maderensis variegata.

ERRATUM.

Page 236, bottom line, *for* Cistus capitatus *read* Cytisus capitatus.

VIEW FROM ROSE WALK IN PAULS' NURSERIES, WALTHAM CROSS.

PART I.—ROSES.

ROSES IN POTS.

[From "*The Gardeners' Chronicle*," Aug. 5th, Sept. 9th, and
Nov. 18th, 1843.*]

THE ROSE, which has justly been designated the "Queen of Flowers," has, perhaps, never attained to a higher degree of popularity in England than at the present time. The improvement in this beautiful genus by the introduction of new varieties has been greater within the last few years than the most sanguine rose cultivators could have anticipated; and the improvement in the cultivation in this country has been quite equal to the success in originating fine varieties abroad. The adoption of a Class for the exhibition of "Roses in Pots" by the Horticultural Society of London appears to have awakened attention to this mode of culture. Exhibitors during the past season may have been few, because there were many misgivings on the point, which want of experience and knowledge of the varieties best suited for the purpose tended to confirm. Those, however, who have grown roses in pots during this season appear convinced that the difficulties advanced are imaginary, and are looking forward to another year to produce handsome plants with more perfect flowers. Roses in pots form highly interesting objects among the French, and why should they not do the same here, since it is allowed that our

* This article was written by the request of the late Dr Lindley, editor of "*The Gardeners' Chronicle*."

general cultivation of Roses in the open ground is quite equal to theirs?

One great advantage of exhibiting Roses in pots is that their true character becomes apparent; we see the Rose as it would appear growing in our gardens, and can refer it to its proper class. On the other hand, the greatest difficulty exhibitors have to contend with is to obtain a sufficient number of plants clothed with flowers and in perfection at a stated period. This, however, may in a great measure be remedied by growing the freest bloomers and shifting the plants to a sunny or cool situation as their state may require. Where twelve plants are wanted for exhibition at different seasons, not less than one hundred plants should be grown, and the greater portion of these should be Autumnal Roses.

But before advertng to their culture, the question may arise, what varieties are best suited for the purpose? It is probable that most varieties would succeed, but the following, many of which are established favourites, may be selected without fear, a great portion having been proved suitable in the nurseries here during the present season.*

The varieties from the groups Moss, Provence, Gallica, Damask, Perpetual, and a portion of the Hybrids, I would advise to be grown as worked plants on stems from six inches to two feet in height, the others may be grown on their own roots, or at the option of the cultivator. In very many cases, however, worked plants produce a greater quantity of flowers and of larger size than such as are grown on their own roots.

PROVENCE:—Adeline. Blush. Cabbage. Crested or Cristata. Angers. La Fiancée. Queen of Roses. Emerance. Sylvain. Wilberforce.

* Although many of these kinds are now superseded by more modern varieties, it is thought advisable to retain the names to show the best kinds of the period (1843).

MOSS:—Blush. Celina. Eclatante. Gracilis. Pompon feu. Unique. White Bath. De Metz.

DAMASK PERPETUAL:—Rose du Roi or Crimson. La Mienne. Josephine Antoinette. Emilie Duval. Isaure Lablée. Bernard. Antinous. D'Angers. Belle Faber. Royale.

HYBRID PERPETUAL:—Auberon. Clementine Duval. Comte de Paris. Coquette de Montmorency. Dr Marx. Duc d'Aumale. Duchess of Sutherland. Edward Jesse. Fulgorie. General Merlin. Lady Alice Peel. Louis Bonaparte. Madame Laffay. Mrs Elliot. Prince of Wales. Prudence Ræser. Princesse Hélène. Queen Victoria. Rivers.

HYBRIDS OF CHINESE AND BOURBON:—Aurora. Camuzet carnée. Charles Duval. Col. Coombes. Comtesse Lacepède. Coup d'Amour. Coupe d'Hébé. General Allard. General Kleber. Great Western. Henri Barbet. Hortense Leroy. Lady Stuart. Legouvé. Lord John Russell. Madame Plantier. Madame Rameau. Madeleine. Marie de Nerœa. Micalœa. New Globe Hip. Princess Augusta. Pomponne Bicolor. Richelieu. Velours épiscopal. Volney. William Jesse.

GALLICA:—Adèle Prevost. Blanche fleur. Boula de Nanteuil. Cicero. D'Aguessau. Daubenton. Duc de Nemours. Duchesse d'Abrantes. Docteur Dielthim. Fleur d'Amour. Grandpapa. Grandissima. Jeanne d'Urfé. Julie d'Etanges. La Calaisienne. Louis Philippe. Nero. Phœreicus.

NOISETTE:—Aimée Vibert. Clara Wendel. Comtesse de Tolosante. Du Luxembourg. Euphrosyne. Feltenberg. La Victorieuse. Madame de Chalonge. Miss Glegg. Yellow or Smithii.

BOURBON:—Armosa. Augustine Lelieur. Bouquet de Flore. Celimène. Ceres. Comice de Seine et

Marne. Emilie Courtier. Enfant d'Ajaccio. Julie Deloynes. Le Grand Capitaine. Madame Aude. Madame Nerard. Paul Joseph. Proserpine. Queen.

CHINESE:—Augustine Hersent. Belle Isidore. Lady Warrender. Louis Philippe. Madame Bréon. Madame Bureau. Madame Desprez. Marjolin. Mrs Bosanquet. Napoleon. Prince Eugene.

TEA-SCENTED:—Adam. Archiduchesse Thèrese. Barbot. Belle Archinto. Bougère. Bride of Abydos. Caroline. Comte de Paris. Devoniensis. Don Carlos. Elise Sauvage. Eugène Desgâches. Fragoletta. Goubault. Hamon. Julie Mansais. Madame Rous-sell. Josephine Malton. Moiret. Niphotos. Nina. Pactolus. Prince d'Esterhazy. Safranot. Taglioni.

Roses trained as climbers would form very beautiful objects in pots. If allowed to grow to the height of three or four feet and then stopped, I imagine they would throw out lateral shoots and become covered with foliage and flowers from the top to the edge of the pot. For this purpose I should select, in preference to the Ayrshire, Boursault, and Sempervirens, some of the Hybrid China, Hybrid Perpetual, Noisette, and Bourbon, that are most vigorous in growth, the flowers of the former being mostly small or semi-double. Notwithstanding this, they are perhaps unequalled when grown as pillar Roses in the open ground. Their growth is rapid and graceful, and their large corymbs of flowers render them a mass of beauty.

When purchasing Roses such plants as are not kept in pots should be removed from the ground early in Autumn as soon as the shoots are sufficiently ripened, which they generally are by the end of September. In potting, the sized pots best adapted are Nos. 12, 16, 24, and 32, according to the size and habit of the plant, and these should be well drained. The soil used should consist of equal parts of turfy loam that has laid by and become mellow, and

manure (the remains of a hot-bed), so far decomposed as to have the appearance of black mould. If the loam be of a hard or binding nature, a mixture of sand will be necessary. Having selected the plant, cut off close to the stock any wild suckers, and shorten in the root tolerably freely. In potting, the soil used should be pressed down firm, and afterwards watered through a fine rose. The plants may then be removed to a sheltered situation, and plunged up to the rims of the pots in old tan or cinder-ashes; under this treatment, if turned out of the pots in November, young fibrous roots will be seen forming in abundance, they will appear to have quite recovered from their removal, and will bloom well the following summer.

With regard to such plants as are always kept in pots, they may be shifted at different seasons of the year, as their growth may require. Supposing them to be in small 60 pots in the Spring they may then be shifted into 48's, keeping all flower buds nipped off, and afterwards into 24's, which will generally be found sufficient for their growth during the first season.

It is an excellent plan to remove all the Tea-scented, Chinese, and tender varieties of the Noisette Roses, to a cold pit in October, or before the autumnal rains set in. This is not only to afford them protection from frost, but many tender varieties, especially those grown on their own roots, are liable to suffer materially from the rains in Autumn. Through the winter the lights or covering should be removed in fine weather, that the plants may have as much air as possible; and being in a state of comparative rest they will require but little water. Where a cold pit is unattainable such varieties may be removed to the north side of a wall or fence and a temporary frame be erected; upon this a light covering of Fern or Beech-boughs may be laid in the manner of a thatch, which will throw off the heavy rains, and form no small protection against frost at comparatively little trouble. The front of this erection may be left open, that air may circulate

freely amongst the plants to prevent damp, and the pots should be covered over with fern or stable-litter.

In selecting plants from the ground to grow in pots, I prefer such as have grown moderately through the summer; they will be more compact, and the wood more solid and better ripened than that of those which have grown very vigorously. It is of great importance to have them potted early in the season. As before mentioned, most of the sorts will bear removing by the end of September—certainly the varieties of Tea-Scented, Chinese, and Bourbon. The operation of pruning may be performed at two seasons; in November for early flowering, and in March or even April to procure a later bloom. The first season after removal the plants will require to be pruned closer than at subsequent periods, and it is worthy of remembrance that the flowers should be produced as near home as possible, or in other words, that the plants may become close and bushy. The Moss, Provence, Gallica, and most of the Autumnal Roses, may be pruned in close to within three or four eyes of the base. With the exception of a few very robust growers, there is little fear of pruning these varieties out of shape or flower. But with the hybrids of Chinese it is far otherwise; they are more disposed to form wood, and should be well thinned out, and the remaining shoots left longer. In pruning, all Roses where the shoots are crowded, or cross each other, it is beneficial to cut some entirely out, that those left for flowering may stand a good distance apart, for if too many be allowed to remain they will become drawn and produce weak flowers. It is in fact much in favour of a good bloom to have the shoots thinned during the previous summer, which assists in ripening the wood. And as a general rule in pruning, weak growers should be cut in close, strong growers left long, and those of intermediate growth pruned in proportion. Soft unripened wood should be invariably removed.

The hardy varieties (pruned and not pruned) may now (November) be removed to an airy situation in the

garden, and plunged in the ground up to the rims of the pots from one to two feet apart, according to the size or habit of the plant. It is well with regard to Roses grown in pots that they be always kept plunged. To obviate the disadvantages following the plunging of plants in pots, namely, their liability to root through into the ground, and the facility afforded for worms to work into the pots, I have the soil taken out of a sufficient depth, and a seed-pan with the hole enlarged placed at the bottom in an inverted position, upon which the pot is placed. It answers perfectly, and further secures an effectual drainage. After the plants are plunged the pots should be covered over with stable dung, to protect the roots at the top from frost in winter, and to keep the surface of the soil moist through the summer. About March the tender varieties may be brought from their winter quarters and treated in like manner, and such as were left for late pruning be pruned. Where the buds push out very numerously, the strongest and those which have a tendency to grow outwards should be selected to remain for flower, and the weak ones rubbed off. The plants should be frequently looked over for the purpose of destroying the grub, which will otherwise eat into the buds and spoil the bloom. From worked plants all suckers or wild shoots should be cut out as soon as they appear, and in some instances the backward or side flower-buds be nipped off.

As soon as the warm weather appears it will be well to look after that tiresome pest, the Aphis or Green-fly. In looking round, you will see one or two tiny ones walking about your plants; you may think they are of no consequence, but rest assured, then is the time to attack your enemy, for they are then meditating where to provide for millions of their race. Wash the ends of the shoots or syringe them with tobacco water. I have also found equal parts of Scotch snuff and sulphur vivum very effectual in destroying them, put on with a barber's puff, or put into a shallow pan and the ends of the shoots dipped in.

One thing is important—never allow them to collect their forces.

Great attention should be paid to watering; and though plunged, the plants will require through the summer months a liberal supply. When they are coming into bloom, such varieties as are of a drooping habit will require the adjustment of a neat stick; we should not, however, be too lavish with these supports, or they render the plants stiff and unsightly. A light shading should now be formed to protect them from the sun's rays during the middle of the day; this should be constructed to draw up, that the plants may have the advantage of the dews so beneficial to Roses at this season of the year. Here they may remain till the middle of September, when they should be taken up, turned out of the pots, a good portion of the soil taken away, and fresh soil supplied, and such as require it shifted into larger pots.

Roses required for forcing, in as far as regards soil, time of removal, and potting, may be treated in the same manner as those intended to be grown in pots in the open air. They should be pruned early in November, and it is well if they can be allowed to make their growth, and bloom out of doors the first season after removal. That plants taken out of the ground and potted early in Autumn will bear forcing and bloom tolerably well the succeeding spring, we know from experience, but it is also evident that, having been a year in pots, they become better established, produce a greater quantity of flowers, and form more compact plants. The first week in January is a very good time for conveying the plants into the forcing house, commencing with a gentle heat, say 40° to 50° . Very soon the buds will become excited, when the temperature may be gradually raised to about 50° at night, and 60° to 75° during the day, and the plants lightly syringed mornings and evenings. Great care is required in the admission of air. During January and February, and in most seasons March, very little air should be admitted,

and this only from the top in still mild weather. I have found the plants more liable to suffer from the admission of cold air, even on sunny days, than from a temperature of 100°. Whilst they do not appear to suffer from the latter high temperature, the too free admission of air early in the season will cause the young leaves to curl up and eventually drop off in numbers. The plants should be kept as near the glass as possible, and if leaves or tan can be procured readily to plunge them in to secure a gentle bottom heat, less fire-heat will be necessary, and they will repay the extra trouble.

It is difficult to lay down any precise rules for watering ; this the judgment must direct ; the plants require to be kept tolerably moist, and the water should be carried into the house some time before required for use, both in watering and syringing, that it may become of a milder temperature. The description of plants I prefer, are for the most part, those worked on the Dog-rose, from which it is necessary to keep all suckers removed ; and as most of these spring from under the soil, I have found that by clasping the tops firmly between the thumb and finger when in a young state, and pulling them steadily, they may be drawn out from the base, thus effectually removing them as they appear without disturbing the roots. The Grub which attacks Roses so generally out of doors, frequently finds its way into the forcing house, and should be carefully sought after and removed by hand. The Green Fly, though more under our command here, is not less troublesome ; as soon as any are seen, the house should be fumigated with tobacco to destroy them, and this continually repeated through the season as they re-appear. The Red Spider and Mildew will sometimes infest the plants, for which sulphur is the generally acknowledged remedy. Dusting it on the leaves after syringing is an easy method of applying it. From the Red Spider, however, in a house with a moist atmosphere, there is not much to fear ; and it is perhaps as well to remove plants inclined to Mildew

—which some varieties are more than others—as soon as the first spots are seen.

About the middle of March the flower buds will show colour, syringing should then cease, and a liberal supply of water be given. Should worms work into the pots they may be occasionally watered with lime-water, and if large flowers be sought after in preference to number, the small backward flower buds should be removed. A few plants may now be carried to a colder house, which will give the remaining ones more room, and by selecting them of different degrees of forwardness a continual supply of flowers may be obtained; and further, the temperature being diminished, the flower buds will have more time to expand, and produce larger flowers approaching nearer to their natural colours. It is the custom with some, as soon as the buds show colour, gradually to lower the temperature of the house; by this method a greater display may be obtained at one time, but the succession of flowers is lost, and the whole retarded. When the flowers begin to expand it will be found necessary to form a light shading to screen them from the mid-day sun, and at this season a thin canvas will be found sufficient. But to see Roses in perfection in the forcing house, we should visit them at the same time as we would Roses in the open air—with the rising sun, just as the buds are unfolding, and while they are wet with the dews of morn.

Thus have we arrived at the season when the flowers appear, which by their beauty and fragrance redouble the pleasure we have enjoyed during their progress. Among forcing Roses of the classes Hybrid Perpetual and Tea-scented, I know not which may claim the precedence. The former beautiful class has the claim of novelty, and has recently improved and increased at such a rapid rate as to threaten the exclusion of many of the Damask Perpetuals. The flowers are for the most part large and double, but there is a similarity in appearance, the flowers being chiefly purple or crimson. They possess the frag-

rance of the Damask Perpetuals, and are free growers with fine foliage. Tea-scented Roses are of opposite colours, being chiefly white, yellow, and rose. They may be considered as a selection from the Chinese, on account of their delicious fragrance, and whether for forcing or outdoor pot plants, form very handsome Roses. Many of the Bourbons are also admirable forcing Roses, of erect growth, forming pretty compact heads when worked; the flowers are finely shaped, colours clear, and foliage broad and handsome. The Chinese Roses are very abundant bloomers, and there is something striking and handsome in their habit of flowering peculiar to themselves; among them are also some of the most brilliant crimson Roses. The Damask Perpetuals are very sweet, and are probably best worked on the Dog-rose when grown in pots. They appear to derive an additional vigour from this "exalter" of the Rose tribe, and being compact growers form very neat objects. Some of the Hybrids of Chinese also force well. In addition to the varieties recommended on pages 2, 3, and 4, the following are excellent forcing Roses:—

BLUSH TO PINK:—N. Castalie. T. Bardon. Mossy de Meaux. T. Grandiflora. H.C. Blairii No. 2. Ch. Antheros. Ch. Miranda. H.P. Marquisa Boccella. T. Originale. T. Clara. Ch. Virginal.

SULPHUR AND BRONZE YELLOW:—Ch. Miellez. T. Princesse Hélène du Luxembourg. T. Pauline Plantier. T. Aurore. T. Mansais.

ROSE:—T. Hardy. B. Madame Desprez. B. De Neuilly. B. Psyche. B. Henri Plantier. B. Augustine Margat. H.C. Charles Louis. H.C. Daphne. H.P. Lane. Perp. Madame Feburier. Red Moss. T. Bon Silene.

CRIMSON:—Perp. Triomphe de Montmorency. Prov. Duc d'Angoulême. Lawrenciana Rubra. Ch. Nemesis. B. Josephine Garnier. Ch. Cramoisie Supérieure.

PURPLISH CRIMSON AND PURPLE:—B. Duc d'Aumale. Ch. Triomphante. Ch. Comble de Gloire. B. Crimson Globe. H.C. Plantier. H.P. Julie Dupont. Perp. Louis Philippe. Perp. Warratah. H.P. Prince Albert.

The colours of forced Roses are not quite equal to what they are when produced in the open air, and in this respect I believe there is a greater difference in the light-coloured than in the dark varieties. Many of the sorts above enumerated, though of first merit as forcing Roses, do not at all times expand their flowers when grown out of doors; of which we may instance, Ch. Virginal, H.P. Prince Albert, and T. Princesse Hélène du Luxembourg. The colours which may appear wanting in the above list will be found given in the preceding one.

As soon as the plants are out of bloom the surface of the soil should be removed to the depth of half-an-inch, or an inch if practicable without injuring the roots, and the space supplied with well pulverised manure. The plants which bloom but once in the season may be gradually hardened off, when the house will admit more plants which should be kept in reserve for that purpose. But with regard to what are usually termed Autumnal Roses, these may be treated so as to produce a good supply of flowers a second time by the middle of May. The weak shoots should be entirely cut out, and the stronger ones shortened back to within two or at most three eyes, taking care however not to deprive the plant of more leaves than is absolutely necessary in the operation. If, as is sometimes the case, the shoots in autumn pruning were left long, and the eyes at the top only have shot forth, these may be cut quite off, when the buds near the base will be excited and fine flowers be produced therefrom. As the season advances less fire-heat will be necessary. Towards April a fire lighted of an evening and kept in for a few hours will (unless the weather be unusually

cold) be found to impart sufficient warmth, and after the buds show colour even this will not be requisite. The plants having bloomed a second time, air may be gradually admitted for a few days, when they may be taken out and plunged in the open air, there to remain till required for forcing the following year. Roses will force well for years in succession, but every Autumn they should be turned out of the pots, a good portion of the old soil shaken away and fresh supplied. Some few will probably require larger pots, of which we must judge by the condition of the plant and roots.

ROSE CATALOGUES.

[From "*The Gardeners' Chronicle*," Oct. 19th, 1844, p. 701.]

THE criticisms in the *Chronicle* lately, in reference to the dissimilar representations of the colours of Roses, are not wholly without cause, but perhaps upon consideration they may not seem so well merited as would appear at first sight. Rather than confine myself to the exculpation of the apparent error alluded to in my pamphlet on the culture of "Roses in Pots," I would take a general view of the subject, and in relation to the differential descriptions given by various growers, would hazard an opinion that the colours and appearance of Roses vary beyond degree. We believe that colours are deepened by the action of light, and numerous other circumstances also contribute in causing variation; for instance, the seasons—the different times of the seasons—the stage in which the flower is submitted for examination, the soil in which it has been grown, the health of the plant, and, above all, the different ideas of colours maintained by different individuals. Now, with regard to the variation in the colour of Roses, see *Indica* "*Le Caméleon*" when just expanding—it is almost white. View the same flower a day or two afterwards—it

is changed and become crimson! In fact we may apply to Roses what the poet has written about a very different part of the creation :—

“How slow its pace! And then its hue—
Whoever saw so fine a blue?
Hold there! The other quick replies,
’Tis green, I saw it with these eyes.

Sirs! Cries the umpire, cease your pother,
The creature’s neither one nor t’other.
I caught the animal last night,
And viewed it o’er by candle light,
I marked it well,—’twas black as jet,
You stare—but, sirs, I’ve got it yet,
And can produce it.

Replies the man, I’ll turn him out;
And, when before your eyes I’ve set him,
If you don’t find him black I’ll eat him;
He said, and full before their sight
Produced the beast, and lo! ’Twas white”

Prince Albert (Hybrid Perpetual) occasionally blooms of a vivid crimson, and often of a cloudy purple. T. Safranot opens almost saffron-coloured, but dies off a poor buff. The first flowers I saw of Lady Alice Peel (Hybrid Perpetual), now two years ago, were pink, and as such I retain a vivid recollection of them although I have never seen them of that colour since. I have just gathered a flower of Bourbon Augustine Lelieur, which measures fully four inches across; but the colour is so different that, had I not gathered it myself, I should have had some difficulty in naming it. Without multiplying solitary instances, if we view the whole body of Roses that bloom twice in the year, and compare the colours noted down in the Summer with their real appearance at this season, we shall find a difference. But supposing Roses to bloom alike at all times and in all situations, some indulgence may be claimed from the public where 800 or 1000 varieties are catalogued and described. Perhaps the first step toward

attaining accuracy in description is to take down the colours on the spot during the season of bloom. This, doubtless, is done although requiring a sacrifice of time and labour from the principals, which an extensive Nursery business will scarcely admit of. But, again, the whole varieties cannot be found in bloom at any one time, and the collection would require a second, third, or even fourth looking through, which might be incompatible with other duties. The probable consequence is, some few are described from memory. Now, although such descriptions may not be perfectly correct, may they not be considered sufficiently so to guide purchasers in selecting, which is the only purpose for which Nurserymen's Catalogues are published?

TRIP TO PARIS IN SEARCH OF AUTUMNAL ROSES.

[From "*The Gardeners' Chronicle*," Oct. 19th, 1844, p. 700.]

OF the various floral improvements of modern times, nothing has probably produced such a beautiful change in the appearance of our gardens in autumn, or has been introduced with more striking effect, than the perpetual flowering Roses. What can be more cheering at this season of the year than to behold the vivid colours of many of the Bourbon and Hybrid Perpetual Roses, contrasted with the more delicate tints of the Tea-Scented, set off by their dark green foliage, now that autumn has set its seal on many of nature's earlier productions? I am an ardent admirer of the Rose, and my enthusiasm has ere now carried me to the continent in the sultry month of June in search of new varieties. Having this year caught the autumnal mania, I resolved to delay my visit till September in expectation of finding the perpetual

flowering Roses blooming in greater perfection. In this I was not disappointed, and would here advise connoisseurs of Roses, who are accustomed to visit the grounds of the large growers in England, to do so twice in the year, in June for summer varieties and in September for the autumnal sorts. I feel assured they would be well recompensed by, and highly delighted with a September visit. The Rose gardens then assume altogether a new aspect; the Summer Roses are gone, and the Autumnal kinds appear in all their richness and beauty. True, the Autumnal Roses bloom in June, but they seem to require the long dewy nights to bring out their flowers in trueness of character, and the difference is oftentimes so great that the well-known Rose of June would scarcely be recognised when blooming in September. Thinking, however, that many lovers of Roses might not have leisure or inclination to travel very far in search of one object, which, among a multiplicity of affairs, becomes of small importance, I will endeavour to give an account of what struck me as most remarkable during my late trip. After having visited the grounds of the Hertfordshire growers, and collected the choicest of Flora's train there, I departed well pleased with what I had seen, and resolving to make further additions from foreign cultivators.

Having reached the French capital, the first cultivator to whom I paid a visit was M. Laffay, the raiser of Madame Laffay, William Jesse, La Reine, and many other of our most beautiful Roses. I there saw Hybrid Perpetual La Reine in great beauty, and should pronounce it one of the gems of the season; the colour is pink with a lilac hue, very glossy; the flowers are globular in shape, large, and very sweet. Another of his seedlings, Comtesse Duchatel, is a Hybrid Perpetual of a superior kind, the flowers are of a rose colour, with thick petals closely set; Perpetuelle Indigo is a distinct variety of a peculiar colour to which its name alludes; Hybrid Perpetual Mrs Cripps, a pale rose, appears likely to become a profuse Autumn

bloomer ; Perpetuelle Ponctué, a bright rose with white spots, is a very pretty variety. Of the four last mentioned M. Laffay has, I believe, the entire stock at present, but intends selling plants of them this autumn. He has also a Moss Rose, Princesse Adelaide, of a pale rose colour, blooming in corymbs, and said to be very handsome. The habits of the plants were certainly remarkable, having a degree of vigour quite foreign to the Moss tribe. Their season of flowering was past, but he said the flowers were like those of Ornement de Parade, a well-known Gallica Rose, and other growers spoke well of it. Among others noted here were Lady Alice Peel, Duchess of Sutherland, Dr Marx, Coquette de Bellevue, and Coquette de Montmorency, all Hybrid Perpetuals of recent introduction, the last mentioned in every respect a beautiful flower. M. Laffay is an enthusiastic cultivator of Roses, and a lover of fruits also.

To enumerate the various grounds visited would, I fear, become tedious and occupy too much space, having often looked through several in the course of a day. I must, therefore, arrange the varieties noted down as most remarkable in their respective families.

Among the Perpetuals and Hybrid Perpetuals were Laurence de Montmorency, a free flowering variety of a purplish rose colour ; Lady Elphinstone, rosy crimson, also a good autumn bloomer ; Baronne Prevost, pale rose, sweet, and of an immense size ; Comte d'Eu, a most beautiful carmine, but scarcely double enough, though apparently superior to Gloire de Rosomanes ; La Bedoyere, a variety of the character of Comte d'Eu, more double, and quite equal in colour ; Marquisa Boccella, delicate flesh, a decided acquisition among a class of Roses the prevailing colours of which are purple and crimson ; Prince de Galles, purplish-crimson, a free grower, and seemingly well adapted for a Pillar Rose. Among the Bourbons were Charles Souchet, purplish-crimson, of a very pretty shape ; Comte de Rambuteau, of the same cast ; Delille, a dark rose,

finely cupped ; Duc de Chartres, pale red, a superb Rose ; Dumont du Courset, bright carmine, sometimes curiously marbled ; Edward Defosse, a bright pink, shaped like Madame Nerard, first-rate ; Georges Cuvier, pale rose ; Glory of Paris, another crimson variety, marbled with violet and a fine rose ; Imperatrice Josephine, pale pink, of a very elegant shape, blooming in corymbs ; La Gracieuse, reddish crimson, a seedling from Emile Courtier, and an estimable variety ; Le Grenadier, vivid crimson, frequently tinged with violet ; Madame Souchet, rose and blush, marbled, a delicate and beautiful variety ; Princesse Clementine, violet-crimson, good ; Princesse de Modena, flesh ; Souchet, bright purplish crimson, very fine ; Souvenir d'Anselmne, a lively cherry colour ; Souvenir de Dumont d'Urville, crimson, changing to violet after expanding ; and Souvenir de Malmaison, a magnificent flesh-coloured Rose. Among the Noisettes were Mrs Siddons, in the way of Le Pactole, but in its then state not superior ; Similor, a yellowish buff, but in appearance a weak grower ; and Chromatella, or Cloth of Gold, a Rose of Yellow Noisette cast, of a paler yellow than I expected, and which does not appear to flower too freely. It has, however, been an unfavourable season there for its flowering, and not being very plentiful it may yet prove better than is anticipated. Among the Tea-Scented I noticed Adam, rose, the flowers were bold and large, but not very abundantly produced ; Barbot, yellow, tinted with rose, a very pleasing kind ; Boutrand, rose ; Comte de Paris, flesh, one of the finest Tea-Scented Roses ; Delices de Plantier, coppery rose, very rich-looking ; Josephine Malton, buffish-yellow, of a beautiful form ; Julie Mansais, sulphury-white, the buds large and handsome ; La Renommée, a whitish yellow, not new, but apparently little known ; Madame Roussel, white ; Marie de Medicis, rose, with fawn centre, good and distinct ; Moiret, large, full, pale yellow, a superb rose ; and Safranot, a distinct and striking variety of a beautiful saffron colour when first expanding, gradually

melting into buff. Some of these varieties I had previously seen in England, and in equal beauty of bloom, but others I there claimed acquaintanceship with for the first time.

Roses in pots were numerous, but there were none remarkable as specimens of superior cultivation; certainly none that I saw were equal to those exhibited at the Horticultural Exhibitions about London, by Messrs Beck, Lane, Paul, and others; nor is it, perhaps, right to judge them by such a standard, as they were not grown to show what could be done with Roses in pots under good management, but merely as market plants. As such, the only objection to them by Englishmen would be the tall stems on which they were worked, and the little attention paid to their beauty. The head of the plant seemed to be considered the only part worthy of notice.

ROSA BERBERIFOLIA HARDII.

[From "*The Gardeners' Chronicle*," Sept. 13th 1845, p. 626.]

THIS pretty rose, mentioned in a recent number as delicate and unmanageable, has grown and bloomed here in great perfection, and the following account of it may perhaps not be altogether devoid of interest. The *Rosa Berberifolia Hardyi* was raised from foreign seeds by Mr Hardy of the Jardin du Luxembourg at Paris, and was first imported to England about nine years ago. It was generally known to be a delicate plant, and various methods were taken to increase it. It was a practice with some to root-graft it on *Berberis Aquifolium*, but in this way it was not likely to thrive for any length of time on account of the opposite nature of the stock and scion. The former was robust and liable to sucker, the latter of delicate growth; it was also budded on the Dog-rose in which way it grows vigorously,

but it is a difficult matter to get soundly ripened buds, and from their diminutiveness the operation is a very delicate one, requiring to be executed with great nicety to succeed. There are now in bloom here two or three plants that were budded on the Dog-rose last September which have shoots from 12 to 18 inches in length ; the tips of some I enclose that it may be seen they are in perfect health. These will be removed to a north wall and sheltered on the approach of Winter. During the severe Winters of 1841-1842 some scores of budded plants unprotected were killed here, and the variety was, I believe, generally killed throughout the kingdom ; since that time no stock seems to have been established anywhere. With regard to its cultivation an airy and dry situation is the chief thing to be looked to. It cannot endure much or continued wet ; under such circumstances mildew invariably attacks it, and I have seen plants dead in November while others in a drier situation have out-lived the winter and bloomed throughout the following season. It cannot, however, be considered perfectly hardy, and should be placed in a cold pit or airy situation in the greenhouse during winter, and kept close to the glass, watering it sparingly. In the case of mildew occurring, to which most Roses are liable, the plants should be sprinkled with sulphur, and if attacked by green-fly fumigated or washed with tobacco-water. About the beginning of May they may be turned into the open ground, sheltering for a few days in case of frosty or biting weather that they may become gradually inured to their new situation. They thrive very well planted on raised rock-work in a roughish soil of sandy peat, or, in fact, in almost any dry open situation where not too much exposed to cutting winds. Thus treated they will continually give forth their flowers from July to the commencement of the autumn frosts, when they may be taken up, potted in sandy peat in pots well drained, and again placed in a pit or greenhouse for the winter. If under any circumstances the removal of the plants is not desired, a handglass may be

placed over them, lifting it off in mild favourable weather. This plant being known as delicate has probably deterred many from attempting to cultivate it ; but the same may be said of many of the choicest and most interesting productions of Flora—they are delicate, yet by a right system of treatment are they not often made to repay a hundred-fold the additional care of the painstaking cultivator? That this plant is not unmanageable may be gathered from the fact advertised a month ago that there were nearly 400 plants here in perfect health.

THE HISTORY AND CULTIVATION OF THE ROSE.

*[Lecture before the Stamford Hill, Clapton, and Stoke-Newington
Gardeners' Association, Dec. 8th, 1845.]*

THE subject on which I am invited to speak this evening is, The History and Cultivation of the Rose. I need scarcely say that it would occupy a great length of time to enter into all the details of the subject ; and, indeed, when we consider the form in which it is brought forward this evening it would hardly seem necessary to do so. It has appeared to me the preferable plan to compress in as small a compass as possible that which is most interesting and practically useful. In pursuing this course I trust the most important facts—both historical and horticultural—will be found recorded, though some must necessarily be spoken of rather briefly. For convenience sake I shall divide the subject into four heads : Bringing first before your notice the History of the Rose ; I shall then proceed to make a few remarks on the formation of the Rosetum, and the arrangement of Roses generally ; in the third place I shall treat of the

cultivation of the Rose ; and conclude by offering a list of a select few varieties which experience gives me confidence in recommending for particular purposes or localities.*

The History of the Rose then will first engage our attention. The Rose is indisputably a flower of antiquity, and it has been admired and cultivated by almost every civilised people. As if too beautiful to be excluded from the natural Flora of any country, we find it very generally diffused over the earth's surface, gracing alike the temperate regions of Asia, Africa, and America, and the whole of Europe, where, blooming in its native wildness and simplicity, it is almost universally prized and admired. But while Roses are to be found in almost every country, the different species are by no means equally distributed. While some are confined to particular localities, others—as the *R. canina*, the species commonly seen in our hedge-rows—luxuriate not only in one country, but throughout Europe generally ; and *R. canina* is found even in Africa and America. Who were the first people to bring this flower from its natural habitats to be a dweller in cultivated grounds must ever be a matter of conjecture. It probably attracted the notice of the virtuoso in plants at a very early period ; perhaps when they were valued only for their medicinal properties, or as objects of pleasant associations. We may follow in imagination the busy doings of the plant-collector in the earliest times, and fancy him gathering and fixing in one spot the beautiful productions scattered around him. We may further suppose that the most beautiful and the most useful would be the first collected, and this would give to the flower under consideration a very early period of recognition by the human race. The famous gardens of Babylon, which existed 2000 years

* It is thought unnecessary to bring again under notice the varieties of this distant period.

before the Christian era, would in all probability contain the Rose. We have, however, no proof of this, though the probability is still increased when we consider that the adjoining country—Persia—has ever been celebrated for the Roses it naturally produces. Quitting, however, the precincts of conjecture, we come to facts. In the time of Solomon, about 500 years later, the Rose was evidently in favour with the Jews. In the Book of Wisdom the following passage occurs:—"Let us fill ourselves with costly wine and ointments, and let no flower of the spring pass by us. *Let us crown ourselves with Rose-buds before they be withered.*" From this passage we may infer that Roses were used by the Jews, most probably in times of festivals or public rejoicings, and hence this custom among the Greeks some centuries later. Again, in the Book of Ecclesiastes we find mention made of the Rose:—"Hearken unto me ye holy children, and bud forth as a Rose growing by the brook of the field."

If we may judge from the writings of the Greek authors we should pronounce the Rose to have been the Queen of Flowers among the Greeks. With them it was consecrated to the Graces, and to Harpocrates, the God of Silence. Theocritus, on account of its transitoriness, compares it to the course of human life. Homer uses it metaphorically both in the Iliad and Odyssey. Sappho and Anacreon make it the subject of their verses, the former styling it the Queen of Flowers, and the latter the delight of the Gods, the favourite plant of the Muses, and further speaks of it as useful in diseases. Continuing its praises he says: "What shall I say of its origin? When the sea had formed from its foam the beautiful Venus, and bore her on its wave rejoicing; when from the brain of Jupiter Pallas sprung forth a Goddess armed; the earth in its turn brought forth this admirable plant. The Gods in jealousy, to hasten the period of its flowering, watered it with nectar, and soon this immortal flower raised itself majestically upon its thorny stem."

The Egyptians cultivated Roses largely, and we read that they sent quantities annually to Rome, before those of the latter country were in bloom. At a feast given by Cleopatra to Mark Antony, she caused the room of entertainment to be strewed with Rose leaves to a considerable depth, and spent a talent in procuring the requisite number.

Several of the Latin authors make mention of the Rose, and at the time that the Roman Empire was at its highest pitch of splendour, the love of this flower was carried to excess. It is related by Suetonius that the Emperor Nero spent £20,000 upon Roses at one feast. This certainly seems monstrous, and can hardly be accredited even when we consider the authority of Suetonius and the extraordinary character of the Emperor. It was customary for the wealthy inhabitants of Rome to take their meals resting upon rose leaves. On the occasion of public rejoicings the streets were strewed with flowers, and the statues of their deities were adorned with crowns and garlands of Roses. The practice of crowning themselves with this flower also became so prevalent that a law was passed forbidding it except on special occasions.

Although both the Greek and Latin authors wrote very agreeable things about the Rose, and could doubtless fully appreciate its varied beauties, they appear to have known very little of the art of culture. Thus Theophrastus tells us it was customary to set fire to the Rose trees in Greece, without which precaution they would bear no flowers. And Pliny relates that the art of forcing consisted in watering the plants with warm water on the appearance of the bud. From these statements it would seem that the gardeners of those days *did not let* even the philosophers into the secrets of their art. Nevertheless we read that the Romans obtained Roses and Lilies in December by introducing to their plant-houses tubes filled with hot water, and Martial makes mention of Roses out of season as a great luxury.

From the fall of the Roman Empire little can be gathered for a great length of time; the Rose shared in the general oblivion to which flowers were consigned during the dark ages. In the fourteenth century the Italian writers mention it among other flowers, and the Italian horticulturists have of late years obtained an unenviable notoriety for their dexterity in making Roses assume the appearance of being grafted on the orange, oleander, and other plants.

The taste for flowers which attained to such an extraordinary height in Holland during the seventeenth century, has little bearing on our subject. Although the Moss Rose was originally received in England from Holland, I believe the Rose had little or no part in the extravagant transactions which took place there during the Florimania. Roses were cultivated largely in France during the fourteenth century for uses in public feasts, &c. In several villages in France there exists at the present day Rose Fêtes, at which among other ceremonies it is customary for the villagers to place a crown of Roses upon the head of the young girl who may be deemed the most virtuous. Writers of various countries have delighted to dwell on the Rose, and numerous are the ingenious and interesting tales they have conjured up concerning it. We have not, however, time to relate them here. Among our own poets who have written on this flower, we number Chaucer, Spenser, Shakespeare, Beaumont, Milton, Byron, Moore, Cowper, Mrs Hemans, and almost every name of high reputation.

With regard to the cultivation of the Rose in our own country in the olden times, I have not been able to gather much information. It might not have been cultivated to a great extent, but the favourable mention made of it by some of the early writers warrants us at least in supposing it to have been an admired flower. In the fifteenth century it must have been brought prominently before our forefathers in the wars of the houses of York and

Lancaster, when the adherents of the one party assumed the red, and those of the other the white Rose, significant of the cause which each espoused. Hence the old striped Rose of our gardens, in which the colours of red and white are blended, is very aptly named "York and Lancaster." The late Mr Loudon, a name that must be ever dear to all who take an interest in horticultural pursuits, mentions in his *Encyclopædia of Gardening*, published in 1822, that the lists of the London and Paris nurserymen contained upwards of 350 names, most of which were Gallica and Chinese Roses. So great has been the improvement among Roses of late years, that although there are collections in this country consisting of 2000 varieties, very few of those of 1822 would be found among them. In the lists published at that time the varieties were merely arranged alphabetically, but in the Rose growers' catalogues of the present day we have the varieties cast in various groups, and a Rose-grower's catalogue presents a distinct system of classification. This method, which is approved by the most eminent cultivators of the day, is more floricultural than botanical. In the first place we have two grand divisions—Summer and Autumn Roses. Each of these is again divided into sections or groups, the varieties of each group are then arranged alphabetically, and described. With respect to the botanical arrangement of the Rose, full information may be obtained by consulting a work published on the Rose some years since by Dr Lindley, or by referring to Loudon's *Arboretum et Fruticetum Britannicum*.

I shall now very briefly remark on each section into which the Rose stands divided, according to the Rose growers' catalogues of the present day; instead, however, of taking them in order as they are placed there, I shall take them according to their date of introduction, and here I should say that I very much regret that there are no flowers at this season of the year by which I might point out the distinctive features of each group. I have brought

four plates of four different groups which may afford some illustration, though they will not serve for the purpose before mentioned.

The first foreign Rose brought to our country was the Damask (*R. damascena*), which was introduced from Syria in 1573, where it grows naturally in the form of a bushy shrub, varying in height from 2 to 8 feet. It is the varieties of this species, together with those of the Provence, that are cultivated largely in some districts for the purpose of making Rose-water from the flowers. But independent of their yielding an article of commerce to the perfumer, Damask Roses are not without interest to the Rose fancier. *To them* belong some very pretty pink Roses, with a delicate shade of salmon pervading the flowers, rendering them alike distinct and beautiful. Madame Hardy, too, a well-known and beautiful white Rose is of this class. They are only Summer Roses, but of very free growth, thriving in unfavourable situations. From the Damask Roses have sprung the Damask Perpetual, a class of Roses very sweet and once much valued, but now almost superseded by the introduction of the Hybrid Perpetual, of which we shall come to speak presently. According to the authority of botanists, the year 1596 saw several new species of Roses introduced to England. The Provence (*R. centifolia*), a dweller in the groves of the Eastern Caucasus; the Moss (*R. centifolia muscosa*), which was received from Holland; the French (*R. gallica*), of which the striped Rose before you is a specimen; the Musk (*R. moschata*), indigenous to Madeira and the north of Africa; the Austrian (*R. lutea*), an inhabitant of the south of Europe—all *these* are said to have been introduced in 1596. The year following was added the *R. Alba*, a species growing naturally in Piedmont and Denmark. Here were the progenitors of several of the most popular Roses of the present day, brought to our shores at about the same period. Beautiful as they no doubt were then considered, highly as they would be prized by the scientific in those

matters, who could have dived so far into the ocean of futurity as to foresee that from these species would spring forth the admirable varieties we at present possess? But we know it has been so, and in contemplating still further improvements by the process of hybridisation, what extensive prospects open upon our view; the field for experiment is boundless, and I believe yet brighter gems lie hidden undeveloped in the forms of these species and their varieties.

About the year 1629 the double yellow Rose (*R. sulphurea*) was introduced from the Levant. This is the Rose that seldom flowers to perfection in this country. Much discussion has arisen as to the cause of this, and methods of treatment directly opposite have been recommended. It is impossible to reconcile such adverse statements, but I believe a pure atmosphere to be of great importance, and thus it will seldom flower in the immediate neighbourhood of large towns. The aspect should be south or east, and the soil stiff and moderately rich. It has long been a matter of regret that this beautiful Rose does not unfold its blossoms freely, but it is less so now than formerly, because we have the Persian Yellow, which is a near approach to it in colour, and which, so far as we can judge of a newly introduced variety, will flower abundantly.

The Evergreen Rose (*R. sempervirens*) was introduced in 1629, but the varieties of this species are not very numerous. It grows wild in Italy, France, and Greece, and the group consists of very rapid growing Roses. For pillars, or for covering old fences, or trees, they are without equal; a growth of 10 ft. in the year is nothing extraordinary with them, and they possess the valuable property of holding their foliage through a great part of Winter. The Boursault Rose (*R. alpina*), a native of the Alps, was introduced in 1683, but the varieties now held in such esteem are comparatively of recent introduction. They are valuable as climbing Roses; some are almost spineless.

In 1789 the Chinese Rose (*R. indica*), was brought from China, where it grows naturally, often to the height of 20 ft. This group is not so popular in the present day as some others; the varieties are, however, very valuable on account of the profusion and constant succession of flowers which they produce. The flowers are usually fine late in the Autumn, the cold and wet at that season affecting them less than the generality of Roses. From the Chinese crossed with the Gallica or French Roses have sprung the Hybrid Chinese, one of the finest groups of the whole. From these, again crossed with the Bourbons and Damask Perpetuals, have arisen another admirable group, the Hybrid Perpetual. These are, in reality, Hybrid Chinese continuing to flower during Autumn, and are very hardy Roses. The Rose *La Reine*, of which there is a painting before you, is one of the newest and best. Their growth is vigorous, the flowers are large and handsome, and many of them are well suited for cultivating in confined situations where the more delicate kinds do not succeed well. The Macartney Rose (*R. bracteata*) is also a native of China, from whence it was brought in 1795. There are only two of this group worthy the attention of the amateur—the single and *Maria Leonida*—and these when planted against a wall in a dry warm situation are surpassingly beautiful. The *Rosa Multiflora* is indigenous to China and Japan. It was introduced here in 1804. The hybrids of this group, *Russelliana* and *Laure Davoust*, are beautiful climbing Roses; the latter is rather tender, and requires a wall or good aspect. The *Rosa Banksiæ* was brought from China in 1807, and three years later the same country furnished us with the Tea-Scented, of which the *Yellow Rose* before you is one of the newest, and the tiny *Lawrenceana* is from the same country. Beautiful little Roses are these latter, exquisitely adapted for edgings to Rose clumps. In 1817 the *Noisette* Rose was sent to Paris from America, where it was supposed to have been raised from a cross between *R. Indica* and *R. Moschata*.

The Noisette Roses used to be recognised by the large clusters of buds they produced, but many of the Noisettes recently introduced have wandered far from the original in this respect; some, indeed, more closely resemble in habit, constitution, and flowers, the Tea Rose. In 1822 the Bourbon Rose was sent to France from the Mauritius, and is generally supposed to have originated by the accidental hybridisation of the *Rosa Indica* with some other species. The first Bourbon Rose was of a rose colour, and only semi-double. For a long time the varieties raised from seed and referred to this group were all of a similar shade; but within the last three or four years there have arisen many dark rich coloured varieties, and some pink and blush ones, which have made a pleasing variety, and the Bourbons now form a group of the first order. The *R. Microphylla*, much valued on account of its curious and distinct appearance, was brought from China in 1828. The calyx is completely covered with sharp prickles; the buds presenting a most curious appearance, not unlike that of a hedgehog when rolled up in defence against its enemies. These Roses require a good aspect, as they are not only susceptible of frost, but from great fulness of petals the flowers do not always expand well. The *R. Rubifolia* is of recent introduction, having been brought from America in 1830. There are now several varieties, apparently vigorous growers, well suited for climbing or pillar Roses. I believe Beauty of the Prairies to be the best.

Besides the groups I have touched upon, we have species natives of Britain, and the varieties which have proceeded from these are of some interest to the amateur. Among these are the Sweet Briar (*R. rubiginosa*); the Ayrshire (*R. arvensis*); and the Scotch (*R. spinosissima*). The other native species are of no interest in a floricultural point of view.

We have now arrived at the second part of our subject, and shall proceed to make a few remarks on the formation

of a Rosetum and the arrangement of Roses generally. The Rosetum usually consists of a series of clumps, or groups of clumps, in which the varieties of each group are arranged together. As Standard Roses form the main feature in the Rosetum, we think the simpler the forms of the clumps the better; Standard Roses are decidedly artificial objects, and squares, parallelograms, and other geometrical figures admit of the best arrangement, and are in perfect harmony with the character of the plants. Circles, ovals, half circles, and the like filled with Roses on stems of varying heights also look well. I have often been struck with the effect produced by the Roses in the Jardin du Luxembourg at Paris, where, perhaps, is the largest collection of full-grown specimens in Europe. When in full bloom the display is indeed gorgeous, the arrangement perfect, and the effect beautiful. Yet the method of arrangement is as simple as possible. In one garden the plants are chiefly ranged in single rows running across a square. In another there are many long narrow beds only of sufficient width to admit two standards, and between every two standards is planted a dwarf. This is an excellent plan, as it does away with the unsightly appearance of a surface of bare ground which must unavoidably lie exposed to view when standards only are planted.

Hertfordshire, famous for its Rose Gardens, can boast of none to excel in beauty and variety that of G. J. Bosanquet, Esquire, at Broxborne-bury. The principle feature in this garden is three long beds running parallel. The centre one is of considerable width, containing perhaps seven rows stretching the whole length of the bed. The centre row is the tallest, and the other rows planted on each side of it gradually diminish in height as they recede from this centre. Thus the bed shows two fronts. The other beds, one on each side, are much narrower, and show but one front. At one end of these beds is a raised temple covered with Roses and other plants, from the interior of which the sight during the blooming season is most im-

posing. There are various other groups here, and some fine specimens covering the walls. There are other Rose Gardens in the county well worthy of notice did our time permit.

In planting a Rosetum, if it be of any extent, we think the Autumnals should be kept distinct from the Summer Roses. This may be accomplished by introducing a row of Pillar Roses. Let them be planted 3 feet apart to form the division, and when they have grown to some considerable height remove every alternate plant, and form festoons by running chains the entire length of the line. In the event of walks intervening, arches and bowers may be formed by means of rustic poles, and thus a distinct and interesting feature is introduced. For forming edgings to the beds in the Rosetum, the Lawrenceana and Miniature Provence Roses are well suited. But it is not everyone that wishes to form a Rosetum, though but few gardens are without Rose clumps. For Standard Roses we think, as before said, that whether in single clumps or in groups of clumps the simpler they are formed the better. For Dwarf Roses, however, full scope may be allowed for the exercise of taste and ingenuity. If single clumps are planted, a mixture of colours is desirable; but where there is a group of clumps, and each clump is filled with one colour only, and the colours well contrasted, the effect is admirable. For instance, let us suppose a series of clumps formed on a lawn, and let us further suppose one bed to be occupied with the Bourbon Queen, whose flowers are of a salmon buff; let Cramoisie Superieure, of a rich crimson hue, fill another; Madame Bureau, white, a third; and so on. Or if we choose to introduce a Summer Rose, let us take Harrisonii, whose golden blossoms are so abundantly given forth early in summer. Now what, we ask, can produce a more beautiful feature on a lawn than such a group?—flowers springing forth in the earliest of summer and continuing to bloom till November, bidding defiance to the frosts of autumn which disfigure so many of the

richest beauties of the garden. Standard Roses planted in single lines or avenues look well, or planted round the borders of a lawn in small gardens. It is scarcely necessary to say they are shown to greater advantage on a lawn or from grass walks than from gravel. Standard Roses are sometimes planted at intervals in herbaceous borders and thus have a very pretty effect. Weeping Roses planted singly on lawns form specimens of great beauty. The Ayrshire and Sempervirens are best for the purpose, and should be worked on stems of 5 feet and upwards. Weeping Roses are formed by special pruning and training. By cutting the plant in closely when young a sufficient number of pendulous shoots will be produced to form an umbrella-shaped head; the following season these left *unpruned* will form laterals. Henceforth, there is little trouble to bring the tree to perfection; the main shoots should not be shortened, when the branches will extend to the ground, producing flowers the greater part of their length. There was one practice formerly very prevalent in planting Standard Roses on lawns, viz., that of placing the turf close up to the stem of the plant immediately after planting. It certainly gives to the whole a neat and finished appearance, but the sacrifice is too great for the sake of neatness alone. Were the plant to be allowed thoroughly to establish itself, and the turf to be then laid on, it would not be so injurious, but it is desirable to avoid even this. Turfing over prevents in some degree the air from permeating the soil, and this proves anything but beneficial to the growth of plants. Again, of what benefit to a plant can the genial showers of spring be which have first to pass through the thirsty turf and give sustenance to the blades composing it?

But we have dwelt long enough here, and proceed in the third place to make some remarks on the cultivation of the Rose.

In forming a Collection of Roses the first points that should be considered are, whether the soil and situation

are favourable or not. It is well known that a free airy situation and a fresh loamy soil are most advantageous for the cultivation of this flower; and in proportion as the soil and situation depart from this, so are they the less favourable. And here allow me to intimate to those whose soil and situation are not favourable that a hardy race of Roses, the varieties of which flourish under such circumstances, is infinitely preferable to the more beautiful but delicate ones which, if they exist, will never flourish. I have no doubt there are some persons present who have experienced disappointment in the cultivation of the Tea-Scented and other kinds in this neighbourhood, and although I shall presently make mention of means by which I believe they may be successfully grown, still under ordinary treatment they do not thrive. Now in what degree are they superior to the Hybrid Perpetual and Bourbon Roses, which do thrive abundantly? True the colours of the latter are not so delicate, their scent is not so grateful, but in some points, one of which we may name "beauty of habit," they are by many thought superior. The influences of a confined situation or impure air it is difficult to remedy, syringing the plants occasionally would doubtless prove of incalculable benefit. The soil, however, is a different matter, and defects here are more easily removed. If the soil be decidedly bad, the better plan is to remove it altogether to the depth of 18 inches, replacing it with three-fourths turfy loam in a rough state well mixed with one-fourth decomposed stable manure. Good soil, however, is of little use unless the drainage be perfect, and in wet soils this must be attended to. But let us not suppose there are many soils so bad as to require wholly removing. Some there are that are too light and porous, for these a good dressing of marl or strong loam will be found beneficial. Others are too strong and tenacious, here turf and sand will be great improvers. It must, however, be borne in mind that worked Roses thrive best in a strong-holding soil.

Transplanting is an operation of importance in the

cultivation of the Rose. For this some recommend autumn and others spring, but perhaps the season at which it is performed is of less importance than the treatment the plants receive after transplanted. *It should certainly be done when the ground is in a good state so that they plant well.* The next point is to secure them from the action of the wind, which is usually done by means of stakes or iron rods. The whole surface of the beds—or a yard square where single plants are placed—should then be covered with stable manure, over which a slight covering of mould may be placed for the sake of neatness. In the event of a few dry days happening consecutively, either in spring or summer, a supply of water should be given. By a little additional care at this era in a plant's history—whether it be a young plant from the nursery or an old one removed from one part of the garden to another—it is probable that a perfect flowering will be procured the first season after removal; this is certain, the plant will become more fully established, forming shoots capable of producing abundance of vigorous blossoms in after years.

Manuring is an important point in cultivation; Roses delight in a rich soil. Manuring once a year, and this during winter if the manure is applied in a solid state, is not too often. Liquid manure, in not too concentrated a form, is excellent for Roses, but I almost hesitate to recommend the use of it on account of the additional labour it imposes. If, however, a few favourites are treated with it, it should be applied early in spring, so soon as the first leaves appear, and for the Autumnals it should be repeated immediately after the first flowering is over. For Pot-Roses it is indispensable, and should be given at intervals as the soil becomes dry. Though I am not over fond of the use of artificial manures, still I think guano excellent for making liquid manure, as it can be made with more certainty as to strength than when made from the ordinary manure heap. For Roses in pots one ounce of guano to one gallon

of pond water is sufficient, unless the beauty of the foliage be considered more important than that of the flowers.

Pruning is one of the most delicate operations in the whole practice of cultivation. On judicious pruning depends not only the handsome formation of the tree but the quality and quantity of flowers that will be produced. Besides being a delicate operation, it is one of which a correct knowledge can only be obtained by practice and close observation. To offer a system of pruning that might be applied generally, would be as fallacious as for a physician to offer one rule of exercise, diet, &c., to individuals of different temperaments and constitutions. A method that is good in one stage of growth, or for some particular variety, could not be recommended *in* or *for* others. However, a few passing remarks seem called for. *In general, the more vigorous the habit of a plant is the less should the shoots be shortened in pruning.* Thus the Hybrids of the Chinese and some of the Noisettes, which are vigorous growers, should be well thinned out and shortened back to 8 or 10 eyes. On the contrary, small-growing kinds require close pruning, such as the Chinese Tea-Scented and Damask Perpetual, some of which require cutting back to 2 or 3 eyes. But the system of pruning must be regulated in a measure by the object sought. If large handsome flowers are wanted in preference to number, a more rigorous system of pruning must be followed than when the object is merely to enrich and adorn the garden with a great display. Loose pruning produces quantity of flowers; close pruning quality. It must, however, be borne in mind that too close pruning applied to the vigorous Summer blooming kinds will cause them to grow all to wood without producing any flowers. With regard to the season best suited for this operation, something depends on the time they are wanted to bloom. Pruning in November doubtless causes an earlier bloom than pruning in March. Nevertheless, we are not disposed to recommend autumn pruning, and for this reason—a

few mild days at Christmas time or in January will excite the buds of November-pruned Roses, they push forth, and the severe weather that almost invariably follows injures them most seriously when in this state. Now, in March-pruning we are secure from all this, and though by its adoption the flowers may be developed a few days later, yet it places us on the safe side of the question. As each system doubtless has its advantages, let us see if we cannot partially reconcile them. Let the heads be thinned out in November, and the shoots left for flowering be shortened in the Spring. In pruning the Rose there are two points that should be kept in view—the forming of a handsome tree, and the obtaining of an abundance of good flowers. To secure the first point it is necessary to begin our operations when the plant is young; a certain number of shoots varying from 3 to 7, according to the strength of the plant, should be marked out as standing at equal and greatest distances from each other, and the remaining shoots should be cut clean away. Close pruning is necessary the first season after transplanting.

We have now reached a most interesting branch of Rose-culture, namely, the raising of Seedlings. This has hitherto engaged the attention of our English horticulturists to a very slight degree. To France and Italy are we indebted for our new varieties. But we hope for better things. It is universally admitted that we surpass the French in every other branch of Rose cultivation, and why should we not in originating new varieties? The only plausible reply that can be furnished is—their climate is superior to ours. We admit it, and propose a little extra care to remedy this natural difficulty. We need not waste time in arguing that Roses can be raised from seed in England—we have palpable proof of it. Here in this immediate neighbourhood that admirable Climbing Rose *Blairii* was originated. George the Fourth is of English origin; and Prince Albert—not H.P. Prince Albert—but Hooker's Prince Albert, which is one of the

finest formed Roses of the day, was raised in Kent. We could adduce further proof if thought necessary, but this establishes our position. Why then, the question naturally arises, are so few good varieties originated in England? Because our Rose amateurs have not turned their attention to this branch of cultivation. Now, to follow out this subject. Such varieties as ripen their seed naturally here should be planted in the best aspect of the garden, and their flowers fertilised with the pollen of any others, the combining of which may appear likely to produce good and distinct varieties. Finely formed flowers and varieties of good habit should be worked upon as much as possible. To what extent hybridising may be carried I am not prepared to say, but from existing hybrids it is evident that the field for experiment is anything but circumscribed. The following are good varieties for planting as seed-bearers :—*Rosa mundi*, *Moss du Luxembourg*, *Madame Laffay*, *Harrisonii*, *Gloire des Rosomanes*, *Athelin*, *General Allard*, *Aurora*, *Captain Sisolet*, *Chénérolé*, *Great Western*, *Maréchal Soult*. These all perfect their seeds in our climate. Now, I almost question whether we could have better varieties than these to work upon. From *Athelin* have been originated some of our finest modern Hybrid Perpetual Roses; from *General Allard* was raised that admirable variety *Madame Laffay*, and doubtless many others sprang from the same source. Here then is encouragement. It surely is only necessary to draw the attention of the British gardening world to these facts, to ensure the application of that same skill and industry which in other branches have worked out such marvellous results.

Rose seed is usually ripe in November, at which season it should be gathered and laid by in damp mould or sand till February, when the external covering will have decayed, and the seeds may be rubbed out and sown. They may be sown in beds or pans, taking care to protect from mice and birds when sown, and from slugs when coming up.

Some few will vegetate the first year, but many will lie dormant until the year following.

The novel idea of introducing Roses in pots as exhibition plants was first given forth by the Horticultural Society of London ; other societies have since adopted it, and they now form a distinct and brilliant feature in our floral fêtes. The beautiful specimens of Roses that have been produced growing in pots having fully proved them to be suitable for the purpose, we may anticipate they will become a very popular class of pot plants. If, indeed, we consider the length of time they continue in bloom, the richness, beauty, and variety of colour, their delicious fragrance, and the handsome appearance of a well-grown Rose-bush when in full bloom, it cannot be otherwise. I have been occasionally asked, what are the advantages gained by growing Roses in pots? The same question may be asked in reference to many other plants. But let us consider what are the advantages. By growing Roses in pots we may, with the aid of a greenhouse, have Roses in bloom nearly the whole year round. Again, when grown in pots, they are moveable and can be brought to ornament any particular spot in the garden that may be deficient in flowers, or be wanted to look gay at one particular time. Then in some soils, as in low wet places, and in some neighbourhoods, as in the vicinity of large towns, many kinds cannot be grown well under any other mode of culture. If further reasons for pot-culture are required, we would say some of the most beautiful varieties are incapable of enduring the rigours of our climate : for them pot-culture admits of certain and perfect development. Roses intended for growing in pots, if not on their own roots, should be on stems not exceeding one foot in height. The generality of Roses flourish in a soil composed of two-thirds yellow loam in a turfy state, and one-third decomposed manure. For the Tea-Scented and Chinese Roses, however, and especially when on their own roots, the soil should be made lighter by the addition of

leaf-mould, or sand if the soil be not already sandy. This compost should be thrown together in a heap at least three months before required for use, and occasionally turned that the component parts may become well incorporated, and ripened by exposure to the sun and air. Plants that are removed from the ground, whether in autumn or in spring, should be grown through the first year with the view to establish handsome plants. Thus they should be pruned closely, that the shoots may be formed close at home; these should be trained during summer into the most favourable position, and kept some distance apart, that the air may circulate freely among, and ripen them. Pot-Roses, except where grown under glass, should be kept plunged. In pruning they require to be pruned rather closer than such as are growing in the free earth, but the same rules are in a general sense applicable to both. The greatest pest with which the cultivator has to contend here is the Grub, with which all Rose-growers are familiar. It is annoying and vexatious enough to have a truss of flowers destroyed in the bud under any circumstances, but here, where the plant is so nicely balanced that the removal of one shoot destroys the uniformity of the whole, it is doubly vexatious. It however often occurs, and the only way to prevent it is to keep a watchful eye over the depredators. This must be done from the time the buds first push, for then, indeed, the ravages oftenest take place. It is not, however, difficult to detect these rapacious pests; a fine web drawn over the leaf; the leaf rolled up, or the young leaves sticking closely together—*all these* point out where they are located, and it is only necessary to press the leaves firmly between the thumb and finger to destroy them. If, however, this is neglected, sad are the results. We have said the Tea-Scented Roses may be grown to perfection in pots in the neighbourhood of large towns; a cold pit only is necessary. Let them be placed here early in November, pruning them at that season, and an abundant flowering will be

obtained commencing early in May. No artificial heat is necessary, unless they be required to flower earlier than this. Roses, when grown in pits or a cold greenhouse, should have abundance of air, and fumigating with tobacco must be frequently resorted to for the destruction of the green-fly. Plants pitted or housed in November will have made shoots an inch long by February, when, if there is likely to be a deficiency of shoots, some may be stopped, which will cause two or three to be produced in place of one, but the time of flowering will of course be retarded.

The practice of forcing the Rose has of late years become very general, and perhaps there is none other of Nature's productions led from its natural course and brought to flower amid the chills of winter that excites so much interest and delight as a Rose. Formerly the Moss and Provence were the only kinds forced, but now we have a charming variety by the introduction of the Tea-Scented, Hybrid Perpetual, and other groups. Roses intended for forcing may be housed in November and brought to flower soon after Christmas, but if a perfect bloom be sought for the first week in January is early enough to commence. It is scarcely necessary to dwell on the desirability of having the wood well ripened of the plants about to be forced. To accomplish this, when the plants are removed from the forcing-house in Summer, and have made their growth, they should be exposed to the full sun and air, and not be too freely supplied with water. They should be at rest at latest by the end of October. Roses are not lovers of a powerful heat, and if I may so express myself, we should *lead* rather than *force* them. We should bear in mind that the nature of a plant is not changed by forcing, but only the season at which its various functions are performed; it is introduced to artificial seasons; and we should endeavour to make each artificial season approach as nearly as possible to the natural season it represents. Thus on the introduction of the plants to the forcing-house, though it be the depth of winter, their spring in

reality commences, and although from the little influence of the sun at this period of the year all the advantages of a real spring cannot be secured, yet we should approach it as nearly as circumstances will permit. A gentle heat should be commenced with, the fire should be lighted at sunrise for the first fortnight, and extinguished at sunset, unless the weather be frosty. *A cool night temperature in commencing is most essential.* The plants should be lightly syringed every morning, except two or three wet days happen consecutively, when syringing may be omitted. If the weather be mild, air may be admitted to strengthen the swelling buds, and a day temperature of 50° , and a night temperature of 35° to 40° , is sufficient at this early period of forcing. Soon the leaves will unfold themselves when the temperature may be gradually raised, ranging from 60° to 70° by day and from 40° to 50° by night.

From this time no air must be admitted. The temperature may be raised by sudden bursts of sunshine to 80° or 90° without any decided injury resulting; if indeed it be attempted to remedy this by the admission of air, it is probable that the leaves will curl up and drop, producing the most disastrous effects. It will be found necessary to fumigate the forcing-house with tobacco occasionally to destroy the green-fly. An occasional watering with manure water will also prove beneficial. Plants introduced early in January will flower by the middle of March, when a light shading should be provided as the means of preserving the flowers in perfection as long as possible. As soon as the buds show colour syringing may be dispensed with, and at this time it is customary with some to remove a few plants from the forcing house to a colder house, where the flowers are more gradually developed, and their size and colour much improved. By removing a few plants at different periods, and introducing fresh ones, a succession of flowers is also obtained.

Thus have I brought my subject to a close, and in taking leave of you beg to thank you for the kind attention you have so courteously given me.

A PLEA FOR SUMMER ROSES.

[*From the "United Gardeners' and Land Stewards' Journal,"*

*June 6th, 1846, p. 357.**]

THE Rose has its thousands of admirers, and with that generous ardour which particularly distinguishes those who engage in floricultural pursuits, many have laboured to point out the method of culture they have successfully practised, and by so doing have led others to seek amusement from the same source, and to realise the same pleasure experienced by themselves. Perhaps no flower of modern times has been more universally patronised than the Rose, and the results of this extended patronage have been indeed remarkable. What vast improvements may even our modern florists and amateurs record in this flower. We have not only new features and improved forms in almost every group of Summer Roses, which it is more particularly my purpose now to speak of, but we have a new tribe, a numerous Autumnal race, sprung chiefly from the monthly and four seasons Roses, which a few years since the most sanguine or far-sighted cultivator could not have anticipated beholding. These are indeed valuable, and it is not in the least my wish to depreciate them. I am quite ready to acknowledge that we find a rich treasure in the Autumnal gems, often gladdening the garden with their lively and varied tints, when even the Dahlia, Autumn's own flower, has shrunk blighted from the chilling frosts. In pleading for the Rose of Summer, I only seek for it a fair share of honour, and in so doing I cannot help protesting against the unpardonable neglect with which some Rose cultivators seem

* This paper was written by the request of the late Robert Marnock, when editor of the above-named Journal.

inclined to treat it. I am my own gardener, so far as relates to Roses, attending personally to their wants, whether real or fancied, and, like many lovers of flowers, find pleasure in anticipating the period of flowering. To speak more plainly, I sometimes build castles in the air. A sultry sun has driven me into a cool shady bower, where I have for some time been revelling amidst the glories of a June Rose garden, calling up to view one individual specimen after another, until I have raised a host of half-forgotten favourites each in full dress, a gorgeous spectacle, and to which, notwithstanding every effort of the imagination, I could find no parallel among the Autumnal kinds. Where, indeed, among the latter shall we find such a huge mass of beauty as is presented to our view in a finely bloomed specimen of *Madame Plantier*, in a *Brennus*, a *Fulgens*, or a *Beauty of Billiard*? Where among the latter, shall we find the brilliancy of *Feu Brillant*, or *Eblouissante de Laqueue*, or the sweetness and beauty of many of those old globular-shaped *Provence Roses*? Where in autumn can we find anything approaching in delicacy of beauty to *La Seducante*, *Félicité*, and in dry warm weather to *Sophie de Marsilly*? Those compact-growing, full-petalled, regular-shaped garden Roses, too, are indispensable to all collections where exhibiting is an object in view, or where perfection in a Rose is desiderated. Among these, *Boula de Nanteuil* as a dark Rose reigns supreme; *Kean* as a scarlet is almost unequalled; and *Grandissima*, *D'Aguesseau*, and *Columella*, of various shades of crimson, are perfect; and these are Summer Roses.

The Moss tribe is replete with beauty, and the varieties which compose it must from their distinctness ever form an interesting feature in the Rose garden. But have we any Autumnal Moss? Certainly none worthy of the name. With June these lovely Roses fade, and the glory of the Rose garden is departed.

If we turn again to the Hybrid Chinese, and view the

perfect symmetry of form so strikingly displayed in Coupe d'Hébé, we shall find that although this Rose "has but a summer's reign," it will live in our remembrance when numbers of the longer blooming ones are faded and forgotten. We cannot surely dispense with the Persian Yellow, the double Yellow Briar, or Harrisonii. Yet these are Summer Roses. The only objection urged against them is the transitoriness of their flowers. But they are perfect of their kind, and till we have the like or superior, blooming for a more extended period, they must find place in every Rose garden.

It is then, I think, but just and fair for Rose cultivators to consider whether the disregard with which they treat this one great compartment—Summer Roses—is merited, whether by excluding or neglecting such they will not materially lessen the beauty of their gardens. If it be so, then their presence and beauty will be secured.

MORNING RAMBLES IN THE ROSE GARDENS OF HERTFORDSHIRE.

[*This was a pamphlet published in November 1849. As it is nearly out of print and will not be republished I have ventured to introduce it here.*]

BROXBOURNEBURY.—*Proprietor*, G. J. BOSANQUET, Esq.—*Gardener*, Mr FULLER.—Broxbournebury is about a mile from the Broxbourne station of the Great Eastern Railway. Approaching it from the south-east side of Hertfordshire we quit the high road to Ware and Cambridge at the little village of Wormley. Crossing the New River we pass through an avenue of oak trees, the branches so intertwined as to completely over-arch the road, forming a beautiful arcade about 500 yards in length.

This was the first object of striking beauty that we encountered, and although somewhat foreign to our subject we cannot pass it unnoticed. Gratitude indeed demands it, for although the day had but newly dawned, the shade afforded by this archway proved most agreeable. It was a true summer's morning—in this respect all that could be wished for—and as we continued our journey we felt its exhilarating influences. Nor did we venture to restrain the mind from indulging in anticipated pleasures till it revelled amidst the beauties it was soon to behold. It was no secret that while Roses in many places were shrivelled by the Fire King's scathing breath, or despoiled by repeated attacks of insects, the summer of 1849 had proved suitable to plants growing in the cool soil and pure air of Hertfordshire, and it was agreed on all hands that a finer bloom had rarely been witnessed.

Passing Wormleybury, the seat of the late Sir A. Hume, Bart., a great patron of gardening, we wound along a shady lane, whose banks gleamed with the Foxglove (*Digitalis*), Campion (*Lychnis*), and Catchfly (*Silene*), and whose hedgerows were crowned with Nightshade (*Solanum*), Roses, and Honeysuckles, the latter yielding up their odours to the "incense-breathing morn." Such an agreeable road led to the park lodge, and a few minutes more brought us to the pleasure grounds. We entered with a light step and a buoyant heart (the usual accompaniments of pursuits like these), and proceeding along the terrace leading from the mansion to the Rosetum we were much struck with the beauty of the Climbing Roses trained on a south-west wall, tastefully intermingled with various climbing plants. The most remarkable of the Roses were—*Hybrid Chinese*: Fulgens and Blairii No. 2; *Hybrid Bourbon*: Victor Hugo; *Multiflora*: Russelliana; *Noisettes*: Lamarque and La Biche. Of other climbing plants we observed several of the sweet-scented Clematis and Magnolias, a Wistaria, a Gum Cistus, and a Lonicera. A few feet from the wall, and running parallel with it, is a terrace-walk, gravelled

and about three yards wide, with flower beds on either side; on the right is the wall just described, and on the left the lawn studded with ornamental trees and groups of flowering plants. A *Verbena* garden occupies the end of the lawn near the house; in the centre is a basin ornamented with rock-work, and enlivened with a pretty fountain surrounded by a circle of light Norman arches connected with chains over which the *Tropæolum pentaphyllum* trails with a careless grace. The simplicity and beauty of this arrangement is irresistible, and the effect is heightened by the dazzling glow of the *Verbenas* planted in the beds around. Turning to the left we pass a thatched arbour completely fenced in from the sun with yew and laurel; behind it is a collection of ferns which luxuriate beneath the shade of two fine hickory trees. A few steps onward and another turn brings us into a winding walk about forty yards long overarched with laburnums, whose golden racemes of flowers drooping from the top of the arcade have a very pretty effect. Passing two fine *Rose-Acacia* trees, whose fragile branches are fastened to horizontal framework to protect them from the wind, we enter a garden with six sides and six entrances called the "Fountain Garden." There is a basin and fountain in the centre, and the surrounding beds are filled with the usual summer-blooming plants, as *Heliotropes*, *Petunias*, &c. A few moments only could be spent here, for adjoining it was the *Rosetum*, and the perfumes wafted therefrom invited us to pass onward. As we did so we caught occasional glimpses of the first object of our visit, and on entering a brilliant spectacle was before us—above, around, below, *Roses* glittered everywhere. Although from long experience our eyes had become well accustomed to *Flora's* gay and brilliant scenes, we must confess them somewhat dazzled on the present occasion; there was indeed a galaxy of beauty. This was not our first visit by many, and while we recognised several old flowers looking, if possible, fresher and fairer than ever, we also met with

others less familiar. To speak of the plan of the Rosetum should perhaps be our first effort, and then we will note the names of a few varieties which most forcibly arrested our attention.

First, then, of the soil. This is an alluvial loam, stiff, and of considerable depth, and has been enriched by repeated applications of decayed stable manure. The Rosetum covers about an acre of ground, and is fenced in on the one side by a wall, and on the other by a belt of evergreens formed of Laurels, Portugal Laurels, and Laurustinus very tastefully disposed. It is laid out in plain beds, chiefly parallelograms, the tallest plants being arranged in rows along the centre, the dwarfer ones fronting them on either side sloping towards the walks, which, except the outer one, are straight. The latter winds gracefully, with Roses planted on either side, standards and dwarfs alternately. The edgings of the beds are formed of flints and pebbles, among which the Golden Moss (*Sedum acre*), the Alpine Speedwell (*Veronica alpina*), and various plants of lowly growth are made to creep. Among the Summer Roses hardy kinds of Fuchsias are freely interspersed with the view of enlivening the garden when the Roses are out of flower. The Autumnals are separated from the Summer kinds by a wire trellis covered with Climbing Roses, the most conspicuous of which were—*Rose de Rosomane*: Gloire des Rosomanes. *Noisettes*: Lamarque, Fellenberg, Du Luxembourg, Solfaterre, Cloth of Gold. *Tea-Scented*: Nina and Madame Roussel. Occasional Pillar Roses are introduced with good taste, and the intersections of the walks are nearly all arched. For the pillars and arches—*Bourbon*: Madame Desprez. *Hybrid Chinese*: Celine; and *Ayrshire*: Splendens—are most freely used. At the back of the beds which bound the Rosetum a row of Standard Climbing Roses is planted, the plants being alternately three feet and five feet in the stem. The heads rise, then droop, the spare branches being trained along small chains hanging in graceful festoons. Of

these the most striking are—*Ayrshire*: *Ruga*, *Splendens*. *Boursault*: *Gracilis*. *Hybrid Musk*: *Garland*. *Bourbon*: *Bouquet de Flore* and *Pierre de St Cyr*. At one end of the Rosetum is a raised temple or rustic arbour covered with Sweet-scented *Clematis* (*C. flammula*), *Virginian Creeper* (*Ampelopsis hederacea*), and honeysuckles. From the foreground of this temple a splendid *coup d'œil* of the whole is obtained. The ascent is made by a short flight of steps built in true rustic style. On either hand is a row of *Fuchsias*, whose coral-like blossoms hang in magnificent profusion, and are admirably relieved by masses of the silver-edged *Vinca* trailing over the ground beneath. These are again supported by *rhododendrons*, which form a bank in the foreground. The enticing coolness of this retreat proved too much for our powers of self-denial, and on entering we were not surprised to find the inmost recesses filled with the perfumes which the flowers exhaled. While meditating here we were led from one class of plants to another, from the vegetable to the animal kingdom, and as the various objects passed in rapid succession before the mind, creation pointing to the Creator, we silently wondered and adored. And what a time for meditation? The morning was delightful; calm, soft, and sunny, though a little hazy; it was one of those mornings in which one delights in Nature as a companion.

“On earth ’twas yet all calm around;
A pulseless silence, dread profound,”

reigned everywhere. The brooks ran clear, the flowers were fresh, the groves were silent, the feathered choristers having at once put off their natural shyness and dropt their song.

But this is a digression; our subject is flowers. One thing struck us in reference thereto—the nice adaptation of the varieties of *Roses* for particular purposes. Every plant seemed to have been rightly chosen. The kinds of pendulous habit had been selected on tall stems, and thus

their drooping branches displayed the flowers to great advantage. The small-headed and erect kinds were grown on dwarf stocks, and those of moderate vigour on stems of intermediate height. This, although apparently a trifling point, is as far as concerns the effect produced of vast importance, and then it offers the additional advantage of growing the kinds in the way in which they flourish best. At the time of our visit (July) each of the plants had recently received a small portion of guano, and afterwards a supply of water, the effect of which remained to be seen, although it must beyond doubt prove beneficial.

Thus far of the Rosetum; let us now record a few of the gems of this collection.* Of showy effective Roses, kinds producing a striking effect *en masse*, we notice as standards—*French*: Surpasse tout, William Tell, Cerise superbe, and Souvenir d'une Mère. *Hybrid Chinese, &c.*: Leopold de Bauffremont, Blairii No. 2, Fulgens, Adolphe, Triomphe d'Angers, Madeline, Beauty of Billiard, Elizabeth Plantier, Magna rosea, Globe White Hip, Henri Barbet, Madame Plantier. *Damask Perpetual*: Crimson or Du Roi. *Chinese*: Fabvier. *Tea-Scented*: Taglioni, Devoniensis, Le Pactole, Lyonnais, Belle Allemande, Niphetos (the Magnolia Rose of some). *Noisette*: La Biche, a very tall plant with an immense head. *Bourbon*: Dupetit Thouars, Comte d'Eu, Impératrice Josephine, Madame Angéline. These were, for the most part, immense standards, splendidly covered with bloom.

Of Show Roses, kinds remarkable for the beauty and symmetry of the individual flowers, we noticed—*Damask*: La Ville de Bruxelles, Madame Soetmans. *Hybrid Bourbon*: Charles Duval, Paul Perras, and Coupe d'Hébé. *French*: Adèle Prevost, Kean, and Latour d'Auvergne. *Hybrid Perpetual*: Geant des Batailles. *Tea-Scented*:

* To retain these names in this and similar instances may be thought by some a work of supererogation, as so many of these varieties are antiquated and have passed away. But it has appeared to me that it may be interesting and useful in the future.

Moiret, and Elise Sauvage. *Bourbon*: Souvenir de la Malmaison (two plants with 100 flowers each), Acidalia. *Austrian*: Persian Yellow. *Alba*: Sophie de Marsilly.

THEOBALD'S SQUARE.—*Proprietor*, J. M. BRITTEN, Esq.—*Gardener*, Mr MELADY.—This place is about a mile from the Waltham Cross Station of the Great Eastern Railway. The spot is rendered interesting from historic associations. Theobalds was formerly the residence of royalty; and from here Charles I. departed to place himself at the head of his army to oppose the troops of the Parliamentarians. Earlier in history the famous Lord Burleigh had a seat at Theobalds. The garden now under consideration is not very extensive, but it is well and neatly kept, and doubtless affords the proprietor more real pleasure, and proves far more interesting to the stranger, than some places of many acres. There is no Rosetum here; the plants are disposed in clumps and rows throughout the garden. On the west front of the house is a trellis, over which are trained Leopoldine d'Orleans (*Semprevirens*), Ayrshire Queen, Fellenberg (*Noisette*), and Gloire des Rosomanes. The pillars supporting the entrance are covered with Ruga and Splendens, both light coloured Ayrshire Roses. A walk, about 100 yards in length, leads from this front of the house to a lake, on whose surface floated a profusion of Water Lilies (*Nymphæa alba*), which, gleaming from afar, presented a most lovely spectacle. On either side the walk is lawn-ground planted with beds of hardy evergreens and single specimens of ornamental trees, interspersed with clumps of Roses, Geraniums, and other summer-flowering plants. In the beds by the sides of the walk we notice the following Roses—*Hybrid Chinese, &c.*: Chénédolé, Charles Duval, and Coupe d'Hébé. *Noisette*: Lamarque, Euphrosyne. *Tea-Scented*: Niphetos, Jaune, Devoniensis, Goubault, and Cels multiflora. *Bourbon*: Paul Joseph, Queen. *Hybrid Perpetual*: La Reine, Comte d'Eu. *Alba*: Madame Legras, Princesse Lamballe. *Hybrid*

Chinese: General Allard, William Jesse, Lady Stuart, Fulgens. *Bourbon*: Armosa, Bouquet de Flore. *French*: Boula de Nanteuil, Kean, Surpasse tout, Cerise superbe. The Perpetual White Moss was also blooming here very prettily; and although the expanded flowers are neither regular in form nor very double, the large clusters of well-mossed buds it produces are unique and truly elegant. Not only are these noted as superior kinds, but the trees (for all were on stems) are large and handsome. There was also less crowding and confusion of branches discoverable than is usually seen in standard Roses owing to unskilful pruning. The standard Tea-Scented Roses were particularly fine, which we believe due, in some part, to the sheltered position they grow in, as the lawn on which they were planted is open to the south only.

Passing to the east front of the house, we found the pillars there covered with the White Banksiæ, Maria Leonida (Macartney), and Coupe d'Hébé (Hybrid Bourbon), the two former white roses, the latter pink; there were also Clematis florida and C. azurea grandiflora, the loveliest of the tribe. On the lawn opposite are two beds of short standard Roses, the most striking of which were—*Hybrid Chinese, &c.*: Magna rosea, Great Western, and Parigot. *Hybrid Perpetual*: Mrs Eliot, Clémentine Seringe, and Jacques Lafitte. *French*: Village Maid. *Tea-Scented*: Le Pactole, Niphetos, very fine, and Adam. *Bourbon*: Dupetit Thouars. *Noisette*: Euphrosyne. *Alba*: La Séduisante. There was a plant of the Maiden's Blush with several old stems; four of these had been budded about breast high, and formed four separate heads: Lamarque (Noisette), sulphur, and Ne Plus Ultra (Hybrid Chinese), crimson, were the varieties. A splendid standard of La Biche (Noisette), the head about twenty feet in circumference, a perfect specimen, laden with blossoms, stood singly on the lawn, and was a very striking object. There was also a standard and a dwarf standard Ruga trained as weepers, both very pretty. The natural soil of this garden

is a stiff loam of considerable depth, friable rather than clayey. In the kitchen-garden is an arched rose-walk, three yards wide, and of considerable length. The arches, which are formed of wire, are about eight feet high and about seventeen yards apart. Although from either end there is the appearance of an unbroken arcade, yet when traversing the walk the arches seem too far apart, and we can imagine the effect more perfect were they placed at about half this distance. There were no new kinds used for covering them. Most of our old favourites were there, and they answered the end perfectly.

THEOBALD'S SQUARE. — *Proprietor*, R. W. KENNARD, Esq.—*Gardener*, Mr COOPER.—The principal feature in this garden is an arched rose-walk or arcade of Roses. The walk, which is about eight feet wide and one hundred yards long, runs under a wall with a west aspect. The arches are about ten feet high. They were originally covered with some of the fastest growing kinds, without reference to merit, on which the finer kinds have been budded from time to time. By this system time is saved, the arches are quickly covered; but we think the plan advisable under peculiar circumstances only, as, for instance, where the situation is unfavourable for growth. It is beyond question that the work never becomes so perfect as when the best kinds are planted in the first instance. Notwithstanding this remark, the effect of the arcade, when viewed from the outside, is admirable. The varieties which most particularly engaged our attention were—*Semper-virens*: Leopoldine d'Orleans. *Ayrshire*: Ruga and Splendens. *Noisette*: Lamarque, La Biche, Jaune Desprez; these six are light coloured flowers. *Hybrid Chinese, &c.*: Blairii No. 2, Fulgens, Beauty of Billiard, Magna rosea, Brennus, Duke of Devonshire, Belle Marie, Céline. *Bourbon*: Madame Desprez, Jacques, Bouquet de Flore. *Rose de Rosomane*: Gloire des Rosomanes. *Hybrid Perpetual*: Baronne Prevost, La Reine, Duchess of Sutherland.

Multiflora: Russelliana. These are from rose to crimson, embracing the intermediate tints. Turning towards the house we see on the south front projecting arches, against which are planted Brennus and Amadis, dark flowers; and Lamarque, Ruga, Leopoldine d'Orleans, light ones. These kinds are well suited for the purpose. We cannot help singling out from among the lawn trees two splendid Cedars, a handsome deciduous Cypress forty feet high, and an evergreen Cypress not less than fifty feet, a perfect specimen. Approaching the borders of a small lake, we see brick arches rising from grottoes covered with ivy, which, viewed in conjunction with the old trees, are strikingly picturesque. Passing beneath the arches we reach another collection of Roses, principally standards, planted in straight rows on either side of a walk about ten feet wide. The highest stems are at the back, and the declination is gradual as the plants approach the edges of the walk. Among the Roses, herbaceous and various summer-flowering plants are introduced, and thus the whole is made gay and interesting. The soil here is a good loam, similar to the last.

POLES NEAR WARE.—*Proprietor*, R. HANBURY, Esq.—*Gardener*, Mr BARNES.—This place is about a mile from the town of Ware. Roses are not at present the most interesting feature of the gardens. The collections of orchidaceous plants, greenhouse plants, heaths, &c., are more perfect, and well worth the attention of connoisseurs of these flowers. The gardens have been lately re-formed, and consequently the Roses, which are pretty numerous, comprise the best modern varieties. The natural soil being an unkind clay, a soil of turf and manure was prepared in which they are planted, and they have done well. Tea and Chinese Roses are placed against the walls of the terraces in every aspect, where they grow and flower as well as could be wished. Beds of mixed Autumnal Roses are planted in conjunction with the usual summer bedding

plants, with which they group admirably, and produce a very splendid effect. Mr Barnes recommends the adoption of this plan very strongly as a great saving of time to the gardener at a season when time is invaluable, and as a saving of expense to the proprietor. As there can be no longer any doubt of their suitability for this purpose, we predict that they will ere long become generally planted. Indeed, when we remember how constantly they flower, and that their season is prolonged beyond that of ordinary bedding plants, it is a matter of surprise that they have not been more freely used. Want of variety, beauty, or fragrance, cannot be offered as an excuse for this neglect. In the Rose is to be found the softest and the hardest tints, the purest white, the deepest crimson, and the intermediate shades are innumerable. As to beauty and fragrance they are too evident to need comment.

These remarks are made in reference to the present mode of growing them, but we think much may be done to improve the cultivation of Roses in flower-beds. The plan of pegging down the branches we hold to be more than questionable; when adopted the flowers are brought so close to the ground that the first shower of rain that falls covers them with soil, after which the delicate tints will not bear looking on. This plan further causes a few vigorous shoots to arise from the base of the branches pegged down, and an uneven growth and a scanty supply of flowers are the results. The easiest remedy for this is to grow the plants on short stems, but as such are by some held objectionable, when on their own roots, a few wires of sufficient strength to support the branches should be stretched over the beds at a given height, according to the habit of the variety or the position it may occupy. In pruning cut off the branches just below these wires, and the young shoots will rise and flower above. A little tying may be necessary in some instances to keep the beds neat and compact. Prune sparingly, manure freely, and the desired end—a mass of flowers—will be obtained.

YOUNGSBURY.—*Proprietor*, LADY PULLER.—*Gardener*, Mr TERRY.—About two miles from the place last described is Youngsbury, close to the little villiage of Wadesmill. Entering by the lodge adjoining the high road we pass through a fine park with a prettily undulated surface, containing some handsome elm, ash, beech, and chestnut trees, disposed in very elegant groups. The principal of the Roses here are planted round the borders of the kitchen garden, which, indeed, they may be said to have converted into a Rose garden, which derives additional interest from the free interspersion of herbaceous plants. One thing struck us as remarkably pretty, it was the twining of honeysuckles around the stems of the free-growing Roses. The honeysuckles are not allowed to luxuriate in their natural wildness, but are well pruned at the same time as the Roses, and are thus kept neat and close. They were all one mass of bloom from the ground to the heads of the Roses. An arched Rose walk (Tudor arches), covered with the usual climbing Roses is also worthy of notice. Next we encountered an arbour, the roof of which was skilfully and tastefully decorated with fir cones. This is near to the principal Rose beds, which are in a small garden entirely surrounded by a wall. The Roses are planted in the borders in straight rows, three feet from plant to plant, and 2 feet from row to row. The plants are large and well formed, principally dwarf standards, and there are three or four of each of the finest sorts, an excellent plan when cultivating for exhibition is one end in view. Amongst others we noticed as first rate—*Moss*: Bath white, Reine de Provence. *Hybrid Chinese*, &c.: Brennus, Belle de Rosny, Charles Duval, Triomphe de Laqueue, Marie de Champlouis, Coupe d'Hébé, Chénédolé, and Comtesse de Lacedèpe. *French*: Boula de Nanteuil, D'Aguesseau, Oracle du Siècle, La Volupté. *Hybrid Perpetual*: Earl Talbot. *Alba*: Sophie de Marsilly. There is also a border of Bourbon Roses which has been recently planted in continuation of a group of the gay semi-double

old French kinds, which it is now intended to remove. We noticed on the wall a plant of the Jaune Desprez, blooming most profusely, and somewhat deeper in colour than is usual. We were told of a curious circumstance in connection with this plant. It was on a three feet stem, and was originally planted at some little distance from the wall. The stem was bent downward till the head reached the wall, the former was then covered over with some depth of soil, in which state it remains flourishing as above described. At each end of one of the greenhouses there is a bank of Roses *planted in pure clay* under a wall with a west aspect. It was obvious to remark how well the plants throve, and how large the flowers were. All were worked on the Dog Rose. The Hybrid Chinese were especially luxuriant, but Bourbons, Noisettes, Chinese, and even Tea-Scented, seemed alike to flourish. The following were noted as large plants bearing fine flowers—*French*: Village Maid. *Hybrid Chinese, &c.*: Brennus, Beauty of Billiard, and Velours episcopal. *Damask*: Madame Hardy. *Brier*: Harrisonii. *Hybrid Perpetual*: Comtesse Duchatel. *Noisette*: Aimée Vibert and Miss Glegg. *Bourbon*: Queen. *Tea-Scented*: Camellia blanc. Crossing the lawn we caught a glimpse of a handsome Abies Douglassii, thirty feet high, and then passed between high laurel hedges overtopped with cedars, beeches, and elms. We again entered the park, passed through an avenue of limes, and crossed the river Rib whose sedgy banks were in full beauty. In the nursery, which we had now reached, we found ourselves in company with more Roses, and observed as standards—*Hybrid Perpetual*: Madame Damene, Dr Marx. *French*: La Ville de Londres, Kean. *Damask*: Deesefflore. *Hybrid Chinese*: Grilony, Paul Perras, Lord John Russell, Belle Marie, and Brown's Superb. We here met with a new enemy of the Rose in the shape of a green caterpillar with a black head; it was tolerably abundant, rolling up the leaflets for a dwelling. It may not prove a pest of great magnitude,

but there is nothing like sounding the alarm on the first appearance of the enemy, and Rose cultivators will do well to look to it. There was, indeed, a beautiful lot of Roses in this secluded spot, and as we cast a parting glance upon them we uttered the sentiment of the poet—

“ ——— small is the worth
Of beauty from the light retired ;”

and could not pass on without wishing them a speedy transfer to a more eligible situation.

The natural soil at Youngsbury is a blue clay, lying close to the surface, extending to the depth of twenty feet, where it rests upon chalk. The surface where long cultivated has the appearance of a light vegetable soil.

But we must say a few words of the Pot-Roses here, of which Mr Terry's skill as a cultivator is fully attested by his success as an exhibitor at the metropolitan flower shows. His plants are mostly on their own roots and grown in large pots. He is not an advocate for plunging. The plants were standing on solid ground, under a wall, with a north-east aspect; and, judging from their healthful appearance, they were perfectly happy there. The following plants were very fine—*Tea-Scented*: Caroline, Bougère, Comte de Paris, Goubault, Pactolus, and Princess Marie. *Bourbon*: Queen, Souvenir de Malmaison. *Hybrid Perpetual*: Robin Hood. *Hybrid Chinese, &c.*: Las Casas, Comtesse Lapepède, and Charles Duval. *Chinese*: Merlet de Laboullaye, Mrs Bosanquet, and Madame Breon. *French*: Boula de Nanteuil. *Noisettes*: Aimée Vibert, and Lamarque. *Austrian*: Persian Yellow and Harri-sonii. The soil Mr Terry uses is the same as is generally recommended for Pot-Roses.

DANE END.—*Proprietor*, CHARLES S. CHAUNCEY, Esq.—*Gardener*, Mr MYLNE. Leaving Youngsbury, we proceeded about a mile along the high road to Cambridge, and then entered a winding lane, running for two miles

and a half, to the seat of Charles S. Chauncey, Esq., called Dane End, near Munden. The Dog-Rose and *Rosa arvensis* abounded in the hedges, and if we were not deceived by the pace at which we were travelling, the sweet briar also showed itself occasionally. Many fair flowerets studded the wayside, and more than once did we regret the want of leisure to cull a bouquet of these lovely gems. But it was impossible. The sun was already high above our head, and the time to which we wished to limit our morning rambles almost expired. We reached the desired spot, and immediately on entering were dazzled with the sight of a bed of mixed Roses, dwarf standards, beneath which glittered the lovely *Eschscholtzia* covering the ground as with a sheet of burnished gold. Whichever way we turned masses of flowers met our view. Standing in the heart of an agricultural district, which we had just quitted, and where every idle plant (excepting those by the wayside) was doomed to quick and sure destruction, the change was the more striking. We had for some time been passing farm lands, which we could not but admire for their freedom from wild flowers; now we were suddenly in the midst of a beautiful garden, appearing like an oasis in a desert. The mansion stands some little distance from the road on gently rising lawn ground. In front and near to the road is a walk describing a semi-circle. On the lawn side of the walk beds of Roses of graceful forms follow the margin, a mere strip of the lawn intervening. There is in most cases a bed of a sort, and they are principally Autumnals. We noticed especially as suited for this purpose—*Hybrid Perpetual*: La Reine, William Jesse, Madame Laffay, and Mrs Elliot. *Chinese*: White, Cramoisie superieure, Gloire des Rosomanes. *Bourbon*: Bouquet de Flore. All these are evidently excellent kinds for bedding. On the opposite side of the walk is a herbaceous border about three yards wide; it contains a very good collection of herbaceous plants, and the most showy kinds, such as Sweet Williams, Antirrhinums,

Rockets, &c., being freely interspersed, the effect is grand in the extreme. At the back of this border is a wire fence covered with free-growing creeping Roses and honeysuckles. Behind this is a walk and a belt of trees for shelter, among which the Scotch Laburnum and Yellow Broom are plentifully introduced. At one end of this border is a fine spreading Sycamore, whose agreeable shade we gladly availed ourselves of for a few moments, and then pursued a shady path to examine a row of the Crimson Perpetual Roses nearly fifty yards long. The plants were large and in full bloom, and are said to yield a constant supply of flowers for bouquets from June to Christmas. Thence we returned to inspect a large bed of Roses, which contains the principal collection. They were for the most part standards. The most striking for size and beauty were—*French*: Latour d'Auvergne, William Tell, and Madame Damoureau. *Hybrid Chinese, &c.*: Magna rosea, Stadtholder, Madame Plantier, Devigne, Coupe d'Hébé, and Beauty of Billiard. *Hybrid Perpetual*: Dr Marx and Clementine Seringe. *Bourbon*: Bouquet de Flore. *Damask Perpetual*: La Volumineuse. Turning thence, we passed through an arcade of Roses, formed of the Boursault and various kinds of Hybrid Chinese. Ascending a gentle slope by the side of the house, we met with a bed of the Gloire des Rosomanes,

“ Warm rival of the flame that dyes
The heavens,”

and another of the White China, which we were informed had withstood the frosts of ten winters without any protection. Next in order was a bed of *Bourbon*, Madame Desprez; three beds of *Noisette*, Fellenberg; and one of the Beauty of Hertfordshire, a seedling raised here by Mr Mylne, possessing very fine foliage and rose-coloured flowers, resembling the *Bourbon latifolia*. These beds were all upon the lawn, where the natural soil (chalk) rises to within two inches of the surface; the soil has conse-

quently been made for them. On the right-hand side of the walk we are now traversing is a bed of mixed Roses five plants deep, at the back of which a wire fence separates the garden from the park. Over the walk are arches of Bourbon Roses, principally Gloire des Rosomanes and Madame Desprez. Higher up is a bank of the original Bourbon Rose, and another of the Copper and Yellow Austrian, intertwined with honeysuckles. On the top of the banks a row of Scotch Laburnums is planted on either side of the walk, the effect of which in the flowering season must be very good. Having reached the summit of the hill, we meet with another border of Roses five rows deep, containing the best modern kinds. Behind them is a belt of Spruce Firs planted for shelter, and a row of Abies deodara. From this spot is a pretty view of the valley below, and a rising hill beyond, the village church presenting a most interesting object. Descending over the lawn, which is planted with single specimens of Coniferæ, we pass a handsome Pinus patula eight feet high, which has stood eight winters unprotected, a handsome Cryptomeria japonica five feet high, and a nice clump of Yews. Various flower-beds, filled with the usual bedding-plants, surround the house. Returning to the entrance we crossed the road to the kitchen-garden, where we found Leopoldine d'Orleans and Madame d'Arblay, both light Roses, in magnificent bloom, covering an immense apple tree twelve feet high, which they had almost destroyed. The Bishop's Provence, Tricolor, Triomphe de Rennes, and the Globe Hip, were also flowering prettily here. It was said the Cloth of Gold bloomed well as a standard, planted on the west border of a greenhouse. On a south border of the kitchen-garden some Autumnal Roses are planted, over which frames are placed in winter and spring, by which means flowers are obtained some weeks before those wholly exposed are in bloom. Against a south wall a collection of dwarf-standard Tea-Scented Roses are placed between the fruit-trees, and they were doing well. But

this notice is already far extended, and we must conclude with a glance at the conservatory. On the outside of this structure Tea-Scented Roses are grown, and trained against the walls. In the interior is a specimen of Noisette Lamarque budded close to the ground, which had risen with a single stem twelve feet high and about an inch in diameter; it had formed an immense spreading umbrella-shaped head, the branches drooping most gracefully. There was also a plant of the lovely Tea-Scented Bougère, nearly its equal in height and size, and both are said to yield flowers all through the winter months. There were two plants of the Fuchsia corymbiflora, and one Fuchsia Thomsonii, trained on a similar plan, and they were exceedingly handsome. Beyond these the conservatory was filled with various flowering plants, of which however it is not our particular purpose to speak. The whole of the Roses here are freely exposed to wind and sun, yet they grow and bloom magnificently, and seldom have we seen plants freer from insects of every kind. The Autumnals receive a top-dressing of manure in June in addition to the annual supply, an excellent plan which ought to be more generally put in practice. This is one of the oldest Rose gardens in the county, and is still one of the best, and to this more than to any other do we attribute the spread of that taste which has rendered Hertfordshire so renowned for its Roses. The soil here is naturally most unfavourable, the chalk lying close to the surface, and in every instance where Roses have been planted the chalk has been removed to some depth and its place occupied with a mixture of loam and manure.

HAILEYBURY COLLEGE, HERTFORD HEATH.—The Rev. RICHARD JONES.—*Gardener*, Mr COWELL.—The principal collection of Roses here consists of standards and dwarf-standards, planted four plants deep to form a Rose-bank. At the back are arches on which we noticed Gloire des Rosomanes, which had made shoots

seven feet long this year, Ruga (Ayrshire), Conspicua, Henri Barbet (Hybrid Chinese), Lamarque, Jaune Desprez (Noisettes). Among the kinds forming the bank, La Volupté, Kean (French), Prince Albert (Hybrid Perpetual), Queen of Denmark, Sophie de Marsilly (Alba), Paul Perras (Hybrid Bourbon), were the most conspicuous. There were also several very fine specimens of the Crested Provence. On a border with a western aspect in the kitchen-garden we noticed Persian Yellow (Austrian), Requier, Minerva, Grande et Belle, Bernard, La Reine, Madame Laffay, Stanwell (Perpetuals), Aspasie, Boula de Nanteuil (French), Riego, Camuzet carnée, Coupe d'Hébé, Great Western, Fimbriata (Hybrid Chinese, &c.), Madame Angelina, Dupetit Thouars (Bourbons), Emérance (Hybrid Provence), Comte de Paris (Tea-Scented). Maria Leonida was planted as an edging to one of the beds, and under the treatment here subjected to has a very pretty effect. The shoots are pegged down in spring and clipped in June, this keeps the plant dwarf, and it produces a mass of its beautiful white flowers in the autumn months. Being evergreen, and possessed of fine, large, glossy foliage, it must become a great favourite if cultivated in this manner. It is doubtless well known that under ordinary circumstances the flowers do not expand freely, but the pegging down and clipping which it undergoes entirely cures it of this bad habit. On the east border of the kitchen-garden the various families are planted separately in beds, the divisions being marked out with the Maria Leonida. The most striking plants here were—*Hybrid Chinese, &c.*: Velours episcopal, Chénédolé, Jenny, and Charles Fouquier. *Hybrid Provence*: Princesse Clémentine, and La Calaisienne. *Moss*: Perpetual Mauget, Presque partout, Catherine de Wurtemberg. *Damask*: Ferox. The Crimson Perpetual invariably fails here. On the front of the house a plant of the old Red Moss had climbed about twelve feet high, and was covered with its beautiful blossoms. There were beds of

Roses on the lawn facing the house, containing the leading kinds of Hybrid Perpetuals. The Comte d'Eu, which was among them, was said to be killed to the surface every winter, but to break from beneath the ground in spring and flower well. The cultivation of Pot-Roses is just taken in hand here, and the young plants look healthy and promising. The natural soil at a foot below the surface is a yellow clay; the surface soil is heavy, and in many places full of cracks. It is the practice of Mr Cowell to manure the Roses three times every year—in spring, summer, and autumn. Burnt earth is used freely, and found to produce marvellous effects.* The hoe is kept constantly in use during spring and summer, and it is doubtless owing to this painstaking that such fine flowers are obtained: Baronne Prévost was measured seven inches and a half in diameter, and other flowers were fine in proportion.

We could not but remark the absence of the little green caterpillars, the larvæ of a saw-fly, which has proved so great a pest in most Rose gardens for the last two years. We were informed that it had abounded here also in the previous year, but that a timely application of a remedy which destroyed it then had proved equally efficacious this spring. The following is the receipt:—To twelve gallons of water put half a bushel of soot, stir it thoroughly, and add a quarter of a peck of hot lime. Allow it to settle for three or four days, when it becomes clear as claret. To this quantity add, just before using, one pound of soft soap dissolved in warm water. This proved an efficient remedy after tobacco-water and other insect-destroying applications had failed.

PONSBORNE PARK.—*Proprietor*, WYNN ELLIS, Esq.—*Gardener*, Mr SCOTT.—This seat is about five miles north-west of the Waltham Cross Station of the Great

* For an account of the application of burnt earth, and the means of preparing it, see "The Rose Garden," Ninth Edition, pp. 51 and 52.

Eastern Railway. The drive to it is prettily varied by hill and dale; and the park, which contains some magnificent specimens of English oak, has a surface prettily and greatly diversified. The subsoil at a foot below the surface is clay, the surface soil is loam. The first group of Roses visited was at the back of the kitchen-garden adjoining the park; they formed two long beds of three rows each, a straight walk passing between, the edgings to which were composed of the Red Fairy Rose arranged six inches apart. This pretty miniature, which is richly deserving of more general culture, makes very neat edgings, flowers during the whole of the summer and autumn, and is never injured by frost. In this instance it was adorned with thousands of its beautiful ruby blossoms, whose brightness was rendered more striking by the multitude of dark green leaves with which they were surrounded. Among the kinds most conspicuous here we noticed—*French*: Colonel Coombs. *Hybrid Chinese, &c*: Blairii No. 2, Brennus, Triomphe de Laqueue, Charles Duval. *Noisette*: Bouton Nankin, Jaune Desprez. *Tea-Scented*: Moiret. *Microphylla*: Double Red. *Chinese*: Lady Warrender, Eugène Beauharnais. *Bourbon*: Madame Desprez, Julie Deloynes. These and other popular kinds are planted indiscriminately. Passing thence we entered a small garden of a semicircular form, one side of which is supported by a handsome belt of spruce firs, and the other lies open to the sun. The first object observed here was a bed of mixed kinds, standards and half-standards, the former being planted in the centre, and the ground beneath covered with dwarf plants of the old Cabbage Rose. In this bed we particularly admired—*Bourbon*: Georges Cuvier. *Noisette*: Solfaterre. *Hybrid Perpetual*: Lady Alice Peel. *Chinese*: Tancredi, foliage and flowers very fine. *Tea-Scented*: Narcisse. Following a walk running by the side of the spruce firs, we found many beauties to admire in a border planted with standards. *Noisettes*: Euphrosyne and Ophirie. *Tea-Scented*: Buret, Caroline, Pactolus,

Barbot, and Elise Sauvage claimed attention, no less for their bewitching beauty than for their delicious fragrance. There were also fine standards of *Bourbons*: Paul Joseph (growing very vigorously), Bouquet de Flore, Madame Tripet, and Comice de Seine et Marne. *Hybrid Perpetuals*: De Neuilly, Dr Marx, Duc d'Aumale, Rivers, and Prudence Ræser. From here we proceed to the American garden, which is a circle surrounded with trees. There are five beds of American plants, and standard Roses are planted round the outside, some of which were suffering from their proximity to the large trees. There were fine specimens of *Hybrid Perpetual*: La Reine. *Chinese*: Eugène Beauharnais. *Tea-Scented*: Clara, Niphetos, and Madame de St Joseph. A few steps more brought us to the shrubbery, and thence we passed to the lawn facing the house. The lawn slopes gently to the park, where the ground rises again, shewing a wood of beech trees on the right hand, and elegant groups of oak trees in the distance. On the lawn are various clumps of evergreens, their outline prettily broken and surrounded with flowering plants arranged with discrimination and taste. Interspersed are single specimens of ornamental trees, rustic baskets filled with flowers, and, what is of chief interest to us, four circular clumps of Roses. One is composed of dwarf-standard Autumnals exclusively, and the ground beneath is planted with mignonette and cloves. There is also a clump of dwarfs on their own roots. These clumps are planted with the best and most popular sorts, which it is needless to specify. The situation is much exposed, but nothing could be in better health or bloom. Among such a crowd of interesting objects there is a danger of overlooking some; but a standard of Leopoldine d'Orleans, standing alone on the lawn, must not escape notice. It was trained as a Weeping Rose, and formed a beautiful single tree. We now entered the French garden in search of the last group of Roses, and a gay and varied scene it presented.

On the upper bank was a group of mixed Roses, principally standards, supported at the back with laurels, the outline beautifully irregular. In the front grew scarlet pentstemons, antirrhinums, and the Double White Feverfew, forming a most agreeable mixture. A small hexagon bed, planted with that lovely Moss Rose Celina, the ground beneath covered with the Lobelia erinus, was a perfect picture. How beautiful were the crimson flowers of the Rose! and how admirably were they set off by the azure tint of the lobelia glistening through the openings of the foliage! As we gazed on the Rose-buds just opening to the sun, the "flowers yet fresh with childhood," while the songs of innumerable birds arose from the copses and trees which surrounded us, the words of the Eastern poet crossed our mind—"The nightingales warbled their enchanting notes, and rent the thin veils of the Rose-bud and the Rose." But the beauties of this spot were not wholly of Roses. There were also clumps of verbenas, scarlet geraniums, and other gay plants in full bloom, relieved by the occasional introduction of raised rustic baskets. At the bottom of this garden is a second bank of Roses facing a walk, tall standards at the back, with a gradual descent towards the walk, until the front row are dwarfs. These are also the popular kinds, planted promiscuously, and very thick, so as to present a mass of colour. This point is thoroughly gained, and a row of seedling calceolarias, planted just within the box-edging, gives a charming finish to the whole.

HODDESDON.—*Proprietor*, JOHN WARNER, Esq.—*Gardener*, Mr WILLIAMS.—This beautiful garden is about a mile from the Broxbourne station on the Great Eastern Railway, and is remarkable for the diversified surface it presents. On the lawn fronting the house is a row of tree pæonies, and fine specimens of the weeping elm, the Abies deodara, Daphne pontica, Fern-leaved Beech, and other ornamental trees. On the upper end of the lawn is a

raised terrace of considerable length from which a fine view of this part of the garden is obtained; the Essex hills, embracing part of Nazing Common, affording an agreeable prospect in the opposite direction. A shaded walk descends "slowly winding" to a canal, over which a rustic bridge is thrown; the scene enlivened by an excellent imitation of rocks formed of brick and cement thrown with careless hand in the bed of the stream. Near this spot is a rustic building which perfectly realises the idea of—

"The calm retreat, the silent shade ;"

and an agreeable encounter on a summer's day is a retreat so pleasantly shaded, suggesting, in addition to the ordinary enjoyments of gardening, ideas of coolness and repose. But our path lay onward, and we pursued it till we entered the Dahlia garden, where we were confronted by a Gothic arch in ruins, covered with ivy, and in judicious connection therewith were antique windows apparently dilapidated by the hand of time. On the side of this garden, adjoining the lawn, was a border of Roses, five plants deep, formed of standards and dwarf-standards. It contained the usual popular sorts. Among the new ones were Moss Lancii and Géant des Batailles, whose brilliant tints recalled the description of Lovelace :

"Vermilion ball that's given
From lip to lip in heaven ;
Love's couch's coverlid."

In the centre of this garden is a column of Roses ; several plants, principally Sempervirens, being planted at a little distance from each other and then united into one mass. The effect of this column was decidedly good, and it is worthy of imitation. There was also a plant of Leopoldine d'Orleans standing alone, trained as a weeper, the finest specimen of such we had ever seen, and a splendid Félicité Perpetue but little inferior. We also

noticed the Single Ayrshire trailing over and around a large oak, whose trunk it completely encircled and enlivened with its foliage and blossoms, and this was no mean feature in the scene. Here we paused for a moment to admire fine specimens of the *Paulownia imperialis* and *Bignonia catalpa*, when our ears were greeted by the murmuring of a distant waterfall. And agreeable indeed it was. Nay, more; sweeter far just then than the sounds of the sweetest music, calling up in imagination all that seemed required to amplify and complete the harmony of the scene—associating the freshness of the streamlet with the fragrance of the flowers. We turned our steps thitherward, for it was not far, and found it to proceed from a neighbouring brook, by the side of which was a rustic seat covered with ivy, honeysuckles, and Evergreen Roses. It was neither costly nor grand, but it was natural, and fancy applied to it Spenser's description of—

“—— an arbour green dispread,
Framed of wanton ivy flowering fair,
Through which the fragrant eglantine did spread
His prickling arms entrail'd with Roses red,
Which dainty odours round about them threw.”

This was indeed a delightful spot; but we dared not linger. A few steps more and we found ourselves in the Rose garden. The soil, although naturally loamy, was thought not sufficiently good, and the beds were originally filled with prepared soil. In the centre of the garden is a Rose temple. The ground on which it stands consists of four beds of equal size, segments of a circle, the soil being raised to form a mound about four feet high. Twelve Gothic arches, the standards of which are of iron, seven feet three inches high and six feet three inches apart, describe the outside of the circle. From these rise several rods which meet at the top, and are united to a rod rising from the centre to form a dome. Two walks pass trans-

versely through the centre of this temple, thus leaving four arches for ingress or egress. A seat surrounds the central support. Among the climbing Roses which covered the frame-work we observed—*Macartney*: Maria Leonida. *Hybrid Chinese*: Fulgens, Brennus. *Sempervirens*: Leopoldine d'Orleans, Princesse Louise. *Noisette*: La Biche. *Multiflora*: Laure Davoust. *Ayrshire*: Ruga. In the same beds with the Climbing Roses were interspersed various dwarf hardy kinds on their own roots, to fill up the ground. Various beds surrounded the temple, which were planted with standard Autumnal Roses, of which the following were the most striking—*Bourbons*: Cardinal Fesch, Gloire des Rosomanes, Le Grénadier, Phœnix, and Bouquet de Flore. *Chinese*: Gouvion St Cyr, and Eugène Beauharnais. *Tea-Scented*: Belle Allemande, Niphetos, Elise Sauvage, and Bougère. There are three rustic figures mounted on pedestals introduced round the exterior with good effect. Beyond these is planted a hedge of dwarf Scotch Roses, over which we caught a glimpse of the lawn studded with various ornamental trees and plants. We wished to take a look at the Pinetum, where the specimens, though young, are interesting; but time, alas! forbade. The Bath garden, too, was before us, and though not remarkable for the rarity of its plants, through this we must necessarily pass. In front of the bath is a prettily-designed fountain, playing cheerfully enough, and from which a straight walk with a border on either side leads to a magnificent cut-leaved alder, whose branches are upheld with arches covered with Climbing Roses. Following the bank of the canal, we pass before a figure of Neptune reclining on a rock rising from the waves, with a fountain playing over and around it. The island is planted with weeping ash, weeping willows, and laburnums at its edge, while scarlet thorns and tulip trees occupy the centre. On this side of the canal is a lawn sloping to the water, with a row of free-flowering showy standard Roses in front. The next object of attraction is a span-roofed

house, built expressly for the cultivation of orchidaceous plants, several fine specimens of which were in bloom. The skill with which these plants are cultivated needs no comment at our hands ; the prizes obtained at the principal flower shows sufficiently attest the fact. The lawn is decorated with flower-beds, among which single specimens of standard Roses are interspersed. We noted the following as the best—*Boursault*: Elegans. *Hybrid Bourbon*: Coupe d'Hébé, Las Casas. *Bourbon*: Queen, Madame Desprez, and Cardinal Fesch. The natural soil of this garden is gravel ; consequently the flower-beds are filled with prepared soil. A plant of the Cloth of Gold, which had occupied a south wall for three years, had never flowered. By the side of it grew the Single Macartney, which flowered freely and elicited general praise. A line of arches covered with Roses and honeysuckles crosses the lawn, and produces a very pleasing effect. Maria Leonida (Macartney) and Leopoldine d'Orleans (*Semper-virens*) were trained over a seat, the branches drooping naturally from above with a careless grace, which art might in vain try to imitate. A small bed of the crimson Chinese Rose "Fabvier," its brilliant flowers glowing in the sun, was the last object to rivet the attention.

At the end of this garden, adjoining the dwelling-house, is a conservatory, well stocked with flowering plants ; there is also an orange house, containing some fine specimens of oranges and camellias.

BROOKMAN'S PARK.—*Proprietor*, R. W. GAUSSEN, Esq.—*Gardener*, Mr ELLIOT.—This seat is situate on the high road from London to Hatfield. It is three miles from the latter place, and nine miles from the Broxbourne Station of the Great Eastern Railway. The drive from Waltham Cross to Brookman's is a delightful one. An object on the road worthy of notice is Goff's Oak, a venerable ruin, which tradition tells us was planted in the time of William the Conqueror. Its huge trunk is but a shell,

although the summit is still crowned with verdure. After passing this relic of antiquity, the road leads down a precipitous steep, and over a gentle ascent to the ridgeway, a road about two miles long, cut through woods of oak and fir, which re-echoed with the voices of their feathered inhabitants. On reaching the desired place, the collection of Pot-Roses was first met with. They were not plunged, but standing under a wall. Among the new kinds were observed—*Hybrid Perpetuals*: Soleil d'Austerlitz, Madame Trudeaux, and Cymedor. The Summer Rosery is comprised within a walled square, laid out in square beds. The borders under the walls are filled with American and herbaceous plants, and the walls are covered with standard Roses, principally summer bloomers, trained in the manner of fruit-trees. *Ayrshire*: Ruga. *Sempervirens*: Félicité Perpetue. *Hybrid Chinese, &c.*: Celine and La Majesteuse. *Bourbon*: Madame Desprez. *Noisette*: Lamarque (splendid), and La Biche—were among the most striking. In the centre of this garden is a Rose temple, the outside of which consists of eleven pointed arches; from these chains rise to a high standard in the centre, forming graceful curved lines, which it is intended to cover with Climbing Roses. The following are some of the kinds planted to accomplish this object—*Ayrshire*: Ruga. *Multi flora*: Russelliana. *Hybrid Chinese*: Blairii No. 2 and Flora M'Ivor. On a south wall was a standard Cloth of Gold, which does not flower in summer, but blooms well in autumn from the second growth. The beds in this Rose garden are planted with standards and dwarfs intermixed; the plants having been added at different times without strict regard to the proper heights, the arrangement is somewhat incongruous. We were informed, however that a fresh arrangement is contemplated. The following were noted as fine specimens—*Hybrid Bourbon*: Coupe d'Hébé, Henri Barbet, and Las Casas. *Hybrid Chinese*: Belle Marie. *French*: Grandissima, Duchess of Buccleuch, Boula de Nanteuil, and Latifolia. *Hybrid Provence*:

Aspasie. *Damask*: Œillet Parfait. A bed of dwarf Red Moss and a bed of mixed Autumnals complete this garden. The American garden, through which we have to pass on our way to the new Rosery, consists of a large circular space of lawn ground inclosed with a laurel bank, and studded with round groups of American plants, dahlias, and various bedding plants. Adjoining this is the new Rosery, which comprises a series of fifteen circular clumps thrown together on a lawn, and planted principally with Autumnals. The plants are dwarf-standards and dwarfs. The groups are not kept separate; the varieties are planted indiscriminately. These clumps having been recently formed contain many new varieties. The following were thought good—*Hybrid Perpetual*: Duc d'Alençon, Comtesse Duchatel, Olivier de Serres, La Reine, Robin Hood, Baronne Prévost, very large, Le Commandant Fournier, Comte de Montalivet, Sydonia, Leonie Vergier, Cornet, Coquette de Bellevue, La Bouquetière. *Bourbons*: Amenaide, Lady Canning, Cézarine Souchet, Comte d'Eu, Marianne, Theresa Margat, Souvenir de Malmaison, Speciosa, Madame Tripet, Angelina Bucelle, Glory of Paris, Vicomte de Cussy, Julie de Fontenelle, and Le Florifere. *Chinese*: Duchess of Kent and Joseph Deschiens. *Noisette*: Pourpre de Tyre. *Tea-Scented*: Devoniensis. On the lawn, among and surrounding the Roses, we observed fine single specimens of Cedar of Lebanon, Cut-leaved Alder, Silver Fir, and American Oak. The soil here is a loose loam, which absorbs water readily; it is about eighteen inches deep, resting on a bed of gravel. Returning to the American garden, we traversed a walk about seventy yards long, completely over-arched with hornbeam, and which leads to the lawn running up to the front of the house. On the lawn were groups of clumps, in which the usual bedding plants were introduced. From the west front of the house there opens a most extensive prospect. Looking down a gentle slope, a lake is seen in the low ground; around it, and on the rising ground, are

clumps of oak trees; while an extensive range of hills, bounded only by the horizon, appears beyond. Quitting this spot, we approached the Fountain-garden, which is in the form of a horse-shoe, with a wall at the back, and laurel banks on either side. There is a fountain in the centre, and the beds are filled entirely with verbenas.

REMARKS ON THE CULTIVATION OF TEA-SCENTED ROSES AS CONSERVATORY CLIMBERS.

[From "*Paxton's Magazine of Gardening and Botany*," 1849,
p. 43.*]

WHO can contemplate with indifference the beauty, variety, and perfume of the Queen of Flowers, or who can fix a limit to the circle over whose affections she holds sway? Cherished alike by peer and peasant, her circle of admirers is wide as are the dominions of our beloved Sovereign — the Rose of England. Growing spontaneously in almost every latitude of the northern hemisphere, admired alike by the highly civilised inhabitants of Southern Asia, and the less-favoured natives of the icy north, wheresoever it dwelleth its presence is hailed with joy and gladness. Sweet emblem of innocence, of virtue, of humility, whence derivest thou that power which gives thee such an influence over the mind of man? Truly, the Rose of the desert in its loneliness is suggestive of modesty and retiring worth, and the gorgeous masses of our flower gardens are realisations of grandeur, beauty, elegance, and grace.

No wonder, then, that thy declared admirers are so numerous, that thy presence should be sought so eagerly

* This article was written by the request of Mr (afterwards Sir Joseph) Paxton.

amidst the motley throng. No wonder that thou greetest us at every step, from the garden of the humble cotter to the Rosetum and conservatory of the wealthy and the great.

But it is to advocate the claims of a particular class of Roses, for a particular purpose, that I now take up the pen, and these are the Tea-Scented. What we have said of other Roses, may be said of them ; although the eye of the florist may pronounce them less perfect than the descendants of other species. The large guard petals at the circumference of the flowers, and the want of regularity in the arrangement of the inner petals, are not, perhaps, exactly in harmony with his taste. And we do think that their condemnation by some florists has in a great measure blinded the flower-loving public to their merits. Without courting controversy, we feel it incumbent on us to state our views in reference to this point, believing that a just estimation of their value would lead to their more general cultivation. And first let it be remarked that we do not yield them up as florists' flowers. Indeed *they are not*, if successful strivings to bring them to an ideal standard be the criteria of such. They resist this arbitrary process, and in proportion as they approach what it is said they should be, they lose their own peculiar properties, merging all their natural beauties in one single fancied point. Fortunately, however, they are not very tractable in this respect. The Tea Roses originated in 1848 resemble those of 1810 ; they have the large guard petals, the irregular disposition of petals, and, for the most part, the same drooping habit and glossy leaves as those of yore. Notwithstanding this, the varieties we possess furnish us with abundant proof that the object has been attempted, and the slight alteration apparent consisting in the size of the flowers and variety of colour we believe not due to the breeding for a particular result, but the natural results of cultivation. Strange that they should thus resist change, when the types of other groups of more recent origin are lost in the

varying characters of the floral races. Beautiful in their irregularity, distinct in their properties, unique in appearance, we confess that we admire them above all others, and that their charms for us would depart were they aught else than what they are. As well might we complain of the diversified surface of the landscape, as of the graceful irregularities in this charming group of Roses.

It has been said that the objections of minds floriculturally schooled has done something to render them unpopular, but there is another cause existing in their delicacy and susceptibility of frost. It is not intended here to dwell upon their culture in the open air, though I have proved by experiment that they may be grown successfully, and with little trouble, in this manner. We will, for the present, dismiss this point. I intend here to confine my remarks to their cultivation as climbers for the conservatory.

But am I at the outset met with the response "We have abundance of such plants." Then I rejoin "Is not the variety these will afford, combined with a delightful fragrance, a sufficient plea for their introduction?"

Then of their cultivation. We will suppose plants intended for this purpose to be purchased in the spring. They are perhaps in small pots, therefore unless the situation be freely exposed to air and light they should be shifted into larger pots, using a compost of leaf mould and loam, and cultivated with care during the first summer. In the spring following they will be strong and well rooted, and may be planted out in prepared soil—loam and leaf mould as before. They may be pruned rather closely, and watered with weak liquid manure as they become dry, and the growing shoots trained with care according as they are wanted to clothe round pillars or trellis-work.

They will probably rise from two to three feet the first year; and as they become evergreen under this treatment they will grow and flower almost incessantly, even in the depth of winter, if suffered to do so. But as a

period of rest is necessary in order to ensure rapid progress, this may be granted about midsummer, when Roses abound out of doors—or immediately after a general flowering—by keeping the soil about the roots almost dry. When it is thought desirable to excite a new growth, it is only necessary to prune and water the plants, and the end is attained. If they are fortunate enough to escape pruning by the cutting of the flowers for bouquets, a second pruning on the completion of flowering will be needed, and at this time any misplaced or unhealthy branches should be removed. The same course of culture may be gone through from year to year, training up the topmost branches till the height desired be attained.

For the satisfaction of any who may doubt the suitability of Tea-Scented Roses for this purpose, I would state that there are several plants in the conservatory at Orleans House, Twickenham, from ten to twelve feet high, and at the time I saw them, about a year and a half ago, they were most beautiful specimens, clothed with large handsome foliage, the flowers regaling us with their delicious sweets. The plants in the border of the conservatory of the Horticultural Society of London may also be referred to in support of my position; these, I should think (speaking from impressions only), are eight or ten feet high, and there are specimens nearly equal the size and beauty in many other places.

ON NEW ROSES.

[From "*The Gardeners' Chronicle*," Nov. 29th, 1856, p. 788.]

IT seems to have become a fashion to depreciate "New Roses," for what reason it is difficult to divine. Perhaps the fable of the "Fox and the Grapes" is not altogether inapplicable in the case. But that it is a fashion, and a mere fashion founded on a little truth and much error is my conviction, and for that reason I am induced to offer an investigation of the matter. Let me admit at the outset that numbers of worthless New Roses are annually palmed on the public at high prices, but this does not establish the position of your correspondent "A. R." that "the old Roses are the best yet." Surely he has just awakened from a long long sleep to recommend among 12 "not beaten yet" such second-rate kinds as La Reine, Madame Laffay, General Jacqueminot (Hybrid China), Louis Buonaparte, and William Jesse. The first is sometimes fine but very uncertain; the second small and transitory; the third loose, flimsy, and often washy in colour; the fourth of indifferent shape; and the last little more than semi-double. Where would "A. R." find himself if he relied on such kinds in competition? Surely at the bottom of his class; and their position is about the same viewed from the mere decorative point of view. No one can regret more than I do the dishonest practice of sending out with falsely flaming descriptions so-called New Roses, which are neither novelties nor improvements. The practice is too general with flowers and fruits too, and deserves to be strongly reprobated. I have known a raiser of seedlings to offer from 10 to 25 new kinds in one year at from 10 to 25 francs each, and not one of them prove worth as many sous. The remedy is, I apprehend, to be found not in repudiating novelties *in toto*, but by keeping a watchful eye on the sources whence real

acquisitions proceed, and whether a dealer errs from ignorance, carelessness, or selfishness, ignoring him in future transactions. Not that this rule should be too strictly enforced; no point in the entire range of horticulture is more difficult to arrive at correctly, there must be some risk on the part of purchasers, all will err occasionally but there are those who err continuously. Now for the examination of facts. For twelve proved New Roses, I would invite the attention of your readers to the following—*Hybrid Perpetuals*: General Castellane, General Jacqueminot, Gloire de Vitry, Lord Raglan, Madame Desirée Giraud, Madame de Cambaceres, Madame Masson, Madame Martel, Madame Vidot, Souvenir de Leveson Gower. *Bourbon*: Prince Albert; and *Tea-Scented*: Gloire de Dijon. Although these have issued from the hands of the raisers within a space of two or at most three years, I would place them in the scale against the twelve of "A. R." (which are a sort of *omnium gatherum* of all time), notwithstanding the presence of the ideal Rose Coupe d'Hébé in the opposite balance.

Thus far I write boldly, because supported by ascertained facts, but I am now about to enter an imperfectly explored territory to grapple with a more difficult question—the improved New Roses. The difficulty in judging of the quality of New Roses arises from the roots becoming dried in their transmission to this country, so that they seldom fairly establish themselves the first season. What we are about to offer now must therefore be taken on trust, but we believe we shall be found correct in the main. Of the 70 or 80 new varieties imported and flowered here last season the following bloomed to our satisfaction—*Hybrid Perpetual*: Arthur de Sansal, Bacchus, Dr Henon, General Simpson, Impératrice des Français, Mathurin Regnier, Madame Knorr, Ornement des Jardins, Pœonia, Prince Noir, Souvenir de la Reine d'Angleterre, Triomphe de l'Exposition, and Triomphe d'Avranches. One word in conclusion. Permit me to ask those Rose amateurs and dealers who

repudiated the New Roses two or three years since (and there were many), whether their collections have not suffered in consequence? And I believe there are as good New Roses now as then. The object is to reach them; to draw out by the exercise of the judgment the few real diamonds from amidst the multiplicity of paste imitations glittering on every hand. To wait till these are known—demonstrated—to be invaluable is to lose all the hope of expectation, the surprise of novelty, and one or two years of the enjoyment of possession.

[From "*The Gardeners' Chronicle*," Dec. 27th 1856, p. 855.]

WHATEVER I may think of your correspondent "A. R.'s" knowledge of Roses, I must give him credit for skill in argument. I humbly submit, however, that his skill is that of the dexterous pleader rather than of the sound logician. Now "A. R." says, "The old Roses are the best yet," and among "12 not beaten yet" he includes *La Reine*, *Madame Laffay*, *General Jacqueminot* (Hybrid China), *Louis Buonaparte*, and *William Jesse*. I, in good faith, differ from him, and am content to leave the public to judge between us; to decide whether these Roses are or are "not beaten yet," and whether after reducing the numerous varieties of Roses to "the 12 best" (mark this) they are more than second rate. This is the real question at issue between us, and as "A. R." writes anonymously, I might be allowed to leave the matter here without noticing the insinuations contained in his article of last week. But as the triumph of truth is alone my object, I will endeavour to clear away the dust-clouds in which his dashing charge has enveloped the matter. In the first place, he ought in fairness to have seen that in my original article I spoke of these Roses in comparison with his 12 "not beaten yet;" whereas in the catalogues they are spoken of in comparison with about 700 varieties. This alone explains the apparent discrepancies so triumphantly paraded.

Things are small or large only by comparison; thus, Madame Laffay is small in comparison with 12 "of the best" if of full size in comparison with Roses in general, and so on with the rest. Does he not also see that La Reine may be at once "magnificent" and "uncertain," Louis Buonaparte "glowing," large, and full, but "of indifferent shape?" His inference that "either the dealers' catalogues are intended to take in the uninitiated by their splendid descriptions, or else the Roses are what he says they are," is puerile in the extreme. I apprehend the uninitiated do not generally make sweeping statements in matters with which they are imperfectly acquainted, and then read the different catalogues for fragments in support of their assertions. If they read without prejudice they will not select the 12 recommended by "A. R." as the best—at least the catalogues I have seen (I have not seen Rivers') do not make them appear so. To show how little practical knowledge "A. R." possesses of the case he has in hand, he insinuates that the dealers make the New Roses appear better than they are from interested motives. This is quite the reverse of my experience. For years past we have found the New Roses sell faster than we could propagate them, if backed by our own recommendation, whereas the stock of old favourites is all but illimitable. I do not wish to become the apologist for the Rose-growers' catalogues; they need nothing of the sort at my hands. The catalogues may not be correct in every minute particular, but to argue thence that they are "intended to take in the uninitiated" is ungenerous and unjust. To show, however, that the many attach more value to them than "A. R." does, I may mention one or two facts in connection with our own: more than 20 editions have been published, amounting to nearly 50,000 copies, and the circulation is increasing every year. It would have been more generous if "A. R." had ceased to write anonymously before casting aspersions on a numerous and respectable body of men who labour hard for the

gratification of others with very moderate profit to themselves. Unless he think proper to pursue this course, to stand forth in substantial shape a real man, he must excuse me from continuing this controversy. I confess that I am not sufficiently Quixotic in spirit to find satisfaction in wrestling with a shadow.

[From "*The Gardeners' Chronicle*," February 7th 1857, p. 85.]

IN an article on New Roses in last week's *Chronicle*, extracted from the *Florist*, Mr Rivers expresses a hope that some of the correspondents will "quietly give their opinions on the subject." In a previous article in the *Florist* by Mr R., he says—"The new Roses sent out in 1855 have not cut a brilliant figure." In an article published in the succeeding numbers, and penned before I saw this statement, I gave it as my deliberate opinion that "the present year had been more fruitful than many in the introduction of really valuable novelties." These antagonistic views may, I think, be fairly taken as the points at issue. Subsequently, however, Mr R. qualifies his remarks by the words "I ought to have added 'few of,' which gives the exact state of the case," naming five varieties of 1855 and two of 1856. It unfortunately happens that few can pass an accurate judgment on these differences of opinion; the many may, however, shortly be in a position to do so if they will only watch and wait, and in the meantime it may prove interesting to hear the question quietly discussed. I shall commence my remarks from the first article in the *Florist* (November 1856). The statistics there given merely show what was known to every cultivator of Roses, that numbers of worthless new kinds are annually sent out at high prices, and it is only just to say that Mr Rivers is neither the first nor the only one who has used his influence to check this dishonest practice. I cannot, however, agree with Mr Rivers "to excuse our floral friends over the water" for

sending out new Roses under false descriptions that cannot be honestly recommended; it is only due to them, however, as a body to say that there are those among them who have as high a sense of honour as any English cultivator.

Whatever the New Roses of 1855 may have done at Sawbridgeworth, I adhere to my opinion formed from the blooming here, that the present season has been more prolific than many in the introduction of valuable novelties.

I cannot agree with Mr R. in the high value he sets on the "Perpetual Moss Roses." Certainly they are new, and there is something in the name, but I regard our present varieties merely as the germ of a group which will require years of close and successful cultivation before its presence becomes indispensable in the Rose garden. At the close of this article Mr R. remarks—"One, after thirty years of admiration, is apt to become fastidious, and to require great perfection in shape, in colour, and in habit." This is no doubt true, and perhaps may be taken to account for the severe treatment the New Roses of the last year have met with at his hands. Although in the *Florist* of October 1855 Mr Rivers writes—"One almost fears the point of perfection has been attained, and that no better Roses than those we now possess can or will be originated"—it would, perhaps, be hardly fair to infer that Mr R. doubts the progression of races. This indeed cannot be, for while depreciating New Roses he recommends a list of no less than twenty-eight new varieties of Pears (*see Gardeners' Chronicle* of the 27th of December last). It seems rather that he has forgotten the old proverb—"Nature does not advance by leaps," and expects too much from his "old friend of thirty years standing, the Rose." This proverb applies with peculiar force to the various families of flowers. Every raiser of seedlings knows that Nature does not advance by leaps.

To look on New Roses as they appear from year to year improvement is perhaps not great.

If we are seeking for striking results we must look backward into the storehouse of time. I remember many years ago the late Sir Abraham Hume, who was a great patron of gardening, presenting my father with half-a-dozen roots of Single Dahlias. How they were prized! Every seed was saved and sown, and when the single row of flat petals surrounding a yellow disc was converted into a double flower, how great was the acquisition? Those were halcyon days for lovers of dahlias. The ground was new and uncultivated, and numbers of valuable kinds, real acquisitions, were readily obtained. As the improvement went on, "Excelsior," the improver's motto, his standard ever receding as he advanced, the ascent became more difficult and gradual. But it still went on. If we compare the best modern dahlias with the original single ones, or even with the early double ones, we cannot fail to be impressed with the results. I remember also my young eyes being delighted with the beautiful portraits of pelargoniums in Sweet's work, but what are they in point of beauty compared with the pelargoniums of this day? Here again Nature did not advance by leaps, the improvement was gradual, and if we had neglected those very gradual advances we must have foregone the present grand results. But let me come to my Roses, and I will in this instance look back eight years only, in order to show more vividly the effects of gradual improvement.

In 1848 the "Rose Garden" was published, wherein all Roses then under cultivation, good and bad, new and old, are described. In 1853 (a period of five years) the varieties since introduced were described in a supplement, and among them I find—*Moss*: Duchesse d'Abrantes, Gloire des Mousseuses, Madame Alboni, Princess Alice (Paul's), the last-named not one of the "others" mentioned by Mr Rivers as purchased in France—the purchaser retaining the right of naming them—but raised by my own hands from

seeds gathered and sown here. *Hybrid French*: Comtesse de Ségur. *Hybrid Chinese, &c.*: General Lamoricière, Paul Ricaut, Vivid (also raised here). *Hybrid Perpetual*: Alexandrine Bachmeteff, Angelina Granger, Auguste Mie, Baronne Hallez, Baronne de Heckeren, Caroline de Sansal, Comte de Nanteuil, Duchesse d'Orleans, Enfant du Mont Carmel, General Bedeau, General Brea, General Castellane, Graziella, Joan of Arc, Lady Stuart, Laura Ramand, Lion des Combats, Louise Peyronny, Madame Duchere, Madame Phelip, Madame Rivers, Noemi, Paul Dupuy, Prince Léon, Rosine Margottin, Souvenir de Leveson Gower, Standard of Marengo, Triomphe de Paris, William Griffiths, Louise Odier. *Tea-Scented*: Canary, Madame Villermoz, Narcisse. *Bourbon*: Dr Leprestre, Prince Albert (Paul's), Reveil, Sir J. Paxton, Souvenir d'un Frère, Vorace.

Here are forty-eight really valuable varieties introduced in five years, and I would ask what would our Rose gardens of the present day be without them? So good are they that they have become "familiar in our mouths as household words." And I believe there are as good New Roses being gradually introduced now as then, although accompanied as then with shoals of rubbish.

It is very pretty to talk of fine crimson Tea Roses, yellow Hybrid Perpetuals, and yellow Moss, but how are we to obtain them? It sounds like the echo of some nursery rhyme. Nature does not advance by leaps. I do not, however, say they will never be obtained, but they have been a desideratum long thought of and asked for, and their long absence proves satisfactorily to my mind that the most skilled in these mysteries yet lack the knowledge or means of obtaining them. Is it then wise to reject the good things provided because we cannot at once realise some visionary desires?

The question of large and small collections I will, if you think proper, discuss next week.

[From "The Gardeners' Chronicle," Feb. 14th, 1857, p. 100.]

IN this my second article I will briefly consider the question of large and small collections of vegetables, fruits, and flowers, but more especially of Roses. I agree with Mr Rivers that it is desirable to cut down the varieties of vegetables, fruit trees, and flowers to a "sensible standard," and this would tend as much or more to the advantage of the grower than to that of the purchaser. But I apprehend this theory may be pushed too far, and is easier to accomplish with vegetables and fruits than with trees and flowers, because the palate is less variable than the eye of taste. I would say to all who have not already done so, *cut down your lists so far as to render it impossible for a purchaser to select anything bad or indifferent*, but beyond this, as a large grower, I am not prepared to go. To confine my remarks to Roses, Mr Rivers must from long experience be well aware that persons possessed of an equally correct taste will not always select the same varieties of flowers. What one will reject another will highly approve, and in this dilemma, who is to fix the standard? Does he think the amateur will waive his claim to select such varieties as may please his own taste in favour of any grower's standard, however "sensible?" I opine not, and in support of this opinion I make the following extract from the January number of the "*Scottish Gardener*," where the Rose question is cleverly reviewed by a writer apparently seeking truth without prejudice. "Some nurserymen cultivate only the Roses which have a secondary period of flowering in autumn, and even Mr Rivers is swaying towards that result.

"Prefixed to his catalogue of Summer Roses he has the following paragraph—'The numerous varieties of this class, once nominally more than 2000, have now become of secondary interest, except for showing as single blooms for prizes, owing to the introduction of so many beautiful Autumnal Roses, more particularly the varieties of Hybrid

Perpetuals, which now comprise all that is most perfect and beautiful in form and colour. A Summer Rose tree, whether bush or standard, when its flowers have passed away is a most uninteresting object; in a few years it is most probable that with the exception of Moss Roses, Summer Roses will be spoken of as things that were.'

"With all deference to Mr Rivers' acknowledged authority and taste, we must protest against this doctrine, in behalf of Scotland at least.

"We will not give up our Summer Roses. They are on the whole hardier and better adapted for our climate than the Hybrid Perpetuals, many of them raised at Lyons, or in some of the warmer districts of France, and with a large infusion of China blood in them. Many of the former, such as *Coupe d'Hébé*, *Chénédolé*, *Kean*, *Madame Soetmans*, and some hundred others in the same families, "make glorious summer" in July, when our weather is at the finest, and at that season, so far as we have seen, they are as yet not quite equalled by the Hybrid Perpetuals. In Scotland, at least, the flowering of the latter in September and October—greatly to be prized in itself—is only a faint Indian Summer compared with the full orb'd glory of the former season."

Now we can fancy another class of growers, whose soil is light and warm, saying "We will not give up our very full Roses, although in the best Rose soils they may be indifferent or uncertain;" another class, "We will not give up our sweet-scented or brilliantly coloured flowers, although the florist may pronounce them deficient in shape or fulness;" and so on throughout the whole range of varieties.

In support of growing a moderately large collection of Roses I would say a cultivator with a large connection has not only to consult a variety of tastes, but a variety of soils, climates, purposes, &c., and it is well known to the least experienced that the same varieties are not equally good in different climates, situations, and soils. Thus the

south and west of England receive annually thousands of Roses which would not flourish in the north, and thousands travel to the north which would not meet with general approval if transmitted to the south or west.

Again, the United States and some of our colonies absorb a different stock, while the West Indies and similar climates take varieties which would be rejected by all others. Now, I apprehend it should be the object of a large grower to meet the requirements of all; if he cultivate only for one class of customers he must rest satisfied with a very limited trade. But I will go back to the question of taste, and seek an illustration from an analogous point of view—the article of dress. What is it that draws the crowds from various parts of the country to the large drapers' shops in London and elsewhere? Evidently not quality and cheapness alone or combined, though these may have much weight in the matter; the grand secret is novelty and variety, the power of choice. Where, then, is the advantage of the small list over the large one—the difference being only as 450 to 700. The large collection includes the various items of the small, and many equally select besides. Never was a greater fallacy promulgated than to say the small list offers the purchaser advantages, provided that, which is a fair assumption, nothing bad is inserted in the other, and the descriptions are equally accurate. Those who know Roses can easily pick out the best for their individual purposes; those who do not, will not find perplexity in the smallness of the difference. The question of a large or small collection of a flower seems to me more a grower's than a buyer's question. If a grower does not mind the trouble of cultivating a moderately large collection of Roses of different degrees of merit, do the interests of the buyer suffer? Nay, rather the reverse. Many buyers are not willing to pay first-class prices, and there are many purposes for which first-class Roses are not absolutely required. The grower of a moderately large collection acts on the principle of the publisher who

publishes at the same time two editions of a book; the one in the first style large and handsome, the other small—less elegant—but still good and useful. Now, by this plan it is found the sale of the best edition is not sensibly diminished, while the cheapness of the other creates a demand among those who while admirers would not otherwise become purchasers. Thus an extended sale is secured, and producers and purchasers are mutually benefited. In conclusion, I would ask the uninitiated to pause and consider whether in the recent efforts to depreciate New Roses there may not be an interest of old Roses—the old shopkeepers of commerce—as well as of new? And in the complex movements on this wondrous ball I would say take heed lest in steering to avoid Charybdis you strike against Scylla.

[From "*The Gardeners' Chronicle*," February 21st 1857, p. 119.]

I ENTIRELY agree with Mr Rivers in his general views as regards trade, which, if I rightly comprehend his article of last week, amounts to this:—We should consider it our privilege as well as interest to protect from fraud those who trust in us. Further let me assure him that I entertain the same friendly feeling which he displays. If, being comparatively a young man, I may be allowed to go so far, I would also say with him, "I have no fear, or envy, or jealousy," and if I cannot add, "I have lived long enough to forget them," I believe I may sincerely say, "I have ever been too busy and too happy in my calling to find room for their existence or conditions for their growth." The question of Old and New Roses is now fairly before the public, and had better be ended than suffered to degenerate into "idle talk." The most sceptical will doubtless have been satisfied by the abundance of well-attested evidence that the most questioned and maligned of my new favourites—The Gloire de Dijon—is not only first-rate but suited to a

climate very far "north of the Trent." My application of one phrase, "Nature does not advance by leaps," I must pause momentarily to defend. Mr Rivers says, "True as regards unassisted nature, but decidedly false when applied to gardening nature." Now I contend it is true in both cases, and that the question is one of degree rather than of fact. Mr Rivers fairly enough quotes certain instances in support of his views, which he styles "remarkable."

Now why, I would ask, are these instances considered "remarkable?" Is it not because they are of rare occurrence—and if so are they not exceptions—and as such do they not go to prove my rule? I am perfectly conversant with the cases quoted by Mr Rivers, and could adduce others within my own experience—witness Springfield Rival Dahlia—where these remarkable leaps have disappeared before the steady power of progressive culture. Would any vegetable physiologist, would any gardener (scientific or practical), seriously repudiate progressive culture, and be content to wait for these remarkable leaps? Few indeed are they, and far between.

The question of attaching the purchaser's name to a seedling is usually made a condition of the purchase. And for this reason:—the raiser is often unknown to fame, and the purchaser fairly enough uses his own name as a guarantee of good faith to the public. There is no fraud or deception effected or intended, and no secrecy that I am aware of is ever practised. The curious in these matters may readily ascertain the most minute known points of a variety's history.

A DAY IN THE ELYSIAN FIELDS.

[From "*The Scottish Gardener*" (1860), vol. ix., p. 109.]*

HIGH on an emerald throne, inlaid with gold and glittering with brilliants, sat Flora (the Goddess of Flowers), surrounded by a grove of orange trees. On her right hand were Veritas (the Goddess of Truth), Astræa (Justice), Bacchus (Wine); and on her left Vertumnus and his wife Pomona (Orchards); while at the foot of the throne reclined Priapus (the God of Gardens), Robigus (Mildew), Picumnus (Manuring of Lands), Bonus Eventus (Good Success), and other of the rural deities. Around were magnificent bowls overflowing with nectar, and golden goblets filled with purple wine. It was autumn, the fruits of the earth were garnering or garnered. Here lay a massive pile of luscious pine apples; there was heaped a gorgeous offering torn from the clustering vine; in one spot arose a goodly store of pears and apples; in another mountains of nuts and walnuts, while the abundance of downy peaches, figs, and pomegranates could only be accounted for by the balmy air and genial sunshine of the Elysian Fields. Tranquillity and happiness seemed indeed concentrated there—the branches of the orange trees were slightly stirred by the breath of zephyrs as they bent beneath the weight of their golden fruit, while the circumambient air was filled with the rich perfume which the various flowers exhaled.

It was indeed a scene of unearthly beauty, a world of spectral illusion but of seeming substance, a sight such as mortals sometimes behold in Dreamland when the imaginative soul shuffles off for the time her mortal coil,

* This article was written in reply to an attack on myself, and which at the same time unduly lauded the Manetti Stock; it was signed "*Rosa Spinosa*," and appeared in the "*Florist*," for January 1860.

and goes in quest of what she is yet to see in "realms untravell'd by the sun." It was "a pensive though a happy place," full

"Of all that is most beauteous, imaged there
In happier beauty—more pellucid streams,
An ampler ether, a diviner air,
And fields invested with purpureal gleams ;
Climes which the sun, who sheds the brightest ray
Earth knows, is all unworthy to survey."—*Wordsworth*.

But whence is it, that a slight susurrus is heard occasionally through the depths of the Elysian stillness? Is it the hum from the groves of *Platanus* "musical with bees," and grander far in their massive shades than those which waved over Plato and his scholars on the banks of the *Cephisus*? Or is it the chirp of the *Tettix* or *Cicada*, sitting on the bushes of *Amaranth* and *Asphodel*, "singing like a king," as *Anacreon*, the Greek wine poet, says, "and sipping the dew of immortality"? It seems to proceed from the earthward side of the *Styx*, and in fact is a faint echo of the stir of the great *Babel* where strife and noise incessantly prevail. What! do the brawls of earth reach even the Elysian fields? No: but they are not quite forgotten or unknown till the shades have drunk of the waters of *Lethe*. *Flora* is for the present in *Elysium*; and she must maintain her authority and do justice among her subjects even there.

Hence the assembling of the rural deities; hence the air of expectation and the portentous silence, broken only by fitful and approaching murmurs which reigned over those shady groves and flowery plains. It was evident that the time of some grave deliberation was at hand. A calm thoughtfulness sat on every brow, while on the foot of that emerald throne was inscribed, in letters formed with diamonds, sapphires, and rubies, *Justice to all and favour to none*. On a sudden the mystery was explained. *Pan* was seen rising from the banks of the *Styx*, playing on his rural pipe, attended by sundry satyrs, fawns, and

ægipans, who ushered into the presence of the assembled deities the spirits of Roses recently departed from the planet Earth. The mystery was this: Flora, in answer to the petition of the Queen of Flowers, seconded by the half-stifled moans of sundry of her ill-used subjects existing on a little island called Britain, had summoned a council of the deities, and Charon had been charged to land the deputation in the Elysian Fields.

"La Reine" having introduced the deputation, "Brennus," a fine old Hybrid China, with a good deal of the blood of the Gaul (*R. gallica*) running in his veins, rose to address the assembled deities. He had been chosen to state the case of his brother Roses, because, as he had suffered least, it was assumed that he would be able to speak without prejudice. He had not been starved or worried from the planet Earth in the same way as many of his brethren, but had been stubbed up by his master, who was rather fanciful, because he was only a Summer Rose! (Expressions of surprise.) The complaint of his brethren was this:—An attempt was being made, and had in some sort succeeded, to ignore the claims of their natural foster-mother, the Dog Rose, in favour of a stranger known as the Manetti, drawn from the sunny plains of Italy. There the latter grew and kept her leaves nearly the whole year round, and unfortunately could not rid herself of this habit in England; the consequence was, they were kept awake late and aroused early in the year when the climate demanded that they should be sleeping, and wearied, and debilitated, they became an easy prey to the greatest enemy of Roses in England—Messrs Autumn and Spring Frost. (Hear, hear, from Robigus.) But this was not all. Having liberally nurtured her foster-children during the first year of their existence, the Manetti seemed to become jealous of their growth, and ever afterwards to struggle for their abasement and destruction. Too often she succeeded, as some of the spirits now before them

would attest, and the object of the deputation was to implore the gods to disperse the mists which overspread the subject, and enable mankind to draw their inferences from facts exhibited in the clear broad light of day.

The Moss Rose (Mdlle. Rosa Bonheur) would not detain the assembled deities many moments. She had merely risen to say that she had been budded on the Manetti, and the first year grew like a willow, but what with the gross feeding of her fostermother, her constant self-assertion, restless temperament, and addiction to mildew, she (Mdlle. R. B.) never prospered after, and ultimately fell a prey to starvation and frost. The *Florist*, a journal which modestly assumed to be the organ of the rural deities (Expressions of dissent from all, the hair of Astræa starting up on end, while Priapus was so astonished that he turned a complete somersault)—well, she thought such was the case—the *Florist* advocated the cause of their common enemy, and she entreated the assembled deities to condescend to grant their prayer and remove the film that had recently bedimmed her aged eyes.

The Rosa Spinosa (the Scotch Rose) begged to say that the last speaker, Mdlle. Rosa Bonheur, had *painted* the case too forcibly. It was well known that she viewed everything *couleur de rose*, and what she said must not be taken literally. An ignoramus—(cries of Oh! Oh! and Order)—well wasn't he an ignoramus to spell Manetti with two i's—(uproar, amidst which Bacchus took a long draught of nectar)—well he would say a rose-grower—(hear, hear)—had tried to write down the Manetti, but he was a prejudiced humbug—(order)—and couldn't grow Roses on the Manetti or anything else. He had once spoken of Mr Rivers' book of Roses as amusing rather than instructive, and called the Manetti a "bubble." A bubble forsooth! He (Rosa Spinosa) knew it was not a bubble, and if asked why, he answered emphatically, "because it wasn't." (Derisive cheers.) The gods might

laugh but he knew he was right, and if they wanted further proof, he could tell them that his American brother the *R. rubifolia* said it was not a bubble, and *his veracity was unimpeachable*. (Cries of "Brother Jonathan.") It was true the Manetti threw up numbers of underground shoots, but what of that; the Moss Rose often wouldn't grow at all. If the Manetti was the first at work and the last at work, was not that a recommendation in a commercial country like England? Every Rose for herself, said he, and the gods for them all. Every Rose was at liberty to enrich herself, and he had no sympathy with the lethargic band who slept away so many precious hours on the plea that they couldn't stand the cold. He thought—(pause)—he thought—(another pause)—he did not know what he thought, his memory seemed to fail him in the august presence of the gods, but he knew what the King of Roses thought. (Cries of Down, down.)

The *Rosa Canina* (Dog Rose) would like to know what the opinion of *Rosa Spinosa* was worth, as he had never been budded or grafted on the Manetti, and was never likely to be. The writer who condemned the Manetti had grown Roses on some stock or no stock in a manner that distanced all competitors. (Hear, hear.) He did not wish to appear *dog-matic*, but he differed *in toto* from *Rosa Spinosa* who reminded him of the adage, that "little people always thought a good deal of themselves."

The Damask Rose thought it but natural that *Rosa Spinosa* should try to make light of the propensity of throwing up underground shoots, as he was strongly addicted to this habit, and might regard it in himself as a virtue. With regard to two I's in Manetti; he overhead the printer's devil say (no doubt under the impression that the character of the establishment was concerned in it) that his master had met Signor Manetti in Italy some years ago, and that he had *two eyes* then, and if he had but one now he strongly suspected that some

jealous cultivator had knocked the other out in order that he might the more easily get the blind side of him. (Laughter from all the gods). He, the Damask Rose, knew *Rosa Spinosa* very well, having lived for two years in the same row; he was the most ungentlemanly cynic he ever knew, not liking to see anybody prosper but himself. He was not grafted on the Manetti, but stood on his own stumps, and a stumpy little fellow he was. It was often a matter of surprise to him that a Rose with so strong an understanding should be found constantly coquetting with an Old Lady called the Florist, who was pretty and nothing more. He used to cram this Old Lady with the most awful fibs—(cries of Shame, shame)—which the poor old soul received in perfect good faith, to the amusement of the bystanders. He had observed during the two years that she had been visited by *R. Spinosa*, that she had broken up very much, and as her understanding grew weaker she became more florid in her talk and tawdry in her dress. (Cries of "Paint and brandy.") She became more tenacious of her own interests and fonder of scandal. He saw one letter that *R. Spinosa* wrote to her, in which, among other things, were the following:—

He said that one of the first periodical writers on horticulture, Mr Beaton, recommended the Manetti stock for Roses. (Oh fie! from *Veritas*.)

That Mr Rivers had written the only good book on Roses ever published in England. (Cries of "Bosh," and "Oily gammon.")

That Mr William Paul had denounced the Manetti because he could not grow it. (Laughter from *Bonus Eventus*, and signs of general disapprobation.)

That Roses budded on the Manetti would grow well in sand or gravel if the big stones were picked out and manure added. (Shake of the head from *Picumnus*, one of the minor deities, asking if they would not grow bottom upwards.)

He told the "Old Lady"—would she believe him?—

that she was the biggest beauty in the universe. (Laughter, and signs of impatience.)

The Hybrid Perpetual would simply relate his own experience. In the month of January he was grafted with two eyes on the Manetti, according to the most improved method of the King of Roses. (Flora: "Who was he?") Although apparently not acknowledged by the gods, he was a person of considerable importance in England. He was known also under the name of Saudeur Panachè.* (A voice, "None of your 'sawder' here," and laughter.) To continue he was kept in heat for a considerable time, and afterwards coaxed and petted till he made a "decent" and comely plant. He did very well that year while in a pot. The next spring he was sent to live in a bleak row, and while those of his confrères who were on their own stumps or budded on the Dog-Rose had their roots placed near the surface, that they might be fed by the air and warmed by the sun, he was "buried deep," so that he suffered considerably from cold and hunger, consequently he did not thrive. His master was at first angry with him, tried a variety of dodges to induce him to form roots on his own account, but this he could not do, and was thenceforth utterly neglected till relieved by death. Next to him on one side in the same row was one Manetti with his roots close to the surface, and he grew and flourished surprisingly. On him was budded a choice kind which grew prodigiously, and to him was every friend of his master's referred as a proof of the value of Manetti. *But it was only fair to say that he had been placed there as a cutting, and never removed.* Loud were the praises constantly lavished on this prodigy. His neighbour on the other side was Rosa Spinosa, always a little cynical and jealous of receiving no notice; he compared their friend on the Manetti to an alderman gluttoned with turtle

* There was a Rose in my master's garden some years ago, known as Saudeur Panachè, or King of Roses—*Rose du Roi*.

and venison, and there was some truth in the comparison, for the Manetti grew so vigorously that the stranger became stuffed like a cobbled turkey. He was at length sold and removed to a neighbouring garden, where he became debilitated and subject to dropsy, of which, after sundry tappings, he died. One day his master, after bringing a party of friends to see him when in the height of his prosperity, adjourned to a vinery hard by and sent for champagne, with which he regaled them till the whole party grew jovial. (Hear, hear, from Bacchus.) Presently they burst into song, the words of the song he couldn't catch, but the chorus, often repeated and loudly sung, impressed itself on his mind—

“We will talk you to fame with a plausible tale,
And be ready with pen if that happen to fail;
But what if both fail? (*Minim rest and Bass solo*).
I'll still pocket the browns;*
Oh! this is the way to turn coppers to crowns.”

He would only further say that while under this treatment on the Manetti he was languishing, his brothers and sisters on their own stumps and on the Dog-Rose attained to vigorous manhood, and he dying, left them enjoying the prospect of a green old age.

The Sempervirens rose to say that he had been budded on the Manetti and grew well enough so, but must confess he much preferred being on his own roots.

The Tea-Scented, in a small pot, approved of the Manetti.

The Bourbon in a bad soil did best on the Manetti, but his confrères did better in a neighbour's garden on the Dog-Rose when they had taken pains to improve the soil. (A voice, “What did he know about his neighbours?”) If asked what he knew about his neighbour's garden, he would remind the gods that flowers were different to other sublunary things. What men called their odours, floating

* Browns—Coppers.—*Rose du Roi*.

in the air, were their spirits, which could under certain circumstances flit at will through the air from their earthly homes.

The Goddess of Flowers was observed to frown at times during the discussion, and at length she remarked, more in sorrow than in anger, that she had listened to the statements of the deputation with equal pain and attention. She was grieved to find her Rose children squabbling. There had been mischief-making somewhere. She knew Rosa Spinosa had been a wild lad in his youth, and she feared he was a bad boy still. Spines, she said, were given to Roses not for offence, but for defence. She thought that he had been silly enough to lend his name and tongue to some ill-conditioned mortal who had some selfish, if not malignant, purpose to serve. The race of men, or at least some of them, were rather worshippers of pounds, shillings, and pence than loyal subjects of the Queen of Flowers. She reprobated such conduct, and hated those guilty of it more than couch grass or the worst weed that grows. As presently advised she was strongly in favour of her tried and faithful servant the Dog-Rose; she did not think she would change her opinion. But as she did not wish her fair fame to be sullied by the slightest imputation of partiality, she would take the whole case into consideration, would try experiments and hear further argument if necessary, and pronounce judgment on a future day.

The deputation now prepared to depart, "La Reine" remarking that as neither the originator or advocate of the cause of their misfortunes was "owned of the gods" they might solace themselves with the hope of a speedy justice. Pan once more awoke his rural pipe, and the deputation followed him to the banks of the Styx, where Charon was in waiting to receive them. When half-way over it was discovered that Rosa Spinosa had been left behind. Smarting under the lash of the Damask Rose he had stolen off for a carouse with Bacchus, and when last seen

was intermeddling with a group of Ægipans, one of which had seized him by the middle with his whisking tail, and seemed resolved to detain him as a plaything for their company. "La Reine" confessed that fearing the irritability and jealousy of his disposition she had sprinkled his roots with the waters of Lethe, which accounted for so sharp a Rose having lost his memory when before the gods.

ROSE DU ROI.

ON ROSES.

[From "*The Gardeners' Chronicle*" (*Leading Article*), 1863,
p. 172, et seq.]

NOTWITHSTANDING the signal revolutions which modern times have witnessed in the Kingdom of Flora, the Rose still reigns supreme. Queen, not only by hereditary and prescriptive right, but also by universal assent, she occupies the same throne and sways the same sceptre now as when Nero feasted and when Sappho sang. Times have changed, and in the onward march of events the Rose has gathered and is still gathering richer and more glowing vestments from the loom of her bountiful foster-mother Nature, and now, as then, in gorgeousness of apparel, in grace, in sweetness, she stands forth unrivalled and alone. Never was there a more opportune moment than the present for bringing the Rose under notice as a hardy decorative plant, for such it must be considered, notwithstanding that the winter of 1860-61 in great measure cleared our garden of Roses as they were, good, bad, and indifferent. If we have to mourn over the loss of some cherished gems, we have at least the satisfaction of being rid of the rubbish which had been accumulating on our hands for the last quarter of a

century. And now that we are recovered from the consternation produced by the slaughter of that period, and Roses are again cheap, good, and plentiful, it may be well to consider how we can best reproduce those pictures of the past, which, though becoming dimmed by distance of time, are still fresh in memory. [In future numbers this question, with other branches of Rosology, will be discussed by a correspondent who is able to speak on all matters connected with Rose culture with the authority which experience alone can impart.*]

No one with a knowledge of the Rose as it is would, we presume, think of refilling his garden with the varieties of the olden times. And if, owing to the scarcity of buds or from other causes, any grower should have renewed his stock with such materials, he will probably find it easier to grow than to dispose of them. We have entered on a new era in Rose culture. Summer Roses are less valuable than formerly. We cannot, indeed, altogether set them aside, but we shall do well first to reduce the groups, and then the number of the varieties. The Moss, the Austrian Brier, the Hybrid China, &c., are the only groups of this division that are likely henceforth to be extensively cultivated. The French and kindred groups, sweet, bright, and beautiful as they are, must yield to the equal beauty and greater durability of the Hybrid Perpetuals. The Bourbon and Tea-scented races, if inferior to the last-mentioned in hardiness and exactitude of form, so far surpass them in redundancy of bloom that they are altogether indispensable.

But another question arises — “In what way shall these Roses be cultivated?” Certain kinds are best as Climbing, Pillar, or Weeping Roses, but in general it is a matter of indifference whether they are grown as standards or dwarfs—budded or on their own roots. The purposes for which they are required, and the positions they are

* This sentence was inserted by the Editor.—W. P.

intended to occupy, will in most cases settle this question. But apart from these considerations, we think that tall standard Roses have been too plentifully used in ornamental gardening. A Rose tree, except when viewed from a distance, is more beautiful growing under the eye than on a level with or above it. And for these reasons ; the face of a flower is more captivating than the base or sides, and the upper surface of the leaves is more highly finished than the lower. One lesson taught us by the winter of 1860-61 should not be forgotten, viz., that budded and grafted Roses are sometimes killed when those on their own roots pass safely through the severest frosts. All lovers of Roses should plant at least one of each of the most valued sorts on its own roots ; the winter may indeed kill the shoots of these plants above ground, but the dormant buds beneath the earth will remain safe, and will quickly restore the plant to its original state. The practice of planting budded and grafted Roses in autumn has been unwisely extended to those on their own roots. Against this we enter a caution. A greater mistake, we believe, could not be committed. Doubtless many examples of non-success might be traced to this cause. Leaving out of the question the cases of Roses on their own roots which have been nursed up in heat to get them quickly into the market, the custom of transferring a plant from a pot into the ground in early autumn, exposed before it is established to all the vicissitudes of an English winter, is contrary alike to sound theory and practice. Plant such in April or May, when the growing season has commenced, and the result will be a well-established plant before the winter arrives, and one that will live and flourish in spite of its trials and difficulties.

No. I.—SUMMER ROSES.

[From "*The Gardeners' Chronicle*," 1863, p. 196.]

CAN we dispense with Summer Roses? This is a question which we think admits of an emphatic "No." The Autumnals are undoubtedly invaluable; among them the Hybrid Perpetuals furnish us with flowers of perfect form and exquisite colours, and yield a succession of bloom that prolongs the gay season of the garden to the very verge of winter; the Bourbon, Chinese, and Tea-scented flower still more abundantly in the later months of the year, and are consequently even more valuable in those gardens which are visited by their proprietors in the autumnal months only; but for gorgeousness of effect none of these equal the Summer Roses. The flowers, which with the Autumnals are spread over a lengthened period, are with the former concentrated on a point of time; and if they were counted, flower for flower, throughout the season, we doubt whether the balance would not remain in favour of Summer Roses. It would appear then to be a matter of choice whether we receive the boon at once or by instalments; and certain it is that the garden is stripped of its gayest scenes and some of its brightest ornaments if we altogether exclude the Roses of June. Such is my conviction, and following it I shall venture to enumerate the principal Summer groups, describing a few of the most desirable varieties from each.

THE BOURSAULT contains one variety, Amadis, which must not be lost sight of. It is one of the hardiest, thriving alike in shade and sunshine, and growing in the least favourable soils and situations. It is most valuable as a Pillar and Climbing Rose, producing myriads of crimson purple flowers on shoots utterly devoid of thorns. It requires very little pruning.

THE SCOTCH ROSE is valuable because it blooms so abundantly, and often a month earlier than other Summer Roses. Planted singly it forms the prettiest dwarf bush imaginable; it also makes an excellent low hedge. The flowers are small and globular—principally white, red, blush, and purple, but there are intermediate shades—and very sweet. They resemble each other too closely to need describing. The plant will flourish on the shallowest of soils, and may be pruned closely every winter.

THE DAMASK, formerly an important group, may now be brought down to three or four varieties. *La Ville de Bruxelles* is a full-sized Rose of free growth, with beautiful light green foliage; the flowers are salmon-rose margined with blush. *Leda*, or Painted Damask, is in its best form worthy of a place in every garden; the flowers are blush edged with lake, exceedingly pretty and distinct. Where care is not taken to preserve the marked form it is apt to degenerate and lose the lake margin, when as a wholly white flower it is comparatively worthless. *Madame Hardy* is still the best of white Summer Roses, and cannot be too highly praised. For form, purity of colour, hardiness, and freedom of growth and flowering, it is still unrivalled. It makes a beautiful bed on a lawn, and as such, where quantity of flowers is required, should not be too closely pruned. *Madame Soetmans* is a creamy white, sometimes shaded with buff; a large full flower of excellent properties, and in its best state quite a show Rose. All these require moderately close pruning, and will grow in any common garden soil.

THE PROVENCE ROSE includes the Cabbage, the Crested, and the White, none of which can yet be spared. The first and last are too well known to require description; the Crested is similar to the Cabbage, except that the sepals are beautifully fringed with moss. The globular form is in perfection here, and the fragrance of these Roses is proverbial. A sub-section of this group, known as the the MINIATURE PROVENCE or POMPON, is also highly

interesting on account of its dwarf growth and tiny flowers. These delight most in a rich soil, and should be subjected to close pruning.

THE MOSS ROSE will always rank high where grace and beauty are fairly appreciated. *Baronne de Wassenaer* is a vigorous growing sort, producing clusters of bright red flowers, of good size and globular form; it must not be pruned much. *Captain Ingram* is distinct and handsome, the flowers are dark velvety purple, almost black. *Celina*, now an old favourite, is not yet surpassed in its way; the growth is compact, and the flowers are of the richest crimson shaded with purple, well mossed, and produced in gorgeous abundance. This makes an excellent bed, and should be pruned closely. The Old or Common Red Moss remains a model of beauty; the hybridiser has varied this group exceedingly, but never yet produced any sort to surpass the original; indeed the best varieties of true Moss Roses have been derived from sports rather than from seed. *Clemence Beaugrand* is a beautiful bright pink Rose with large double flowers; the growth is vigorous. *Comtesse Murinais* is a large double almost white Rose, not equal to the *White Bath* in form or purity, but it grows freely everywhere, which the latter does not. *Gloire des Mousseuses* is of first-rate excellence; the flowers are blush, very large, full, less globular than the original sort, but well mossed. *Gracilis* or *Prolific* resembles the old variety very closely, but is of dwarfer growth, and flowers more profusely; it forms a beautiful bed of about the same rate of growth as *Celina*. *Marie de Blois* produces rosy lilac flowers of good shape and size, and is above the average in merit. *Nuits de Young* bears velvety purple flowers, very dark and very double. *Princess Alice*, a variety raised from seed by me some ten or twelve years since, is, I find, still quoted and commended in four out of five Rose catalogues that I have looked into; the flowers are blush with pink centres, something in the way of *Maiden's Blush*; the buds are

well mossed. Princess Royal for form and colour is one of the gems of this group; the flowers are salmon-flesh, not over large; the growth is hardly vigorous, but both growth and flowers are improved by close pruning. *Purpurea rubra* is a good free hardy sort with large full purple flowers. *Reine Blanche* is a large full pure white Rose, of perfect outline, but rather flat; it grows as freely as *Madame Hardy*, and has some points of resemblance to that variety. *White Bath*, the best of the white Moss Roses where it thrives well, is unfortunately capricious, which detracts much from its value. Every garden should have a bed or beds of Moss Roses, either on their own roots or budded close to the ground. Manure highly, prune closely, and they will yield a rich harvest of the sweetest and most beautiful flowers.

NO. II.—SUMMER ROSES.

[From "*The Gardeners' Chronicle*," 1863, p. 221.]

THE FRENCH AND ITS HYBRIDS, once the leading group of the genus, has been depreciated more than any other by the improvements of modern times. It must not, however, be yet laid aside. The varieties grow freely in any common garden soil, and produce fine masses of highly fragrant flowers in the summer time. The colours are varied and beautiful, the growth compact, and the plants require close pruning. *Adèle Prevost* is a pretty silvery-blush Rose of good form, and flowers very freely. *Boula de Nanteuil* is a superior crimson-purple variety with fiery centre, still one of the best of very dark Summer Roses. *Cynthia* produces pale rose-coloured flowers delicately margined with blush, and is also a free flowering sort. The *Duchess of Buccleuch* is a large bold dark rose-coloured flower with blush margin, a little coarse, but still a show Rose. *Grandissima*, or *Louis Philippe* as it is also called, is a good purplish rose-coloured variety. *Kean*

is by no means a bad show Rose, the flowers are rich velvety purple dashed with scarlet, large and full. *Cœillet Parfait* produces pure white flowers broadly striped with rosy-crimson ; the flowers are not large, but they are neatly formed, the growth is not vigorous, but is improved by close pruning ; taken altogether, this is one of the best striped Roses. *Blanchefleur* deserves a word of special commendation, it is hardly a show Rose, but its white flesh-tinted flowers are produced in such gay profusion that scarcely any Rose of its colour is so effective. *La Volupté*, or *Letitia*, is still a show Rose of a bright rose colour, the petals exquisitely arranged.

Some of the French Roses are beautiful in colour and outline, and the petals are admirably disposed. Their fault as show Roses is that they have a papery appearance owing to the delicate texture of the petals, and they fall out of shape too soon after gathered.

THE HYBRIDS OF THE CHINESE, BOURBON, AND NOISETTE are the glory of the Rose Garden in summer, and many of them are excellent show Roses also. Hardy and free, they are alike suited for pots, pillars, or standards. Some should be pruned very little, others moderately, few close. If those of strong growth be cut much they grow too vigorously, and are scant of flowers. *Blairii* No. 2 cannot be too highly commended as a wall Rose where a great height or breadth is required to be covered quickly. The growth is extraordinarily rapid, and the foliage and flowers fine ; the latter are of a blush pink, very large and double ; prune sparingly. *Charles Duval*, although an old Rose is still a good one, the flowers are deep pink, large and full, the foliage is handsome. *Charles Lawson* is a first-rate pot Rose, and good either as a standard or pillar, the flowers are of a vivid rose colour, large and full, quite a show Rose. *Chénérolé* is a beautiful Rose with flowers of a light vivid crimson, the growth is very vigorous, and it is equally good as a pot, pillar, or standard Rose. It should be pruned very little. *Coupe d'Hébé* is one of the

gems of this group, and hardly surpassed by any other Rose, the flowers are of a rich deep pink, exquisitely cupped, large and very double. Like the preceding it is good as a pot, pillar, or standard Rose, but should be pruned tolerably close. General Jacqueminot produces flowers of a rich purplish crimson, which are glowing and effective on the tree or pillar, but hardly suited to figure at the exhibitions. Juno as a pot Rose is of matchless beauty, and is good out-of-doors in fair weather, but unfortunately the flowers, which are rose edged with blush, are quickly soiled by rain or wind. This variety, which partakes somewhat of the group Alba, should be pruned closely. Madame Plantier is one of those profuse blooming Roses admirably adapted for bedding, the flowers are white, produced in clusters, individually below the average in size. Madeline is desirable for its distinctness, the flowers are flesh colour edged with crimson, not over large, but quite full and very beautiful. Paul Perras is a very superior pot Rose, growing to the largest size as such, the flowers are of a pale rose colour, large, full, and fine. Paul Ricaut is a bright crimson flower, large, full, of glowing colour and exquisite form; most valuable as a pot Rose, but good also as a dwarf or standard. It should be pruned rather closely. Perfection is a peach-coloured flower, not large but distinct and perfect in form. Vivid, one of my earliest seedlings now ranking among the old varieties, is still unequalled as a brilliant coloured standard, wall, or pillar Rose; the flowers are of the richest crimson, and so abundant that no Rose in the garden can compare with it for effect. It requires very little pruning.

The Roses of the ALBA group, of which the Maiden's Blush and the Celestial may be taken as the types, are still valuable for their delicate colours and distinctness. Félicité and La Seduisante, both flesh-coloured Roses with blush-coloured margins, are the best. Then there are Madame Audot, flesh colour; Madame Legras, white; and Queen of Denmark, pink, which are not surpassed in their

way. Sophie de Marsilly is a fair weather Rose, exquisitely beautiful when first opening if lucky enough to escape the rain and wind, the flowers are blush with rosy centres, large and full. Common soil and moderate pruning suit these Roses, which are valuable in the garden, but not large enough for show Roses.

THE AUSTRIAN section contains the only hardy yellow Roses that are worthy of general cultivation, and these flourish best in country air. Harrisonii, a yellow variety of American origin, produces almost double flowers in magnificent profusion. It is best grown as a Weeping Rose, and pruned once in two years only. The Persian Yellow has flowers of a deeper hue and more double than the preceding, the young leaves have the fragrance of the sweet briar. The Copper Austrian, although single, is so rich and distinct in colour that everyone should possess it. All these are valuable.

THE AYRSHIRE are most appropriate for covering banks, running up trees, poles, and high buildings. The growth is slender but very rapid, they form the best of Weeping Roses. Dundee Rambler, Ruga, Splendens, and Thoresbyana, all white or nearly white varieties, are the best.

THE EVERGREEN ROSES are not unlike the last, except that they hold their leaves through a great part of the winter, they are suited to the same purpose and require but little pruning. Felicité Perpetue, Leopoldine d'Orleans, and Rampante, which are the best, produce white flowers; Banksiaeflora, whose flowers are white with creamy centres, is pretty and distinct; Myrianthes renoncule, flowers blush shaded with rose, is also interesting and useful.

THE BANKSIAN ROSES form a most distinct and beautiful group wholly unlike any others, and are well worthy of more extended cultivation. The flowers are very small, double, and exquisitely formed, they are produced in clusters, and those of the white variety are

very sweet. To grow them in perfection they should be planted as conservatory climbers, or if grown out-of-doors are best trained against a south wall in a soil that is dry and warm. If left unpruned for two to three years, merely nailing the shoots to the wall, they will bloom in perfection.

NO. III.—AUTUMNAL ROSES.

[From "*The Gardeners' Chronicle*," 1863, p. 270.]

I SHALL here, as with Summer Roses (p. 103), describe the leading groups only. The PERPETUAL MOSS are desirable because they prolong the season of Moss Roses; beyond this not very much can be said in their favour. They are for the most part of shy growth, and not overburdened with moss. They require a rich soil, and should be pruned closely. Empress Eugenie is the prettiest of the group, but also one of the most difficult to preserve in health, being naturally a short-lived Rose. The flowers are bright red, of medium size, full and perfect in form; the growth is dwarf. General Drouot grows freely enough, but the flowers, which are crimson and purple shaded, are only semi-double. Hortense Vernet produces white flowers, shaded with rose. Madame Edouard Ory is one of the best; the growth is free, the flowers bright rosy carmine, large, full, and fine. Perpetual White Moss is also an excellent variety; the flowers are white, produced in clusters, well mossed; perhaps the most interesting of the group. Salet is a good Rose, very free and hardy; the flowers are bright rose, margined with blush, large and full.

The HYBRID PERPETUAL, now the leading group of the genus, is of comparatively modern date, being a new branch of an old stock. In 1837, my friend, M. Laffay, of Bellevue, sent me a beautiful purplish Rose, which he called *Princesse Helene*, describing it with all the enthu-

siasm of his warm and kindly nature. This was the first strongly-marked divergence from the now old-fashioned Damask Perpetual Roses, which were then so much in vogue, and from which this sprang. Fortunately this hybrid produced seeds freely, and in three years we had no less than twenty varieties. Now the number is legion, and they take much the same position in the garden now that the French Roses did a quarter of a century ago. Well, they are the finest of Roses, and improving at a more rapid rate than any other group; form, colour, and fragrance are here in perfection, and they are the hardiest and finest of Autumnals. In looking through the list of candidates for election it is a task of no ordinary nature to bring down the number within reasonable limits. One has a claim for form, another for colour, a third for fragrance, and in some cases in which one or the other of these requisites may be absent, the general habit of the variety is so good or so elegant that it outweighs or negatives these important considerations. I shall confine my remarks at present to the cream of the old varieties, reserving what I have to say of New Roses for a special paper.

Anna Alexieff is one of those hardy free-flowering Roses that is invaluable for masses and conspicuous situations in the garden; the foliage is good and the plant is almost always in bloom; the flowers are rosy pink, of good size and form, usually arranged in clusters. Anna de Diesbach is quite the opposite to the last in every character but colour; the flowers are composed of fine thick petals, of immense size, but few and far between. Auguste Mie is a truly beautiful silvery pink Rose of exquisite form; the shape is almost equal to Coupe d'Hébé, which it resembles in some respects; it is good for standard, pot, or pillar. Baronne Hallez is a dark-red Rose of average size and superior form, sweet and free, but hardly vigorous. Cardinal Patrizzi is one of the finest Roses grown under glass, but it is uncertain out of

doors, and seldom more than second-rate there; the colours are brilliant red, shaded with blackish purple. *Caroline de Sansal*, clear flesh colour with blush edges, is a first-class show Rose when it can be found clean; it is, however, a fair-weather Rose only, and while it cannot be dispensed with, it cannot be confidently relied on. *Colonel de Rougemont* is a very large expanded Rose of a pale rose colour, shaded with carmine; it is of rather delicate habit, and requires a rich soil and close pruning, which extra attention it is quite worthy of. *Comte de Nanteuil* is a perfect Rose according to rule; the flowers are rosy carmine, large, full, and quite circular in outline; quite a show Rose. The same may be said of *Comtesse de Chabrillant*, whose flowers are pink and very sweet; this is not so constantly good as the last named, but when in its best state, it is of matchless beauty. *Duc de Cazes* is a very distinct flower; the colours are purple, crimson, and maroon, very velvety, and variously shaded; it is a most effective Rose in the garden if pruned sparingly; the growth is vigorous. *Duchesse d'Orleans* is a good show Rose; the flowers are lavender blush, large and full, the growth vigorous. *Empereur de Maroc*, though not a show Rose, can hardly be left out of a limited collection; the rich velvety maroon flowers, the summits of the petals folding back with so much regularity and grace, are unique and lovely. *François Arago*, with dark velvety purple flowers, is also a valuable addition to our dark Roses; it is hardy, free, and the best of its colour. *François 1^{er}* is quite first-class, whether for exhibition or garden decoration; the flowers are brilliant cherry, of good size and form. *General Jacqueminot* is almost too well known to need description; the flowers are brilliant red, very velvety, large, and very double. The introduction of this Rose was quite an era in Rose culture; it produces seed so freely, and the seedlings have proved so good, that we have already a numerous race derived from it. General

Washington has bright rosy red flowers of large size and full; it is sometimes splendid, but uncertain. Gloire de Vitry is a first-rate show Rose, of a bright rose colour, large and full; the foliage is rather thin. Gloire de Santenay produces scarlet-crimson flowers, large, full, and fine; it is a little uncertain, but nevertheless a superb Rose. Impératrice Eugénie is a white Rose with rosy centre; the flowers are not large, but full and exquisitely formed; the habit is rather delicate. Jules Margottin is an everyday Rose, the flowers of a bright cherry colour; one of the best for a standard or a bed. La Reine, one of M. Laffay's original Hybrid Perpetuals, is not yet surpassed *in its way*; the flowers are rosy pink, tinged with lilac, very large and globular it is a magnificent flower, although a little uncertain. La Ville de St Denis is still a good flower, rosy carmine, large and full. Lœlia is a silvery rose shaded, very large, globular, and in every respect of first-rate quality. Lord Raglan is one of those high coloured varieties, scarlet crimson edged with violet crimson, that pleases everybody; the flowers are large, full, and of good shape; the growth is vigorous. Madame Boll is very different to any other, appearing to have some of the old French blood in it; the flowers are rose colour with blush edges, very large, full, and excellent. Madame C. Crapelet is a flower of great finish; the blossoms are rosy red, veined and shaded with lilac, the form very beautiful. Madame de Cambacères is rosy carmine, often purplish, cupped, large and full; a good free hardy Rose with beautiful foliage. Madame Furtado is a full rosy crimson flower, very sweet, and one of the best for exhibition. Madame Knorr is bright rose with pale edges, large, full, and flowers freely. Madame Masson is a grand Rose, of a reddish crimson hue shaded with violet, very large and full. Madame Rivers has clear flesh-coloured flowers of fine form, large and full; growth vigorous. I remember seeing this Rose at Lyons in the seedling state, but it is

better here than there. Madame Vigneron is one of those silvery flowers tinged with rose or purple, large and of good outline, although a little flat. Madame Vidot is a model in form, and beautiful in colour also; transparent flesh, shaded with rose, large and full. Mdlle. Bonnaire is perhaps the best of the white kinds with rosy centre; it is of good average size, full, and of exquisite form. Prince Leon is a fine bright crimson variety, the form and colour all that one could wish for, and in its best state is quite a show Rose. Queen of Denmark is sometimes very fine, though a little uncertain; the flowers are lilac flesh, large, full, distinct, and beautifully transparent. Queen Victoria, introduced by me, is still the best in its way; the flowers are white shaded with peach, the colour of the old Celestial Rose, large and full; the growth is vigorous. Senateur Vaisse is one of those full bright red Roses with large smooth thick petals much in advance of the general run of these; the flowers are large and full, the growth vigorous. Souvenir de Leveson Gower is a fine ruby-coloured flower, very large, full, and well shaped; growth vigorous. Souvenir de la Reine d'Angleterre has bright rosy pink flowers, very large, full, and fine; the growth is vigorous, and it forms one of the best of Pillar Roses. Triomphe d'Alençon, with its fresh bright red flowers, is sure to please; Baronne Prevost, which it somewhat resembles in growth and form, looks faded by the side of it. Triomphe de Lyon is the best of the very dark large well shaped Roses, although not always clean and good. Triomphe de l'Exposition produces vivid reddish-crimson flowers; it usually loses its shape too soon to be first-class for exhibition, but it is one of the most effective for garden decoration. Triomphe de Paris is a good dark Rose of size, form, and fulness above the average. Triomphe des Beaux Arts is a plum-coloured edition of General Jacqueminot, excellent for garden decoration, but scarcely full enough for a show Rose. Victor Verdier is a decided step in advance; the

flowers are rosy carmine with purplish edges ; a large showy free growing Rose with beautiful foliage, good for exhibition, and one of the very best for effect in the garden. Victor Trouillard, although irregular in shape, is valuable for its brilliant velvety crimson flowers and beautiful foliage. Virginal comes in strong contrast to the preceding ; the flowers are pure white, the habit rather delicate, but the variety still indispensable. William Griffith, a well known old Rose, is one of those glossy-looking flowers of a pink or pale rosy hue, in its best state very beautiful.

The Hybrid Perpetual Roses require high cultivation to bring out their valuable qualities in full perfection ; manure freely, and prune closely, watering occasionally during the season of most rapid growth if the weather should be dry. Those kinds which bloom very freely should be relieved of a portion of the flowers when in the bud state, by which practice the flowers that are left will bloom finer, and the vigour of the plant be more efficiently preserved.

NO. IV.—AUTUMNAL ROSES.

[*From "The Gardeners' Chronicle," 1863, p. 365.*]

THE BOURBON PERPETUALS form a small but beautiful group of Roses, embracing those Hybrid Perpetuals of some catalogues in which the features of the Bourbon Rose predominate. In other words, they approach nearer to the Bourbon than to the Hybrid Perpetual, but are distinct from both. The flowers are remarkable for their circular outline ; they are not very large but are more than usually abundant. The growth is moderate and the foliage fine and handsome, noticeable for the breadth of the leaflets. The varieties are best suited to form low standards, dwarf standards, and bush Roses, and if planted in a rich soil and pruned closely, they bloom constantly and well throughout the summer and

autumn. Baron Gonella is one of the best of this group; the flowers are pink and lilac shaded, large, full, and beautifully cupped; the petals are large well rounded at their circumference, and of unusual substance. Baronne de Noirmont is also a good Rose, deeper and brighter in colour than the preceding, and very sweet, but not so prolific. Catherine Guillot is a gem, fine everywhere, but especially so under glass; the flowers are pink of good average size, and quite full, the form perfect. Comtesse Barbantanne is a flesh coloured flower, large, full, and distinct, of hardy habit and vigorous growth. L'Avenir has glossy pink flowers, large, full, and beautifully cupped; the growth is vigorous, the foliage fine. Lord Palmerston is an exceedingly pretty Rose with flowers of an empyrean brightness, which the pen of the writer and the pencil of the artist have hitherto alike failed to reach; bright rosy cherry colour is an approximation of the description; the flowers are neither large nor full, but they are nicely formed, produced abundantly, and very sweet; the effect of the tree in the garden when in full bloom is brilliant in the extreme. Louise Odier is a good hardy sort, with bright rosy-coloured flowers, a first-rate pot Rose, and excellent either as a standard or a bush. Madame Bruni is not so well known as it deserves to be; the flowers are peach colour, Provence-scented, large, full, and of good form; a good show Rose when well grown. Mdle. Therese Appert is a peach-coloured flower, large, full, and nicely cupped; a free and constant blooming Rose of moderate growth. Marguerite Appert is a pretty and distinct Rose; flowers blush, tinted with lavender, large and full. Modèle de Perfection is, in its best state, one of the loveliest Roses I have yet seen; it must, however, be grown well to realise this character, for it is apparently not the freest of this group; the flowers are lively pink, large, full, and globular, Reynolds Hole is a distinct and desirable sort; the flowers are pink, increasing in

brilliancy as they advance in age; the petals are large, well formed, and of great substance, but not very numerous; the foliage is fine.

THE ROSE DE ROSOMANE is a new group formed by the withdrawal from the Hybrid Perpetual of certain varieties which differ therefrom in general aspect. In the previous group are some of the most perfectly formed Roses grown; in the present are some of the most brilliantly coloured. They are mostly of free growth, and such are the very best of high coloured wall Roses; a few, however, are of dwarf growth, and these are equally desirable for the garden generally, or for beds on lawns. As the colours of the different varieties so nearly resemble each other, it seems unnecessary to describe them individually; for walls or palings, Desgaches, Eclair de Jupiter, Gloire des Rosomanes, Mdle. Haiman, Oriflamme de St Louis, Princesse Mathilde, Souvenir de Montceau are the best; for beds and borders, Comte d'Eu, Comte de Falloux, Leonice Moise, and Louis XIV. may be safely recommended.

THE BOURBON ROSES are, in my judgment, not at all depreciated by the newly arisen splendour of their kinsfolk, the Hybrid Perpetuals. It is a quieter but not lower order of beauty which greets us here. They are not so well suited for show Roses, because they lack size, but they are many times more valuable for those gardens where Roses must abound in autumn, because they flower much more abundantly at that season. Few of the Hybrid Perpetual Roses bloom freely, some not at all, late in autumn, whereas the Bourbons flower best and freest at that season. If the plants are pruned closely in spring, and the soil kept rich and moist, so that they be kept growing, flowers, bright, sweet, and plentiful will be sure to follow. Acidalie, the first on my list, is not so pure in blood as some, being hybridised possibly with the Provence Rose; it is, nevertheless, very desirable, being a good globular-shaped white Rose of vigorous growth,

very sweet, and blooming tolerably freely in the autumn. *Armosa*, which has a little of the Chinese blood in it, is one of the most prolific of Autumn Roses, yielding its pink flowers almost without end. *Aurore du Guide* produces handsome flowers, sometimes purplish violet, sometimes crimson-scarlet; one of the finest of the group, but rather shy and uncertain. *Bouquet de Flore* is a good hardy free kind, old enough, it is true, but still most desirable; the flowers are light glossy carmine, large and double. *Comte de Montijo* is a pretty free-flowering variety, rich reddish crimson sometimes shaded with purple. *Dr Leprestre* has brilliant purplish flowers, sometimes shaded with red, large and full. *Duchesse de Thuringe* has white flowers, delicately tinged with lilac, and usually arranged in elegant clusters. *Dupetit Thouars* is one of those brilliant crimson flowers which one cannot pass by in any garden; it, withal, flowers freely to the very confines of winter. *Empress Eugenie* has rosy blush flowers with purplish edges, large and full, and is one of the freest, hardiest, and best. *Ferdinand Deppe* is a good Rose, with reddish violet flowers. *George Peabody* came originally from America, and is one of the very few from that country that is worthy of general cultivation; the flowers are rich crimson, shaded with purple; hardy, free, and good. *Julie de Fontenelle* is a beautiful Rose, similar in colour to the last, inferior to it in size, but superior in form. *Justine* is a free blooming sort, with clear rose or rosy-pink flowers. *La Quintinie* is one of the finest of this group, but uncertain; the flowers are bright crimson, changing to blackish violet; large, full, and of good form. *Madame Angelina* is a rich cream-coloured flower, with fawn or salmon centre, and is a beautiful and distinct Rose, of rather dwarf growth. *Marquise Balbiano* is a good, free, hardy sort; flowers rose colour, tinged with lilac; large and full. *Marquise de Moyria* and *Menoux* are both good sorts of the same colour—carmine. *Mrs Bosanquet* is still a first-rate free-blooming Autumn Rose,

not a true Bourbon, however, but slightly partaking of the Chinese; the flowers are white, tinged with flesh colour. Omar Pacha is a fine brilliant red Rose, free and hardy. Pierre de St Cyr has pale glossy pink flowers, of good size and form, and usually abundant. Queen is one of the freest and best; flowers salmon flesh, often tinged with buff; excellent for masses. Reveil is a fine hardy dark variety; its flowers crimson shaded with violet. Sir Joseph Paxton is of a growth more than usually vigorous; the flowers are of a bright rose shaded with crimson; large and full. Souvenir de Malmaison is one of the best Roses yet raised, and in place everywhere; the flowers are delicate flesh colour, their margins almost white; very large and full; excellent for massing. Souvenir d'un frère is a very showy free-flowering Rose, with brilliant crimson flowers. Vicomte de Cussy is a good Rose, flowers cherry colour, tinged with purple; large and almost full. Victor Emmanuel is a good dark purplish flower, shaded with maroon; large and double. Vorace is sometimes fine, but rather uncertain; the flowers are dark crimson purple; large and full.

NO. V.—AUTUMNAL ROSES.

[From "*The Gardeners' Chronicle*," 1863, p. 389.]

IT was originally my intention to have completed my remarks on old Roses before dealing with the new, but I am reminded that any information on the latter is of more value in April than in May. Therefore this digression. To-day I will review the New Roses of 1861-62, next week those of 1862-63, and subsequently resume my remarks on the older varieties of Roses.

Nearly all the good Roses of 1861-62—and there are many—belong to the group Hybrid Perpetual. Alphabetical arrangement compels me to open this series with a flower of my own raising, Beauty of Waltham; some thousands of plants having been sold within the year,

this Rose will doubtless soon be well known, and in my judgment it is not yet equalled for the combined qualities of brilliancy, substance, form, vigour, sweetness, and hardihood. Charles Lefebvre is certainly one of the finest of that set, the flowers are crimson shaded with maroon, intensely rich and glowing, of large size, good substance, and perfect form. Duc de Rohan is also a first-class Rose of vigorous growth, with handsome foliage; the flowers are large, full, and globular, in colour bright vermilion. François Lacharme is a rich rosy-crimson flower, large, full, and of good form, quite first-rate. La Brillante is of the most exquisite colour when newly expanded, but soon pales even without a sun; it is of good average size, perfectly cupped, and nearly full. Louise Darzens is quite a gem, producing its pure white exquisitely formed flowers in great abundance; it might almost be called a perpetual Madame Hardy. Madame Charles Wood is a robust-growing sort with large showy crimson flowers and beautiful foliage, in size, form of petal, and substance quite a show Rose, although the flower expands rather quickly and is soon overblown. My ideal of a Rose has always been, and still is, a half-blown deeply cupped or globular flower; the old Baronne Prevost is beautiful of its kind, and so is La Fontaine, but neither of these forms, call them compact, expanded, or what you may, is at all comparable with the globular or deeply cupped flower. Madame Ernest Dreol is a good Rose of the Baronne Prevost style, but brighter in colour, and with petals of greater substance. Madame Julie Daran has with me been a little uncertain, but this may be accidental rather than constitutional; it appears a good hardy Rose with large globular glossy vermilion-coloured flowers. Maurice Bernardin is quite first-rate, large, and full, in colour bright vermilion. Monte Christo is a beautiful Rose, indeed one of the most beautiful, but rather difficult to manage; the flowers are blackish-purple painted or flushed with scarlet—not the natural flush of health, but

rather a hectic glow, too clear and beautiful to be associated with hardihood and longevity; one flower is however a sufficient recompense for a year's care. Olivier Delhomme is a bold showy crimson Rose of good form and hardy constitution, the foliage particularly handsome. Prince Camille de Rohan is quite distinct from any Rose I have yet seen; the flowers are dark velvety maroon, the circumference inclining to blood red, the colours very rich and splendid. Professor Koch may be called a crimson Coupe d'Hébé flowering in the autumn, a Rose of first-rate quality. Robert Fortune belongs to the useful rather than the brilliant; it does not flower so freely as some, but the flowers, which are rosy crimson, are large, full, sweet, well-formed, and always good. Souvenir de Lady Eardley yields an abundance of large almost full reddish-scarlet flowers, the growth is exceedingly vigorous, the foliage fine. Souvenir de Comte Cavour (Margottin) is a good enough Rose, though not over large, the flowers are crimson and black shaded, very rich looking and effective on the tree. Vulcain was good last year, and has been better in the forcing houses this spring; the flowers are bright purplish-violet shaded with black, very dark and distinct. The foregoing were the best of the last year's Hybrid Perpetuals with me. The experience of other growers may have been different, and I should be glad to hear their views. There were also two Tea-Scented sorts which pleased me much—Gloire de Bordeaux and Triomphe de Guillot Fils. Belle de Bordeaux, which is a year older than the first-mentioned, was exhibited several times last year under the name of Gloire de Bordeaux. The latter was with me lighter in colour and finer in form, but they resemble each other almost too closely. Triomphe de Guillot Fils is white shaded with rose and salmon, very large, full, and sweet. If an addition to the foregoing be required, the following stand next in rank in my note-book for that year:—Alexander Dumas, Gloire de Chatillon, Madame Caillat (very good), Marechal Vaillant, Souvenir

de M. Rousseau, Paul Feval, Wilhelm Pfitzer, Madame Clemence Joigneaux (good, but common in colour), Turenne, Madlle. Claudine d'Offoy, and François Louvat.

The number of good new Roses brought out in 1861-62 was certainly above the average, and there was a large accession of what are termed velvety Roses. Velvety Roses! It may fairly be asked, what are they? There is a something on the face of the petals of certain Roses, that which we have hitherto endeavoured to express by the word "velvety," but this word is wholly inadequate to convey the real appearance. The richest velvet, however soft and pleasing, is dull and heavy-looking beside our flower; the latter has all the softness and richness of velvet, and a something superadded which I have never met with except in the petals of flowers, the coats of insects, or the plumage of birds. The pen cannot describe it, the pencil cannot paint it. What we should call it I do not know. May we look on it as analogous to the youthful tint on the human cheek—the "glow of life" which forms so broad a line of demarcation between the animate and inanimate, which constitutes alone an immeasurable distance between the simplest works of nature and the highest efforts of art.

NO. VI.—AUTUMNAL ROSES.

[From "*The Gardeners' Chronicle*," 1863, p. 413.]

LAST year's brood, the proved new Roses, have been already dealt with, and they were, as a whole, the best lot ever issued in a single year. Let us now endeavour to obtain some glimpses of this year's novelties, the forthcoming brood, some of which only have yet bloomed in England, and these under glass. The opinions expressed concerning them must not be taken as fixed and unalterable; although the majority were seen and described in the raisers' grounds last summer, and are now blooming

in the forcing-houses here. But Roses as grown and shown by the raisers in the dry warm climate of France, afford no precise information as to their suitability for British gardens, nor can we gather this with certainty from flowers produced here under glass. I never make up my mind as to the quality of a new Rose till I have seen it in flower in my own hands out of doors. But a little light is better than darkness or obscurity, and we need not refuse to look on them in the twilight, because they have not yet shown themselves in the full broad light of day. Taken as a whole, the forthcoming brood appears more varied than that of last year; there is more novelty, but hardly so many bold and striking Roses. The best of the two years put together make a splendid and richly varied group. Alfred de Rougemont, H.P., a Rose from the "Sunny South," is crimson purple, shaded with fiery red, very bright and large; double only with me, not "full" as the raiser describes it. Full is a term too freely used by our confrères on the other side of the Channel, and must be taken with due caution, because applied to new Roses which we should not describe as more than double. Alba Rosea (Tea-Scented), "a seedling from Devoniensis," may be pronounced promising; the flowers are white with a slightly rosy centre, large, double, of fine form, and very sweet. Baron Adolphe de Rothschild, H.P., is a grand Rose, highly decorative, but not floriculturally perfect; the growth is vigorous, the foliage splendid; the flowers are red, produced in large clusters as in Chénédolé, beautiful when first expanding, but corrugating and losing colour quickly, and hardly full enough. Baron de Rothschild, H.P., is a more perfect, though a less showy Rose than the last; the flowers are dark reddish carmine, sometimes shaded with violet, petals smooth and of good substance; form, size, and habit above the average. Beauté Française, H.P., will please generally as a garden Rose; the flowers are violet red, velvety, the

reverse of the petals fiery red, large, and full; somewhat in the style of *Lion des Combats*. *Duc d'Anjou*, H.P., is a purplish crimson flower, shaded with dark red, in the way of *Baronne Prevost*, but much darker and very sweet; the flowers are very large and full, the growth vigorous. *Emotion* is a good Bourbon Rose in the way of *Souvenir de Malmaison*, not so large, but with higher and most exquisite colouring and perfect form. The flowers of *Gustave Rousseau*, H.P., are bishop's purple, shaded with violet-red, of good form and size, the summits of the petals reflexing. *Impératrice Marie Alexandrina*, H.P., is a blush or almost white Rose, not large, but of good form and full, very promising. *Jean Goujon*, H.P., is one of the boldest and showiest of this year's brood; the flowers are usually clear red, though sometimes shaded with purple, large and full. *John Hopper*, H.P., is a good rose-coloured flower, with darker centre, large and full, with fine foliage. I saw this Rose growing by the thousand with the raiser last summer, and admired it much, but am not sure that it will prove constant in autumn. *La Esmeralda*, H.P., is one of the *Jules Margottin* race, but darker and brighter; large, full, and very promising. *La Tour de Crouy*, H.P., introduced by the same raiser as the last, is a rose-coloured sort, shaded with white, very large and full. *Lady Emily Peel*, H.P., is described by the raiser as "white, bordered (liséré) with carmine;" I have never seen it otherwise than most delicately tinted with carmine; it is, however, a prettily shaped Rose of delicate beauty. *L'Eclatante*, H.P., is a fine bright red Rose, changing to violet-red as the flower advances in age; of good form and almost full; colours and habit fine. *Le Rhone*, H.P., is vermillion, a large, brilliant, well-shaped flower, but not "full" as described by the raiser; it is notwithstanding a very promising Rose. *Lord Clyde*, H.P., is a fine showy Rose, crimson and purple, deeply shaded; the petals are not very numerous, and some might pronounce it a little

coarse. This is one of a batch of seedlings I raised, but we parted company some three years ago, up to which time it had bloomed in summer only. Lord Herbert, H.P., is one of the Beauty of Waltham race, at present in my nurseries only; it is of quite a new colour, and stands described as rosy-carmine, but blue pink would perhaps more nearly express the colour; it is a large, full, and finely shaped flower. Lord Macaulay, H.P. (Wm. Paul), is a velvety scarlet-crimson flower of great substance and brilliancy, of good size and form, with splendid foliage. Louise Margottin, B.P., is a pretty delicate peach-coloured flower, not over large, but nicely formed in the way of Louise Odier. Madame Alfred de Rougemont, H.P., is pure white delicately tinged with rose or carmine; a fair sized, full, and beautifully formed flower, as free as Louise Darzens, and something of the same habit. Madame Brianson, H.P., is a very large, quite full flower, reddish carmine shaded with light red; form perfect, foliage fine; it is quite possible that in some soils this Rose will not always open freely. Madame Emain, H.P., is a fine purplish-red Rose, globular, large, and almost full. Madame Freeman, H.P., is white, slightly tinted with lemon, of average size, globular in form, and full; a nicely formed white Rose of free growth and thoroughly perpetual. Mrs Wm. Paul, H.P. (so named by Verdier of Paris), is one of the best of the season; the flowers are bright violet shaded with fiery red, large and full, usually produced in clusters and thoroughly perpetual. Mdle. Adele Jougant, T., produces pale but clear yellow flowers; not large nor very double, but pleasing and very sweet; the growth is free and it forces well. Murillo, H.P., is a large, full, and well-formed Rose of vigorous growth, flowers rich purplish-red shaded with carmine and violet. Princess Alice, H.P., has flowers of a bright salmon-pink, the reverse of the petals whitish, large, full, and very sweet; the flowers, which are abundant, are usually produced singly; the growth is erect and free, the shoots almost thornless. Red Rover, H.P., is a fiery

red Rose, large and very showy, not very double, but the finest of all late blooming brilliant pillar or climbing Roses. *Sœur des Anges*, H.P., is a delicate rosy-white flower, very large and full, distinct and beautiful. *Souvenir de Charles Montault* is a free flowering variety of the *Rose de Rosomane* group, producing large double cupped flowers of a brilliant red; the habit is good, the growth free. *Triomphe d'Angers*, H.P., pleased me much both abroad and at home; the flowers are red shaded with blackish violet, brilliant and velvety, full, of good size and form; it grows and flowers freely. *Triomphe de Nancy*, H.P., is a blackish velvety-crimson cupped flower, with large round petals; one of the darkest. *William Paul*, H.P. (so named by Guillot of Lyons, the raiser of *Géant des Batailles* and *Senateur Vaisse*), is a descendant of the "*Senateur*," and will be a favourite with lovers of colour; it reminds one of the most brilliant of the old "French" Roses now discarded because so transitory; black, edged with scarlet, though not literally true, conveys the appearance of the colour; it is of average size; in the early stage of the flower nicely cupped, sufficiently full, and very durable; the plant appears hardy, the growth free.

The above named sorts are described from my own notes taken from plants in bloom. In addition to these I am growing the following:—*Baronne de Lassus de St Genies*, *Caravane de Nismes*, *Comtesse de Courcy*, *Comtesse de Polignac*, *Deuil de Prince Albert*, *Dr Spitzer*, *Duc de Bassano*, *Grandiflora*, *Hortense Blachette*, *Le Juif Errant*, *Madame Charles Roy*, *Madame Crespín*, *Madame Helye*, *Madame Valembourg*, *Peter Lawson*, *Prince Henri des Pays Bas*, *Senateur Favre*, *Vainqueur de Goliath*, *Veloutée d'Orleans*, all Hybrid Perpetuals; and *Comtesse de Brossard*, *Tea-Scented*. This second undescribed list I have either not yet seen, or seen only in such condition that I cannot speak favourably of them. To condemn them on present evidence would, however, be unfair. Nothing is more uncertain than the first year's blooming of a

Rose that has spent a week or more on a French railway, and afterwards been tossed by sea and land. For these, then, I must beg a remand. Time, which proves all things, will shortly enable us to form a correct estimate of their value.

NO. VII.—AUTUMNAL ROSES.

(From "*The Gardeners' Chronicle*," 1863, p. 461.)

I GLADLY return to the review of Old Roses, highly interesting and important as are the new. There is less restraint; one breathes a freer air in company with old friends whose faces, habits, and sentiments are familiar to us. I always feel when talking or writing of New Roses much as I do when in company of strangers—that to be at once truthful and polite, one must be guarded. If others experience the same feelings, I can understand the why and wherefore of Mr Radclyffe's very just observation, that "Rosarians keep all their knowledge to themselves." But strangers should be talked to, and New Roses talked of notwithstanding, and in order that the greatest amount of good may be derived from it, we should exercise to the utmost our own good nature, and draw in return on our neighbour's charity. Now to our Old Roses.

THE NOISETTE, as we remember it originally, is not worthy of comparison in point of size with the modern kinds that have descended from it, enriched as they have been with a plentiful infusion of the blood of the Tea-Scented. There are only Aimée Vibert and Miss Glegg, white, and Fellenberg, crimson, of the old style of Noisettes (small flowers in large clusters) that we should consider worth recommending in the present state of Rose culture. Amongst those mixed with the Tea-Scented, America is a first-class Rose under glass, although it seldom opens clean and perfect out of doors; it is most beautiful at this moment planted out in one of my Rose-houses, quite

equal though somewhat different to the finest Gloire de Dijon. Celine Forestier or Liesis is a hardy yellow Rose, and one that blooms freely enough out of doors; the growth is so vigorous that it forms an admirable variety for a weeper, wall, or house. Cloth of Gold is the finest of all yellow Roses, but difficult to manage; it is best planted against a south wall, and pruned but little; if budded on the Dog-Rose, the growth will usually be vigorous, and the flowers as plentiful as one can reasonably expect from so large a Rose. Cornelia Koch reached me from America some two or three years ago, and has been most beautiful in my forcing-houses; it is straw colour, large, full, and globular. Desprez à Fleurs Jaunes is still valuable as a wall or house Rose on account of the distinctness and sweetness of its flowers, which are red, buff, and sulphur, the rapidity of its growth and the magnificence of its foliage. Miss Gray, or Isabella Gray, was introduced by me from North America, although I never recommended it; it is a good Rose occasionally, but uncertain, even under glass, and of no use out of doors except against a south wall; it is, perhaps, the deepest yellow in this group. Lamarque is a charming sulphur-coloured Rose, large, full, and globular; this also is a good wall or conservatory Rose. Miss Glegg is a beautiful, pure white Rose, of dwarf growth, flowering abundantly and in clusters, and therefore well suited for planting in masses. Ophirie is quite unique in aspect, copper colour, and a vigorous Rose with handsome foliage; it is in character as a weeping standard, on a pillar, or against a wall. Solfaterre is a nice sulphur-coloured Rose, large and very double, of vigorous growth, but apt to cast its leaves, from which habit it is hardly to be recommended for general purposes. Triomphe de Rennes seems a good hardy canary-coloured sort, of vigorous growth, with fine foliage; the flowers are large, full, and fine. The best places for these Roses are in the conservatory to clothe the pillars, or in the Rose-house; next in order, on walls or

pillars in sheltered situations. Aimée Vibert, Fellenberg, and Miss Glegg are an exception to these remarks, as they are best suited for borders or beds out of doors.

THE CHINESE or BENGAL ROSES are invaluable for flowering in small pots or for planting in beds on lawns, as no Roses flower so abundantly and so late in the year. Archduke Charles is quite an oddity; the flowers expand shaded rose, changing to crimson on exposure to the sun, which is contrary to the general rule, as the sun usually lessens rather than heightens the colour of flowers after expansion. Cels Multiflora is a pretty flesh-coloured Rose, large, full, free-flowering, and very hardy. Cramoisie Superieure is an admirable sort for bedding; the flowers are rich velvety crimson, not large, but full and abundant. Duchess of Kent forms a pretty enough variety, being white edged with rose; the habit is very dwarf. Eugène Beauharnais is something like Cramoisie Superieure, but the colour is more purplish; it is a good hardy Rose of free growth. Fabvier is almost scarlet, and one of the best bedding Roses we have for placing on lawns; it flowers so profusely and is so dazzling that a bed of it will make a garden radiant with splendour. Madame Breon is a large full flower of a rich rose colour, good and free. Madame Bureau produces pure white flowers, large and very double, is good for pot-culture, but scarcely hardy enough for planting in beds out of doors. President d'Olbecque is one of the hardiest and freest of Chinese Roses; the flowers are cherry red, very pretty and distinct; the plant is of hardy constitution, thriving equally well as a dwarf or as a standard.

NO. VIII.—TEA-SCENTED ROSES.

[From "*The Gardeners' Chronicle*," 1863, p. 533.]

THE TEA-SCENTED is the only first-class group that remains unnoticed, and this is quite worthy of a separate

paper. It is unfortunate that the most beautiful varieties are, as a rule, the tenderest. Those who have grown them out of doors only, can form no idea of their increased beauty when cultivated under glass. Plant them out in a house with or without heat; if heat be employed they will grow stronger, bloom earlier, and suffer less from mildew. The strong-growing sorts may be trained to pillars, or up the rafters of the house in the way of vines, and will produce flowers from every joint. The intermediate and dwarfer kinds may be grown as pyramids and bushes. Tea-Scented Roses succeed admirably grown in pots under glass, especially if worked on the Manetti, and require little pot-room and little pruning when in a young state. If grown out of doors, the best plan is to plant them in a border in front of, but a little distance from, a south wall, for if fastened to the wall they are liable to suffer from the attacks of red spider. Budded on the Dog-Rose in August and allowed to remain dormant through the winter, they form beautiful objects in the flower garden during the succeeding summer and autumn. No lover of Roses should object to Tea-Roses because they are tender, or on the assumption that they are difficult of culture; they are better worthy of a house or frame than half the greenhouse plants that are cultivated, and far easier to manage than one-fourth of the Hybrid Perpetual Roses. But then they must not be treated as ordinary Roses. If grown out of doors a warm and light rather than a moist and heavy soil is required, and they should not be pruned till late in spring (April). Distinct in colour, exquisite in form, rich in foliage, and surpassing all in delicacy and power of fragrance, they deservedly hold a very high position among the subjects of the "Queen of Flowers."

Abricoté is a good hardy free-growing sort, though scarcely vigorous; the flowers are fawn colour with apricot centre, large and double, very beautiful in bud. Adam has rosy-blush flowers, very large and full, and is one of the sweetest and best. Amabilis is a good hardy vigorous-

growing sort, with large full flesh-coloured flowers. Auguste Oger has large rosy flowers with deep coloured centres, and is of moderate growth. Auguste Vacher is distinct and good, the flowers are yellow shaded with copper colour, of good average size, and quite full, the growth is moderate. Belle de Bordeaux is of rampant growth, and the branches are well clothed with beautiful deep green leaves; the flowers are pink, large and full. Bougère, although one of our oldest Roses, cannot yet be dispensed with; the flowers are rosy-bronze, very large, full, and globular; the growth is vigorous. Clara Sylvain is a good pure white Rose with creamy centre, large and full, of moderate growth. Comte de Paris is a beautiful flesh-coloured flower, shaded with rose; large, full, hardy in habit, and of great excellence. Comtesse Ouvaroff is beautiful in bud, but does not always expand symmetrically; the flowers are rose-shaded, large and full. Devonensis, which is an English seedling raised at Plymouth, is still one of the best; the flowers are pale yellow, very large, full, and beautiful. Duc de Magenta has immense salmon-coloured flowers, which, if few in number, are of unequalled breadth and substance. Elise Sauvage, Madame William, and L'Enfant Trouvè—for I regard these as one and the same—is one of the sweetest and loveliest of the group; the flowers are yellow with a rich orange-coloured centre, and very sweet; the habit is sometimes robust, but more usually delicate. Enfant de Lyon deserves a special word of commendation on account of the freedom with which it flowers, and the exactitude of its form; although it resembles Narcisse a little too closely it is of a paler yellow. Eugène Desgaches is quite first-class; its large, full, and globular clear rose-coloured flowers are very beautiful; the growth is vigorous. Gloire de Dijon stands unrivalled and alone; it is as hardy as a summer Rose, having lived through the winter of 1860-61 in places where all the Hybrid Perpetual Roses were killed. Flowers of this Rose were sent to me from Dijon, and exhibited at one of the Horticultural

Society's Shows at Chiswick before it was sold to the public. I have seen it grow 20 feet in a season trained against a house, producing leaves of a size and substance truly remarkable; the flowers are yellow, fawn and salmon, variously shaded, large, full, and globular. Josephine Malton is a beautiful but delicate Rose, with cream coloured flowers, large and double. Julie Mansais, I may add, is not one of the freest of Roses, but when well grown it is certainly one of the loveliest; the flowers are usually white, though sometimes tinged with lemon; large and full. La Boule d'Or is the deepest yellow of this group, and sometimes beautiful under glass; out of doors the buds are often as hard as a cricket-ball, and as little disposed to open; it is nevertheless desirable for its colour, and is hardy, vigorous, and free. Loose petals of this Rose were sent to me from Paris the year before it was introduced. I was struck with the colour, but adjudged it too hard in the bud. Rosists can make out a flower from a petal as physiologists an animal from a bone. Louise de Savoie is a fine large pale yellow Rose, good for under glass. Madame Bravy is a prettily-shaped cream-coloured flower good out of doors as well as within. Madame Damaizin is very free both in growth and flowering, and hardy also; the flowers are salmon colour, large, full, and sweet. Madame Falcot is quite first-class; it is much in the style of Safrano, but deeper in colour and more double; it remains to add that it does not grow so freely as that old favourite. Madame de St Joseph has very large salmon-pink flowers, powerfully fragrant, and of great beauty; it is best under glass. Madame Halphin differs from all others; the flowers, which are large and tolerably full, vary from salmon-pink to yellowish white. Madame Pauline Labonté is a large flat salmon-coloured Rose, showy and very hardy. Madame Villermoz is one of the gems of this group; the large full wax-like flowers—white shaded with salmon—and splendid foliage unite to form an object of rare beauty; the habit is also hardy,

the growth free. *Marquise de Foucault* produces variable flowers, white, fawn, and yellow; large, very sweet, of perfect outline, but not full. *Moiret* is a grand old Rose, but one that is only occasionally to be caught in perfection; the flowers are pale yellow, shaded with fawn and rose; very large, full, and of great substance. *Narcisse* deserves universal cultivation; the flowers are yellow with creamy edges, perfectly circular and full, reminding one of a transverse section of a hard-boiled egg; the plant is hardy, the habit good and free. *Niphetos* is a match for *Duc de Magenta* in size, though more globular in form, and of a different colour—pale lemon to snowy white. *President* ranks also amongst the largest and most beautiful of this group, surpassing both the preceding in fragrance and form; the flowers are rose shaded with salmon. *Safrano* in the bud state is one of the most beautiful, but the expanded flower is thin and poor; the buds are apricot, the flowers fawn colour; the plant grows so freely, flowers so abundantly, and is withal so uncommon in colour, that it forms a most attractive object in the garden. *Sombreuil* is a good hardy free-flowering white Rose, of large size and vigorous growth, well suited for out of doors. *Souvenir d'Elise Vardon* is an in-door Rose, varying in colour from white to creamy yellow, very large and of great substance; the flowers are usually few but fine. *Souvenir d'un Ami*, or *Victoria* as it is sometimes called, is not surpassed by any other in the group; the flowers are salmon and rose shaded, large, full, and globular; the constitution is hardy, the foliage fine. *Vicomtesse de Cazes*, if of loose and irregular shape, produces flowers of exquisite colour—coppery yellow—and cannot be set aside as a decorative Rose for house or garden; it is very sweet, free, and tolerably hardy.

NO. IX.—BRIEF RULES.

[From "*The Gardeners' Chronicle*," 1863, p. 581.]

PERHAPS I cannot do better than end this series of papers on Roses by a few brief rules, which may assist those who delight in managing their own plants, but have not the leisure or inclination to study their habits and requirements.

1. The best soil for Roses is a strong loam well enriched with decayed stable manure; if the soil is not of this nature, it should be improved by the addition of such as far as possible.

2. For light soils use cow-dung and poudrette instead of stable manure, merely mulching with the latter early in May.

3. Prune at two seasons; thin out the supernumerary shoots in November, and shorten those that are left in March.

4. Remember that the Summer Roses should be thinned more freely, and shortened less than the Autumnals.

5. Always cut back to a bud which has a tendency to grow outwards, rubbing out those buds which are directed inwards.

6. Destroy Aphides so soon as seen; by brushing them off or washing the shoots with tobacco-water out of doors, and by fumigating with tobacco under glass.

7. Check mildew by dusting sulphur on the leaves while moist with rain or dew.

8. Water freely during the growing season if very dry.

9. Never buy old Roses on the Manetti stock until you have proved that they will not flourish in your soil either on the Dog Rose or on their own roots. The new Roses you *must* buy on the Manetti, or wait till they are raised by the slower process of budding or by cuttings.

10. Avoid plants that have been "coddled," by raising and growing in heat during their early stages of existence. Thousands of Roses are annually sold which have the seeds of disease and early death previously sown by the forcing process. Such, if they live, do not grow vigorously, and often remain stationary or feeble for a length of time.

11. At whatever season Roses on their own roots in pots are purchased, they should be planted in the open ground in spring and summer only (May, June, or July); once established they may remain permanently there.

12. Roses in pots should be re-potted, removing a portion of the old soil early every autumn; they require closer pruning than the same sorts growing in the ground; they should be watered with weak liquid manure so soon as the young leaves expand, and until the flowering is over.

13. Roses intended for forcing should be brought into a state of rest in August or September, and be pruned shortly afterwards.

14. Roses under glass should be shaded when coming into bloom, but with a light shading only, such as Tiffany No. 1 or Scrim.

15. Most of the Tea-scented Roses thrive best under glass, and are worthy of this especial care. They may be grown in pots, in a cold pit or house, or be planted out in a house, standards or dwarfs, with or without heat.

16. Buy only such new Roses as are recommended from trustworthy sources. A new Rose that is not at the least equal to or different from all its predecessors is not worth growing, and to grow such is almost as disappointing as to read a new book that is not worth reading.

17. When growing for exhibition look to form and colour as well as to size; the day has gone by for mere bulk to triumph over symmetry of form and variety and brilliancy of colour, whether in pot Roses or others.

These rules might be extended almost indefinitely;

I have aimed at bringing out the cardinal points only. I believe that I have read and interpreted differently to some certain pages in Nature's Book of Roses during the quarter of a century that I have been actively engaged in the cultivation of this popular flower. But I certainly shall not quarrel with those earnest, industrious, and true fellow-workers by whom I am surrounded because they differ from me. On the contrary, I am not without hope that these papers, often hastily written in the limited leisure of active business life, may induce such to state their experience. He is no true student of Nature who prefers his own views to the advancement of the art or science to which he has devoted himself. Light from any and every source should not only be freely admitted, but frankly acknowledged, and honourably prized. *Vive l'Horticulture ! Vive la Rose !*

TWO ROSE SHOWS.

[From "*The Florist*," 1867, *p.* 180.]

I THINK it was Thackeray who remarked that actors when not playing always went to the play ; and, whether exhibiting or not, I never miss seeing the two Rose Shows. The 29th day of June found me at the Crystal Palace, and a more auspicious day for exhibitors and visitors could hardly have been desired, although it was perhaps rather hot for the Roses, which in many cases showed signs of fatigue long before the close of the Exhibition. The Show was undoubtedly a success ; yet I fancy that I have seen more competitors in some of the classes, and a greater number of fine Roses, the diminution in the number of the latter being attributable probably to the severe winter and spring we have just

passed through. It may be said that this influence was local, and local I believe it was in the intensity of its effects, but it was, if I mistake not, general in so far as the effect produced on the quality of the flowers. I have said, and say again, that the Crystal Palace is not a place in which to show plants and flowers to advantage, nor one in which to keep them in the highest state of freshness throughout a long summer's day. There is too much light, too much heat, and the magnificent surroundings lessen rather than add to the importance and effect of the Exhibition. Why does not the Company erect in its beautiful gardens canvas tents, the best of all contrivances for displaying plants and flowers to advantage? Let us hope to see this done at no distant future; and if the tents could be connected with their own Rose garden—the interior of the temple filled with Pot Roses and pyramidal bouquets of cut Roses in vases—the Crystal Palace Company might safely count on making this not only the best Rose show, but one of the most interesting floral fêtes of the year.

As the clock struck twelve I took up my position at the entrance, note-book in hand, and, sore trial of patience though it was, stuck to the ropes for four long hours, by which time I had brought the last flowers under view. Willingly would I have moved faster, but to go with the stream and see, or diverge and not see, were the only alternatives. I preferred the former course, and having fairly carried it out, will now give my readers the benefit, if benefit it be, of the following extracts from my note-book, relating of course to new or little known roses only.

Madame Josephine Guyet, crimson, much in the way of *Senateur Vaisse*, large, full, and of tolerable form; apparently good, but not indispensable.

Xavier Olibo, blackish crimson, shaded with amaranth; pleasing in colour when it does not burn, but irregular in shape; pretty, but much over-praised.

Marie Baumann, bright carmine, the flowers large,

smooth, and nicely formed, something in the way of Beauty of Waltham.

Madame Fillion, beautiful fresh pink, colour very lovely, outline good ; the flower not of any great depth.

Abel Grand, rosy blush, colour fresh and pleasing ; a very nice Rose, something in the way of Duchess of Sutherland.

Marguerite de St Amand, rosy flesh-colour, large and full, having the free habit of Jules Margottin.

Leopold Hausburg, carmine shaded with purple, large, good outline, slightly coarse, and scarcely double enough.

Charles Rouillard, rosy lilac, with red centre, large, full, and of perfect form, the colour at the circumference of the flowers sometimes a little dull.

Alpaïde de Rotalier, transparent rose, large, full, and of good form ; fine.

Madame Eugène Appert, salmon rose, large, full, and finely formed ; colour fresh, pleasing, and distinct.

Mdlle. Thérèse Levet, rose pink, large, full, distinct, and of globular form ; very desirable for the combination of form and colour.

Alfred Colomb, bright red, large, full, globular, smooth ; quite first-rate.

Monsieur Woolfield, rosy pink ; a very large but somewhat coarse globular flower.

François Treyve, crimson scarlet ; good, but scarcely first-rate as shown.

Duke of Edinburgh, a dark flower, something in the way of Prince Camille de Rohan.

Comtesse de Palikao, pretty rose colour, apparently growing paler soon after expansion.

Madame Bellender Ker, white, something in the way of Mdlle. Bonnaire ; desirable as a white Rose.

Ville de Lyon a large, finely shaped Rose of a melancholy colour.

Chevalier Nigra, pretty pink, not over double.

Triomphe de Soissons, flesh colour, distinct and pretty, but scarcely first-rate.

Mdlle. Annie Wood, clear red ; large, full, and of good form.

Mdlle. Jeannie Marix, dark slate ; very large.

Souvenir d'Abraham Lincoln, dark crimson and purple ; not over large.

Felix Genero, a nice globular flower, of a dull lilac colour.

Miss Ingram, flesh-coloured white ; somewhat globular in form.

The Show at Kensington on the 2nd of July was in some sort a repetition of that held at the Crystal Palace three days before. The flowers, if less numerous, were fresher at the outset, and remained so till the close of the Exhibition, the sky being cloudy, and the day comparatively cool. We say of the Rose Show at Kensington as of that at Sydenham—the Roses should be shown under canvas to secure the twofold advantage of a more favourable light and a cooler atmosphere.

In addition to the kinds already commented on we saw in fine condition here:—

Madame James Odier, clear pink, something in the way of Coupe d'Hébé ; colour and shape good.

Madame Hoste, delicate pink, distinct in colour, perfect in outline, not always very double, and apparently not of strong constitution.

Semiramis, clear pink, edges blush ; large, full, and of fine globular form.

Fisher Holmes, reddish scarlet shaded with crimson ; very brilliant, large, and moderately full.

Prince de Portia, vermilion, colour striking and beautiful ; large, full, and finely formed.

Exposition de Brie, brilliant red, large and full ; a very fine but somewhat coarse flower.

Charlotte Corday, red shaded with purple ; large, but hardly first-rate.

Comtesse de Paris, rose colour, large and full, fine smooth petals, good outline, not very double.

Josephine Beauharnais, pink edged with silver; very large, full, and of fine form.

In addition to the above I noted the following simply as good:—Achille Gonod, George Prince, Duchesse de Morny, Princess of Wales, Madame Emain, and La Esmeralda.

The Pot Roses were, as is usual at this season of the year, of indifferent quality at both Shows, and not worthy of comparison with the plants shown at an earlier date. Some of them were, in fact, calculated to throw discredit on the names they bore. Yet Pot Roses must not be omitted from our future Rose shows; they form a distinctive feature, and it is interesting to see the whole plant before one, as so much more may be learned from it than from mere cut flowers. The growers must, however, bestir themselves and bring them in better condition.

On comparing these exhibitions with those of former years, it is both important and interesting to note how many of the old Roses are falling aside before the increased size, improved form, and other desirable qualities of recent introduction. Although some of the old kinds, as Caroline de Sansal, Charles Lefebvre, Countesse de Chabillant, Beauty of Waltham, La Ville de St Dennis, Madame Knorr, Lord Macaulay, Madame Vidot, Mdle. Bonnaire, Pierre Notting, &c., still hold their own against all new comers, and probably will do so for at least a generation, how many of our old favourites present were eclipsed by later acquisitions, and how many had totally disappeared! And while it cannot be gainsaid that there are second and third-rate new Roses as well as second and third-rate old Roses, it is still undeniable that the pick of the novelties evince a progress which is real, solid, and satisfactory.

In Abbé Berleze we have an improved Géant des

Batailles; in Madame Victor Verdier an improved Général Jacqueminot; in Lady Suffield an improved Duchess of Norfolk; and there are other improvements too numerous to mention. We have also in Alfred Colomb, Antoine Ducher, Charles Verdier, Comtesse de Jaucourt, Horace Vernet, Jules Calot, Black Prince, Madame Pulliat, Madeleine Nonin, Monsieur Noman, Paul Verdier, Thorin, and others, new colours and styles which only require to be seen to be coveted. It is true that some of the last-named did not appear at the exhibitions, or appeared only in doubtful condition, but I have seen them both at home and in the grounds of the raisers in a state of beauty that justifies unqualified commendation.

GARDEN ROSES.

[From "*The Florist*," 1867, p. 213.]

"ROSES at the exhibitions and Roses in one's own garden are different things," said an old Rose amateur to me the other day, and so much is there in this remark, that having already given a paper on Roses at the Exhibitions, I turn now to treat of "Garden Roses."

It is perhaps scarcely necessary to remark that those who admire Roses in all their native loveliness on bush or tree should hardly choose their varieties from the cut specimens met with at the flower shows. Lovely they are, it is true—for when and where is the Rose not lovely?—but there is a "getting up," a weary look about them, which reminds one of the late hours of the ballroom rather than of the charming freshness and native simplicity of home life. And how can it be otherwise? When we consider that these Roses have been gathered from fifty

to sixty hours before the public is admitted to see them, a part of which time they are packed in boxes almost immured from air and light, the wonder is that they look as fresh as they do.

Then, again, the mere exhibitor of Roses runs too much after one idea—form—to be a safe guide when choosing for garden decoration. He does not heed sufficiently habit and constitution, and hence the symmetrical flower of the exhibition table is often the offspring of a weakly or shabby tree. We want good Roses; but we want also, for the purpose of general gardening, varieties of hardy constitution that will grow and flower well, and live to a good old age, without the petting and coaxing which so many of the modern varieties require. To choose Roses, unless exhibiting is the main object in view, one should see them in their rural homes, where the act of “getting up” is seldom practised, and pretty faces count only at their proper worth—should see them when newly opened by the breath of morn, and while still wet with the dews of heaven. Freshness is the crowning beauty, the indescribable and irresistible charm of the Queen of Flowers, and this freshness is wanting in nine-tenths of the flowers met with on the exhibition tables. But there is more in the matter than this. The practised Rosarian may gather from a solitary bloom, or a trio of blooms, whether the plant is of hardy or delicate constitution, whether the bearing is handsome or awkward, whether the flowers are generally or only occasionally fine, and the many other little points important though often overlooked in the hasty generalisations of this busy age, and which go to make up a good Rose—the practised Rosarian, I say, may arrive pretty accurately at these facts from cut specimens, but woe be to the unpractised who decides and acts on such evidence. Daily experience confirms the opinion long entertained by the writer, that they who want Roses to decorate their gardens should choose from growing

plants rather than from cut flowers. Acting on these views, I lately, when visiting the Rose gardens in France, made notes of the best garden Roses, and these I have corrected by comparison with the collection growing here under my own eye.

First, I would observe that the Amateur who wishes for a fine display of Roses in June and July will lose much if he excludes from his list certain varieties of Summer Roses. Among the Moss Roses there are:—Comtesse de Murinais (white), Gloire des Mousseuses (blush), Marie de Blois (lilac), the old-fashioned Moss and the Crested Moss (pink), Baron de Wassenæer (red), and Captain Ingram and *Purpurea rubra* (purple), all free, hardy, profuse, and beautiful. Of Damask Roses, Madame Hardy and Madame Soetmans are still unsurpassed as white flowers, although rarely met with at the exhibitions. The varieties *Félicité* and *La Séduisante* compel us to retain the group *Alba*; these are improved varieties of the Maiden's Blush, and although there are now Hybrid Perpetuals of similar character, they are so delicate as to be short-lived and scarcely manageable. Neither are the old French Roses to be hastily ignored, for in *Œillet Parfait* and *Perle des Panachés* we have the two best striped Roses (white, striped with crimson and rose) that have yet appeared. Again, where effect is valued, where masses of bloom are desired, there are none comparable to the old Hybrid Chinas—Charles Lawson, *Chénédolé*, *Coupe d'Hébé*, Juno, Madame Plantier, Paul Perras, and Paul Ricaut. Nor must we forget to include *Harrisonii* (Austrian), a plant of matchless beauty when covered with its golden globes in May and June. Yet how few of these ever put in an appearance at the Rose shows! If our new Hybrid Perpetuals produced the masses of bloom in summer which the above-mentioned kinds do, and continued to bloom constantly throughout the autumn, it would be well to take them in preference. But this is not the fact. Cultivators know

well that the majority of these Hybrid Perpetuals produce fewer flowers in summer, and scarcely an equivalent in the later flowers. The difference is, perhaps, hardly appreciable in the sum total of flowers. It is this—The Summer Roses pay you a good round sum down at once; the Autumnals the same, or a nearly similar sum by instalments. The latter are valuable because they give us flowers when

“The last Rose of Summer is faded and gone;”

but it cannot be said that they produce the splendid effect of the Summer Roses in the months of June and July. Let me not be misunderstood. I have no wish to depreciate the Autumnals; all I contend for is, that each has its peculiar value, and the Rose garden is incomplete without a goodly portion of these summer-blooming kinds.

Having stated my views in reference to Summer Roses, I now turn to the Autumnals, among which the Hybrid Perpetuals and Tea-Scented hold the highest rank alike as garden and show Roses, although the same kinds are not always equally suitable for both purposes. Among the Hybrid Perpetuals the following will be found to give very general satisfaction:—Alfred Colomb, Alphonse Damaizin, Anna Alexieff, Baron Adolphe de Rothschild, Beauty of Waltham, Charles Lefebvre, Comtesse de Chabrillant, Dr Andry, Duke of Wellington, Elizabeth Vigneron, Exposition de Brie, Fisher Holmes, François Louvat, General d'Hautpoult, General Jacqueminot, Glory of Waltham, Jean Rosenkrantz, John Hopper, Jules Margottin, Lady Suffield, La Brillante, La Duchesse de Morny, Leopold Hausburg, Lord Macaulay, Madame Alfred de Rougemont, Madame Charles Wood, Madame Rivers, Madame Victor Verdier, Maréchal Vaillant, Marguerite de St Amand, Pierre Notting, Prince Camille de Rohan, Princess of Wales, Sénateur Vaisse, Souvenir de la Reine d'Angleterre, Triomphe des Français, and Victor

Verdier. Of Bourbon Perpetuals, Baron Gonella, Baronne de Noirmont, Comtesse de Barbantanne, Madame Charles Baltet, and Madame de Stella are excellent. Louis XIV., of the Rose de Rosomane group, is also invaluable on account of the rich deep red globular flowers which it produces. Among the charming Tea-Scented varieties the best are:—Alba Rosea, Bougère, Devoniensis, Eugène Desgaches, Gloire de Dijon, Homer, Madame Damaizin, Madame Falcot, Madame Margottin, Madame Villermoz, Maréchal Niel, Narcisse, Niphetos, Rubens, Safrano, Sombreuil, and Souvenir d'un Ami. Of Bourbons I recommend Empress Eugénie, Souvenir de Malmaison, and Mrs Bosanquet; while of Noisettes, Aimée Vibert, Céline Forestier, and Fellenberg are the most effective in their way.

The colours and general character of the above varieties may be readily ascertained by reference to any of the great Rose growers' catalogues.

BEDDING ROSES.

[From "*The Florist*," 1868, p. 74.]

BRILLIANT and beautiful as the ordinary "bedding plants" are, there are few gardens that can be at once economically and effectively arranged without a certain preparation of permanent plants, which once planted exonerate us from the labour, expense, and risk of removal in autumn and replanting in spring. Of such, Roses stand in the very first rank. To establish this point we would ask those of our readers who may have taken an interest in gardening, either from the amateur or the professional point of view, over a lengthened period of time, whether they have not occasionally met with groups or masses of Roses the richness and effect of which they would gladly see reproduced

in their own gardens? The answer will we know be "yes," with a stress laid on the word "*occasionally*," conveying the impression that the task is not easy to accomplish. But this, in our judgment, is not the case. The task is easy if only the right means are pursued towards its accomplishment. The Rose as a bedding plant is seldom fairly and properly treated. It is known to be a hardy plant, and is treated as such; that is to say, the ordinary nursery plants are taken at planting time, put out at once, and expected to do for themselves what in the case of ordinary "bedding plants" is done *in advance* by the cultivator. These latter are grown under glass with the utmost care till they become strong, planted out in the most suitable soil that can be made, and afterwards tended with assiduous watchfulness. Now, if lovers of Roses would attain a like measure of immediate success, they must not shrink from the same forethought and care. It would pay them a handsome rate of interest could they be induced to buy their bedding Roses a year in advance, grow them the first year in pots, and plant them out in May after the spring frosts are gone, for then the same brilliant effect would be obtained the first season as with other bedding plants. It is, further, more important with permanent plants than with those which are replaced every spring that the soil should in the first instance be made all that is requisite, because there is not the same opportunity of after modification or renewal. Lovers of Roses, treat your favourites with the same consideration and care that your friends give to their "bedding plants," remembering that from the slower growth of the Rose a longer period of time is required to obtain the strong-established plants they work with, and your gardens will be varied and improved by the addition of one of the richest and most effective of bedding plants.

Taken from a practical point of view, bedding Roses may be arranged in three groups according to their habit of growth—the dwarf, the moderate, the free. In a good soil and climate we should prefer the dwarf and moderate,

and under less favourable circumstances the free. The following will form a pretty group of four beds of dwarf Roses of neat and equal growth, producing masses of flowers throughout the summer and autumn:—*Bourbon*, Queen (buff), *China*, Fabvier (crimson), *Tea-Scented*, Narcisse (yellow), and *Bourbon*, Victor Emmanuel (purple). Of moderate growth and nearly equal in freedom of flowering are:—The Common *China* (pink), *Cramoisie Superieure* (crimson), Mrs Bosanquet (white), and Madame Falcot (yellow). Of free or vigorous growth:—*Noisettes*—Fellenberg (crimson), Celine Forestier (yellow), Aimee Vibert (white), and *H.P.*, General Jacqueminot (crimson); are among the best. These twelve varieties, grouped in fours of equal growth, are the first we should claim for our own garden on the ground of their freedom and constancy of bloom. But this by no means exhausts the treasury. A goodly store remains which, if less effective in massing, produce flowers of larger size, and approaching more nearly to the florists' standard of beauty. Of these, the descriptions of which will be found in any of the Rose catalogues, we may instance:—HYBRID PERPETUALS—Anna Alexieff, Baronne Prevost, Beauty of Waltham, Dr Andry, Duchesse de Morny, Elizabeth Vigneron, General d'Hautpoult, Globosa, Jules Margottin, La Brillante, Lady Suffield, Lord Macaulay, Madame Victor Verdier, Prince Camille de Rohan, Prince de Joinville, Princess of Wales, Senateur Vaisse, Triomphe des Français, Triomphe de l'Exposition, and Victor Verdier. BOURBON—Souvenir de Malmaison; and TEA-SCENTED—Gloire de Dijon, Safrano, and Sombreuil.

Let us now trace briefly the best method of obtaining as quickly as possible the desired masses of flowers. Remember at the outset a rich, deep, moderately strong loam is the soil in which the Rose delights. It should be neither wet nor dry, but moderately moist, and if this is not the natural state of things in the garden, the nearer that it can be approached artificially the better. If budded plants are chosen they may be planted at any time between November

and March. If plants on their own roots be preferred, buy them in spring, and grow them in pots the first year plunged in an open situation in the garden, attending to watering, and keeping them free from insects; protect them slightly in winter, and plant them out in May. Water carefully when the soil is dry until the roots have taken firm hold of the ground, and for five months in the year the beds will be flushed with blossoms. On the approach of winter a slight protection will again be necessary, especially for the Chinese and Tea-Scented kinds. Branches of any evergreen tree or the haulm of asparagus stuck pretty freely among the plants, but not so thickly as to prevent the circulation of air and encourage an excess of moisture, are the readiest means, and sufficient to accomplish this. Late in February one-half, and in April the remaining half of these branches may be removed preparatory to pruning. The varieties of dwarf growth may be pruned very closely; if on their own roots they may be cut down nearly level with the ground, when they will push up from beneath with a surprising strength, and produce immense trusses of flowers. The moderate growers should be pruned less closely, and the free or vigorous growers least of all. With the latter, when the growth is very free, it is sometimes desirable to bring a given number of the strong branches into a horizontal position to cover the beds and increase the quantity of flowers. On this point, as on many others, practice is the best and safest instructor.

Bedding Roses are yearly in greater demand, and we often experience the difficulty of the limited number of suitable varieties. "I want a series of beds of Roses on my lawn," says Mr A, "but the sorts must be of hardy constitution and of compact growth; they must flower freely and continuously, and have at least some fragrance." Desirable qualities, no doubt, but qualities still hard to find combined in all shades of colour. Notwithstanding, we have some kinds of this character, and there is no reason why

we should not make use of these in the present, and hope for a greater variety in the future. If raisers of seedling Roses had selected for freedom and perpetuity of flowering, as well as for size and symmetry in the individual blooms, we feel assured that we might ere now have been in possession of Roses of every hue, masses of which would vie in brilliancy and effect with the most gorgeous denizens of the garden. Fortunately in the olden times, before the florists' canons had obliterated all other considerations, these qualities were estimated at their true worth, and we have them in great perfection in the first twelve varieties quoted. What we want further is the same qualities of freedom and constancy of flowering, *in every shade of colour*, that those who plant their gardens chiefly for effect may have their Rosarium as well as those who plant for the beauty of the individual flowers. We should rejoice to find that some of our raisers of seedlings had taken the matter up from this point of view, for we should anticipate important results from powers judiciously employed.

THOUGHTS ON ROSES.

[From "*The Florist*," 1868, p. 193.]

THE spring and summer of 1868 will doubtless be long remembered by English horticulturists, and be often referred to in the future. Little or no rain fell from February to August. Cloudless days and cloudy nights were the usual order of things, so that even the refreshing dews, so customary and so beneficial to vegetation in our climate, were almost denied us. Newly transplanted Roses have in some places suffered much, especially where the plants had been removed from a

rich to a less genial soil, and this notwithstanding mulching and watering them.

Laborious as is the work of a nursery or garden on a moist clayey soil, our sympathies this year must be reserved for those who have a lighter and more "workable" staple. On such the Roses have been simply miserable. Even on strong soils, fine as have been the growth and flowers, the latter have been unusually evanescent, opening in the morning and fading before night. One might water again and again, but watering at the root does not produce much moisture in the air, one necessary condition of a favourable Rose season.

I have often ventured to point out the superior freshness and beauty of the early Pot Roses as exhibited in April and May, and never was this more apparent than in the present year. In my judgment the Rose will not be fairly and fully represented at our flower shows till we have a grand show of Pot Roses in April or May, at which Roses in pots shall figure not by dozens but by hundreds or thousands. Time was when stove and greenhouse plants were partly if not chiefly represented by cut flowers, but when the plants came to be shown in increased beauty and greater quantities, the cut flowers excited but little interest. So will it be with Roses. Can any of our readers recal the cut Roses at our Rose shows this year? In many instances they lay flagging and shrivelling in the heat, even before the public were admitted, and long before the fashionable hours of four and five o'clock arrived a great number were things of the past. Could anyone have gathered from them a correct idea of the varied beauty of the Queen of Flowers, or have noted varieties for their gardens with any certainty that they were choosing the best? If not, where is the practical value of our Rose shows as at present arranged and conducted? For a sultry day at the end of June or beginning of July—by no means an uncommon occurrence—would invariably produce similar

results. True, there is much in a name, and the name of a Rose show falls sweetly enough on the ear; but if the thing is to continue popular, or to be anything more than a pretty sound, the Rose must be brought before the public in all its native freshness on bush and tree. "I never buy a Rose now from the cut flowers shown at the exhibitions," said a Rose amateur to me the other day, "for there you see nothing but the flower. I want to know something of the foliage, the constitution, and the habit of the tree, especially whether it produces few or many flowers, and whether eleven out of every dozen are good or bad." Turning to our gardens, it is yet too early to speak of the year 1868 as a whole, because if a "dripping time" should set in, we may reasonably expect a grand display of Roses in the autumn. The summer growth on Rose soils is unusually firm and mature, and the wood doubtless well stored with organised matter, which only requires the stimulus of moisture in earth and air to produce the grandest results.

I of course must only speak of my own Rose ground, situate at Waltham Cross in the Valley of the Lea. The soil is a strong loam, 4 feet deep, resting on gravel. Water usually stands in this gravel within 4 feet of the surface. The ground has been thoroughly drained, the mains being 4 feet, the contributaries 3 feet 6 inches deep. Being surrounded with water, water has been freely used, but I have little faith in water alone on this soil; it requires to be supplemented either by mulching or keeping the surface loose by means of the hoe or fork. The latter is the grand panacea on this soil for all the ills which trees and plants are heir to; gravel and water, however, are not very far from the surface, and the water is doubtless constantly setting upwards by the law of capillary attraction.

Such a season as that just passed teaches us something. We learn a little by it, and have to unlearn a

good deal. One's faith in many varieties would be sadly shaken were he to judge them by this season alone. Some of the favourite show Roses, whose reputation has been built up by cut blooms alone, have scarcely appeared in box or on tree in anything like showable condition, whereas some almost-forgotten favourites, both new and old, have acquired or regained a high reputation. The best twenty-five varieties of the year with me have been:— Alfred Colomb, Antoine Ducher, Beauty of Waltham, Black Prince, Dr Lindley, Elizabeth Vigneron, Felix Genero, Fisher Holmes, François Louvat, Jean Lambert, La Duchesse de Morny, La Ville de St Denis, Lord Macaulay, Louise Peyronny, Madame Victor Verdier, Mdle. Annie Wood, Maréchal Vaillant, Marie Baumann, Monsieur Boncenne, Monsieur Noman, Pierre Notting, Prairie de Terre noire, Prince de Portia, Queen Victoria (Wm. Paul), and Souvenir de Monsieur Boll. Do we seek the why and wherefore of this? The reply is, constitution and substance. A Rose with good constitution and substance stands best the vicissitudes of climate, be it rain, frost, or sun heat. Thousands of Roses of perfect beauty, but of delicate constitution, will be found to have succumbed to this tropical summer, and this year's experience should teach us not to pay too much respect to the one idea of form, but to look after substance and constitution also. Another year may teach us some other fact, and so, little by little, with Roses as with other things, is a wide and correct knowledge built up by experience.

FAST LIFE AMONG THE ROSES.

[From "*The Florist*" 1869, p. 56.]

RECENTLY I proposed the following query when writing on new Roses:—"Do many kinds, really vigorous when beginning life anew from the seed, fail and

sink under the fast life which, if there is anything in them, they are often compelled to lead?"

Many letters have reached me on this subject, and assuming that the writers are readers of "*The Florist*," I cannot do better than answer them through its pages. One correspondent, writing anonymously (I wish people would not write anonymously), facetiously asks if "I mean to assert that there are fast individuals of the genus *Rosa* as well as of the genus *Homo* ; for if so he would wish to have them pointed out, that he may set his mark on them, and have them excluded from the precincts of his domain." Very good ! Another asks whether, as a practical horticulturist, I can possibly believe in "that absurd theory" the wearing out of races. There are other questions of a more serious, modest, and practical bearing which I need not quote, but I will endeavour to answer all by an amplification of the original sentence.

First, let me say I had no intention of using the word "fast" in its slang signification, but literally as "swift, moving rapidly, quick in motion" (Walker). I have heard it said of a certain London firm that it kills or incapacitates a new partner by overwork every three years. A clever man and a willing worker is admitted, and finds such scope that he is almost always overtaxed. Now it is much the same with new Roses. So soon as a new Rose is seen and known to be good, it is by some subjected to all sorts of stimulants—as excessive heat, moisture, manure, &c.—to get the greatest possible quantity of cuttings, grafts, and buds from it in the least possible time ; these are taken off in rapid succession, and the young plants thereby acquired are again and again subjected to the same treatment. As a consequence the tissues are weakened, the functions of nutrition are deranged, and debility ensues from "the fast life which the plant is compelled to lead." I do not say that individual plants cannot be brought back into their original health and vigour by time and skilful treatment ; on the contrary, I have proved that

they can ; but they often remain in a debilitated condition for a long time after having been raised by this extreme forcing process, and there is danger of the reduced vigour becoming fixed or chronic. If by skilful and natural cultivation the vigour of a rose can be increased and maintained (witness Climbing Aimée Vibert and Climbing Devonensis), surely it is probable that the converse is equally true, that by unnatural and unskilful cultivation the vigour may be diminished and lost. Most practical horticulturists must, I think, have met with instances of both amongst the various classes of plants to which they may have given special attention.

My object in penning the original sentence was to enter a quiet protest against a practice which I should be glad to see discouraged and discontinued.

ROSES AND ROSE SHOWING

[From "*The Florist*," 1869, *p.* 173.]

FROM many parts of England letters have reached me conveying the unsatisfactory intelligence that the first bloom of Roses has been indifferent. Aphis and mildew, with buds sealed, dingy in colour, and falling unexpanded, were doubtless very prevalent features in the summer bloom of 1869. But to all who may have experienced these disappointing results I would say—take courage. Wash your plants to destroy the insects, dust with sulphur to check the spread of mildew, water if dry, cut off all remnants of passed and passing flowers, and bide your time. I have often seen an indifferent summer bloom followed by a magnificent display in autumn ; and if the present and next month prove favourable there is good reason to expect such a result this year.

But while the summer bloom of Roses has been gene-

rally indifferent it has not been universally so. In my nurseries, and in other nurseries and well-known gardens in Hertfordshire, the flowers on the old plants never were finer or more abundant. The mass of my young plants are hardly yet in full bloom, as it is my practice to remove the first blossoms, by which means larger heads, a more regular growth, and more thoroughly ripened wood—conditions essential to the future wellbeing of the plants—are obtained. This stopping of the young shoots produces an intermediate flowering in July and August, which has been already good, and still promises well.

It may be some consolation to those who have suffered disappointment this year to know that it is a matter of season rather than of cultivation, and therefore more or less beyond their control. The cold nights and sunless days are at the bottom of the mischief. I have recently been through the principal nurseries in France, and find the same result, only in an exaggerated degree there as here. Never were the Roses there so few and indifferent. The grand Rose Show, which was to have taken place at Brie-Comte-Robert in July, has been postponed, and the growers intend showing their flowers at Tournay in September.

Finding but little work for the eyes when in France, I made the best of the circumstances by using my tongue and ears in discussing various knotty points in Rose culture with the most intelligent growers.

In England there are two classes of Rose growers, those who grow for plants, and those who grow for flowers. The two points are not usually combined in the same individual with the highest degree of success. As the results sought are different, so are the means used in their attainment. Those who grow for show let the dormant buds of the last year's budded plants flower from the first growth, and by means of high manuring, copious watering, and disbudding, induce a fat growth and fat flowers, which, by the use of hand-glasses, flower-pots, mats, canvas, and

other warming, bleaching, shading, or disbudding processes, as the case may require, obtain flowers of a size and complexion which are not often met with except on the exhibition tables. True, the garden during this process is in a state of infinite disorder, but what does that matter to your exhibitor? He grows for a purpose and attains it. The grower for plants, on the contrary, stops the shoots of the last year's budded plants when only a few inches long, whereby he destroys the first bloom; but he gets a later bloom, and what he chiefly aims at, instead of a few stout and often ill-ripened shoots, many well-placed shoots of moderate growth, and well-ripened.

In France, although some growers show and some do not, there is not this broad difference in their practice of cultivation. All grow for plants. I discussed at length with several of them the different ideas of showing prevalent in England and in France, and agreed with them that the extra size of the flowers obtained in England by the disbudding process was dearly bought by the absence of flower-buds. I discussed this with M. Margottin, especially at the flower-show at Sceaux, where the Roses were in some cases very good. There was one fully expanded flower of each sort exhibited, surrounded with leaves, and two, three, or four beautiful buds in various stages of development. There was far more beauty, to my eye, in these Roses than in the larger flowers seen afterwards at the Crystal Palace and Kensington, leafless and budless, bald and unnatural, though very tidily set up like so many rows of balls or of tea-cups in a toy or china shop. But *chacun à son goût*.

The effect of a Rose in the garden, the *tout ensemble*, constitution, constancy, durability, leaves, and buds, as well as flowers, enter more into the calculation of the French than the English grower. Here, too, I think that the Frenchman is right. But here, again, *chacun à son goût*.

Of the new Roses of 1867-8, I have seen the following

good both at home and abroad :—Alice Dureau, Aristide Dupuis, Baron Haussmann, Boule de Neige, Clotilde Rolland, Comte Raimbaud, Curé de Charentay, Duchesse d'Aoste, Elie Morel, François Fontaine, Impératrice Charlotte (of doubtful constitution), La France (a grand garden Rose), Madame Barriot, Madame Chirard, Madame la Baronne de Rothschild (very beautiful), Madame Marie Cirodde, Madame Noman (a good flower, but delicate), Pitord, President Willermoz, Prince Humbert, Reine du Midi (much like La Reine), Souvenir de Caillat, Souvenir de François Ponsard, Sophie de la Villeboisnet, and Vicomtesse de Vezins—*Hybrid Perpetuals*; Souvenir de Pierre Vibert—*Perpetual Moss*; Clotilde (much like Bougere), and Jean Pernet—*Tea-Scented*. The colours of these varieties will be seen on reference to any of the Rose growers' catalogues.

Of the new Roses of 1868-9 I am waiting for further evidence, and shall make them the subject of a separate paper by-and-by.

ROSES IN POTS :

How to Produce them in London and other
large Towns.

[From "*The Florist*," 1869, p. 193.]

I AM not fond of climbing high mountains or cracking hard nuts, but the former, even when they seem inaccessible in the distance, are often found to yield most pleasurable exercise to the hardy pedestrian, and there are mechanical appliances for dealing with the latter which at once save appearances and leave us free from the risk of dental injury. Now, the art of growing Roses in large towns is to the many who only look on from the

distance as an "inaccessible mountain," which they would rather not attempt; and to those who know little of mechanical appliances, it appears as a "hard nut," which a too sensitive appreciation of the dental organs teaches them to reject.

Will my readers bear with me while I endeavour to show what I stedfastly believe, that Roses, however difficult of cultivation in London and other sooty towns out of doors, may be grown with perfect success there under glass.

Our town friends may remonstrate, "Well, but we have tried them, and they won't do." Yes; but how have you tried them? Probably you have bought some plants at 1s. or 1s. 6d. each, and placed them in a house with bedding plants, camellias, and a host of other things whose conflicting interests rendered it impossible for the poor unfortunate Roses to receive anything like reasonable treatment. It should be remembered that what is "one plant's meat is another plant's poison," and how would our growers of orchids or stove and greenhouse plants succeed if they bought small plants, and if Roses were cultivated in the same house with them, and a treatment followed with the view of reconciling such antagonistic interests? The growers of orchids, &c., buy good-sized plants, have houses built expressly for them, or existing houses modified to suit them, and so it must be if the town gardener would succeed with Roses.

Well, then, what should the Rose-house be? As to dimensions, these may vary according to the means or wants of the cultivator; but a span-roofed house, so constructed that the plants may be kept close to the glass, and a free circulation of air secured, is the best form of structure. Heating, although not absolutely necessary, is yet desirable, both as a protection against severe frost and to secure the development of early flowers. In the next place, buy plants well advanced—plants that have passed their early and tender years in the nursery, under

experienced and watchful care, and in a kindly atmosphere. Bear in mind that men will thrive on diet and under discipline that would be fatal to infants, and mature plants of Roses will flourish where young and tender plants would die.

Let us assume, then, that the cultivator has a suitable house and suitable plants, which he houses unpruned at the beginning of winter. His first act of cultivation is to prune them. If he wants the best of his flowers in March and April he prunes in December, and applies gentle heat early in January. As the days lengthen, the heat may be gradually increased. In sunny weather the syringe should be used freely, especially in the morning. Watering must be regularly attended to, care being taken in the early stages of growth not to water too much; more water will be required as the leaves increase in size. Smoking must be resorted to on the first appearance of green-fly, and repeated often enough to keep the plants entirely free from these destructive visitants. Mildew must be guarded against. A small pepper-box with finely punctured holes should be kept at hand filled with sulphur, and this should be dusted freely on the leaves whenever the mildew is seen. A light shading should be provided, to be used as soon as the buds show colour. When the flowering is over, the plants should be rested by lowering the temperature of the house and by withholding water. In about a month growth will recommence with the advancing temperature of the year, when water must be again given, and the same routine of culture pursued; a second flowering will then take place in June, before the Roses are in flower out of doors. When the second flowering is over the plants may be plunged out of doors, syringing frequently; an occasional flower will come forth, but it is desirable to rest them there till required for use again in December.

If no heat is applied to the house, less moisture

should be used, and the first flowering will take place in May, the second in July and August.

The best season for re-potting Roses is September. Shake a good portion of the old soil away, using larger pots when required. There is no better soil for Roses in pots than strong turfy loam and cow-dung, with sufficient drift-sand to render it thoroughly porous.

I shall conclude this paper with a list of a few good sorts, which appear best suited to realise the objects in view:—

HYBRID PERPETUALS.

Anna Alexieff	Lady Suffield
Beauty of Waltham	Louise Peyronny
Duchesse de Caylus	Madame de Stella
Comtesse de Chabrillant	Madame Rivers
General d'Hautpoult	Madame Victor Verdier
General Jacqueminot	Mdlle. Therese Levet
John Hopper	Marie Baumann
Jules Margottin	Marechal Vaillant
Elizabeth Vigneron	Monsieur Noman
Fisher Holmes	Pierre Notting
Charles Lefebvre	Princess of Wales
Alfred Colomb	Prince Camille de Rohan
La France	Victor Verdier

BOURBON PERPETUAL.—Comtesse de Barbantanne.

NOISETTE.—Celine Forestier, Solfaterre.

TEA-SCENTED.

Ajax	Madame Damaizin
Archimède	Madame Falcot
Gloire de Dijon	Madame Maurin
Goubault	Madame Pauline Labonté
Homer	Madame Villermoz
Climbing Devoniensis	Maréchal Niel
La Boule d'Or	Monsieur Furtado

Marie Sisley	Safrano
Nina	Souvenir d'un Ami
Nisida	Vicomtesse de Cazes
President	Zelia Pradel
Regulus	

The above will be found a very good lot to begin with, and the newer and less certain kinds can be added at pleasure, as required.

ROSES AT THE ROYAL BOTANIC SOCIETY.*

[*Extract from "The Gardeners' Chronicle," July 25th 1874, p. 109.*

LEADING ARTICLE BY THE EDITOR.]

"**H**EARTILY do we congratulate Mr William Paul, of Waltham Cross, on the success of his attempt to break away from the conventionalism and formality with which a Rose show is invested. Again and again we have protested against the ugly way in which our Rose shows, and we may specially add our fruit shows, are arranged. Only a week or two ago we remarked that the arrangement at Rose shows seemed intended to exemplify how even such beautiful flowers as Roses might be rendered ugly and unattractive. At that time we were not aware

* In July 1874 I made a Rose show in the gardens of the Royal Botanic Society, and the high encomiums passed on that effort by a "leader" in "The Gardeners' Chronicle" 1874, p. 109, and by the daily press aroused the jealousy of certain ordinary exhibitors, who did their best to negative the results expected to arise from it, and this gave birth to a controversy in the pages of "The Gardeners' Chronicle." I have thought it desirable to reproduce that "leader" and my articles, and if any readers of these pages should be sufficiently interested in the matter to wish to follow the *whole* of the controversy they will find it in the later pages of that Journal for the year 1874. I do not include these papers from a love of controversy, but because strangely enough they serve to elucidate certain occult practices in cultivation.

what Mr Paul had in store for us, and did not know that he had planned for the highly successful evening fête at the Royal Botanic Society in the Regent's Park a series of beds and combinations which were the talk of the town the next day, and which will, we hope, silence those who have said so often that the thing cannot be done. Admitting that for the moment Mr Paul was an autocrat, having only his own will to consult and his own materials to work upon, he has nevertheless proved that something tasteful can be accomplished, and that vastly increased attractiveness is the result. Conventional usages take a long time to uproot, especially when, as in this case, they have some admitted advantages. For our own parts we do not think these advantages at all outweigh the distressing ugliness of what should be the loveliest of floral parqueterie. It is difficult to understand why we have put up so long with long straight stages and ugly rectangular boxes with flowers jammed into them, and all packed closely side by side without variation of level, with nothing to set off, vary, harmonise, or contrast with the masses of colour. Why, even Roses themselves cannot bear such a test as that without suffering—a good Rose loses half its attractiveness—a bad one shows its effects more fully than it otherwise would do. “But the judges”—ah!—“the judges have to be considered.” Undoubtedly they have. They should have every facility given them for comparing the flowers, and for coming to a right conclusion as to their merits. But surely he must be a very inefficient manager who in such a case as this could not so contrive his plan as to satisfy at once the requirements of the judges and the tastes of the spectator.

“Again, it is said the exhibitors would raise objections. Perhaps they might at first, but they are far too long-sighted a race not to see that if the arrangements were well carried out, and facilities given for comparison, that their interests would be far better served than they now are. In the case of a Rose show, and still more in the

instance of a fruit show, it would be a much more easy task to fulfil the requirements of good taste, to satisfy the convenience of the judges, and of the exhibitors, than in a general flower show, and yet as a rule it is precisely in these less complicated shows that the least attempts are made at good grouping. Mr Paul has now shown us how the thing can be done, and the advantages are so self evident that we shall expect to see many others following in his footsteps. The annexed plans will show the general method of arrangement better than long description, and will, we think, make it manifest that it is quite possible to secure a beautiful and effective arrangement without interfering with the convenience of the judges and connoisseurs. Almost any change would be a relief from the stereotyped monotony and ugliness of our present system. The idea of Mr Paul, which he so successfully carried out, was to show the effect of groups of beds of Roses on grass, with due attention to harmony of colours. In most cases each bed was occupied with one variety only, but beds of mixed colours were occasionally introduced for the sake of variety. In some groups strong contrasts were arrived at, in others harmony of colouring, shade softening into shade. The flowers were placed in short stone bottles, in which the flowers were loosely arranged with buds and leaves as they grow naturally on the bushes. The extent and completeness of the arrangement may be surmised from the fact that about 6000 trusses of flowers were used. The varieties employed were those best suited for planting in masses, such as Général Jacqueminot, Firebrand, Madame Victor Verdier, crimson; Marquise de Castellane, Peach Blossom, Madlle. Thérèse Levet, rose coloured; Madame Plantier and Mrs Bosanquet, white; Madame Falcot, yellow; and most of the leading Roses, new and old, of every colour and shade. Taken individually, Firebrand, which may be described as a crimson Baronne de Rothschild, was the most effective in the show.

NEW STYLE OF SHOWING ROSES: PLAN.

REFERENCES TO PLAN:—

- (A) 1, Crimson ; 2, Blush ; 3, 4, Rose colour.
- (B) 1, Maroon ; 2, 3, Rose ; 4, 5, Crimson ; 6, 7, White ; 8, 9, Rose ; 10, Crimson.
- (C) 1, 2, White ; 3, 4, 5, Rose ; 6, 7, 8, Crimson.
- (D) 1, 2, 3, Yellow ; 4, 5, 6, 7, Rose colour ; 8, 9, 10, Crimson ; 11, White.
- (E) 1, 2, White ; 3, 4, Crimson ; 5, 6, Mixed ; 7, 8, Rose, various ; 9, 10, Crimson, various ; 11, 12, Yellow, various ; 13, 14, Rose, various ; 15, 16, Mixed ; 17, Crimson.

"The figures will serve to show the arrangements of the colours. Thus in A the space numbered 1 was filled with crimson Roses; 2 with blush varieties; 3 and 4 with flowers of rose coloured hue.

In B, 1 was filled with maroon flowers; 2 and 3 with rose; 4 and 5 with crimson; 6 and 7 with white; 8 and 9 with rose; and 10 with crimson coloured flowers.

In C, 1 and 2 were filled with white Roses; 3, 4, and 5 with rose; and 6, 7, and 8 with crimson coloured flowers.

The arrangement of the flowers in D was as follows:—1, 2, and 3 yellow; 4, 5, 6, and 7 rose coloured; 8, 9, and 10 crimson; while 11 was occupied with white Roses.

The long bed E was filled with Roses of different colours, thus:—1 and 2, white; 3 and 4, crimson; 5 and 6, mixed; 7 and 8, rose coloured; 9 and 10, crimson; 11 and 12, yellow; 13 and 14, rose; 15 and 16, mixed; 17, crimson.

When a Rose grower and a Rose exhibitor of eminence sets the example, we see the fallacy of the objections commonly raised, and we say to flower show managers and to Rose exhibitors 'Go and do likewise.'

[From "*The Gardeners' Chronicle*," August 8th, 1874, p. 179.]

I THINK I ought to answer the letter of my nephew which appeared in "*The Gardeners' Chronicle*" of last week, as it seems to me calculated to depreciate what I consider one of my most successful efforts. When I had disposed of the 8000 trusses of Roses used in the formation of that Rose garden, Mr Wills, who had been watching my movements at intervals during the day, came forward, and with unbounded enthusiasm pronounced it a decided hit. That opinion was freely endorsed by the numerous and brilliant company who for four hours hung upon the Roses uttering varied exclamations of surprise and delight. Your leader in "*The Gardeners' Chronicle*" of the 25th ult.—every word of which as a Rose grower of thirty

years' standing, and a raiser of some of our best English Roses, I heartily endorse—put the matter before the public in such a way that it might be turned to practical and profitable account. I know it to be true that that series of Rose beds, and the combination of colours, was “the talk of the town the next day.” But to my task. I assume at the outset that there are two classes of Rose growers—(1) those who grow for prizes, and (2) those who grow for garden and house decoration. As the “blue riband” has been introduced, I may say that in my opinion these classes are as distinct as that which breeds and rears race-horses is from that which breeds and trains horses for the commoner and more useful purposes of life.

In paragraph 2 of my nephew's letter he seems to ignore the fact that for many years, so long as I exhibited for prizes, I took more first prizes than any other exhibitor, having not very long since won five silver cups in one day, and on another and more recent occasion, I took thirty-seven first prizes in one week. I ought here to be permitted to say that I discontinued exhibiting for prizes, because I judged it more to my interest and to the interest of my clients to grow plants for sale rather than plants and flowers for prizes.

Paragraph 6 says the exhibitor “had no schedule to hamper him, no policeman to turn him out at 10 o'clock, and no need for any special selection of fine flowers.” But I had a rough and uneven surface to deal with; I had to be ready at 8 p.m., as exhibitors for prizes have to be ready by 10 a.m., and as to the quality of the flowers, Mr Wills testified (p. 146) that “the blooms were most brilliant and beautiful.” Their freshness, which was remarked on over and over again, was due to the fact that they were cut for the most part on the morning of the show, whereas the prize Roses are usually cut the morning before, and on show days often look fatigued and faded. Paragraph 7 quotes Madame Plantier and Mrs Bosanquet as examples of the Roses of which my Rose garden

was composed. Now, this is not fair, and cannot have been done from lack of information, as your leader, on which this remark is founded, after specifying certain sorts, equally good either as show or garden Roses, sums up with these words, "and most of the leading Roses, new and old, of every colour and shade." Paragraph 8 shows the weak points of our Rose shows. The standard of size and shape required there shuts out many of the best sorts for garden decoration. The Rose shows as at present managed, encourage breeding for shape and size, without any regard to habit and constitution, and hence many new Roses are woefully deficient in these fundamental qualities. Many of the finest Roses in the stands at Rose shows are comparatively worthless for effect in the garden. Two out of the three sorts recommended in paragraph 8, namely, Mdle. Bonnaire and Mrs B. Ker, are of this character; the flowers are pretty, but the plants are delicate and short lived in the hands of ordinary growers, although they may be "managed" by skilful rosarians. The third sort, Madame Lacharme, grows freely enough, but I have often looked over hundreds of plants of this sort when in full bloom before I could find one clean and satisfactory flower. The exhibitor for prizes may "manage" to show a bloom or blooms, but for the garden I prefer infinitely the glorious masses of Madame Plantier and Mrs Bosanquet to any of the others. Paragraph 10 reads thus—"Whether the exhibition of masses would serve the high educational purposes which the production of the perfect blooms we have aimed at has done is another matter; a comparison of the amateurs' stands of past times and of the last two or three years, not only at the metropolitan but at local Rose clubs and shows, proves that those of us who have troubled ourselves to carry here and there fine examples have not taught in vain."

I am not sure that I understand this, but if it means that the exhibition of single flowers and small groups has served the "high educational purposes" of the florist,

surely the exhibition of masses will equally serve the "high educational purposes" of the landscape gardener. It is amusing to find Mr George Paul claiming for himself and colleagues the merit of teaching amateurs by exhibiting, and pluming himself on the "proofs" (?) that they "have not taught in vain." Where are the "proofs?" Is the improvement in the amateurs' stands due solely or principally to the prize-showing nurserymen? I think not; the amateurs' observation and experience in Rose growing, the books he reads, the conversations he holds with his practical friends—amateurs, nurserymen, and gardeners—surely count for something. By looking at a stand of Roses he may learn how to *show* them, but cannot learn by that means how to *grow* them. Paragraph 11 tells us that the writer and others could produce double and treble the quantity of flowers of which this garden was composed. So could I. But they have not even produced a like quantity. A hundred thousand blooms might be cut almost any day in July from the acres of Roses growing in my nurseries. Let me say in conclusion that I do not envy exhibitors for prizes, or wish to depreciate their efforts. Honour should be given where honour is due, but some of these men want all the "cakes and ale," and in my opinion Rose showing is not the be-all and end-all of Rose growing.

P.S.—I answer a postscript by a postscript. The idea of holding a Rose show in York Minster is altogether repugnant to my views of the fitness of things. The Germans hold flower shows in their churches, Sunday usually being the opening day, and money being taken at the doors. I should be sorry to see our cathedrals or churches turned into temples where even Roses were bought and sold.

W. P.

ROSES AND ROSE SHOWS.

[From "*The Gardeners' Chronicle*," August 22nd 1874, p. 242.]

I AM proud to find my name associated with the names of Sowerby and Gibson—men who have already made a position for themselves—men who have had fathers before them whose names will live long and honourably in the annals of English botany and gardening. I should be glad if these gentlemen would tell your readers what part they took in and what claim they make to the origin and success of my Rose garden in the Regents Park Botanic Gardens. Mr G. Paul quotes as my words "that the standard of size and shape does not prevent our finest garden roses being shown" and promises a list of varieties to answer the "assertion." Now these words are not mine, I therefore need not notice the inference he draws or intends to draw from them. But it is considered very unfair in controversy to misquote your adversary and then make a show of refuting what he did not say. Mr G. Paul says "he (Mr Wm. Paul) wishes the public to believe that those growers who, whether from a desire to avoid the necessary labour and expense, and a certain amount of risk of being beaten, or from other causes, do not compete, produce as good—nay, does he not insinuate better?—plants than those who exhibit for competition. Surely this is misleading the public." I reply, I insinuate nothing, nor am I misleading the public. I have spoken out boldly and in the plainest language that I can command in a manner which I judge calculated to prevent the public from being misled by others or misleading themselves. I say, first, that the standard of size and shape required at the Rose shows shuts out many of the best sorts of Roses for garden decoration; and secondly, that Rose plants grown for prize-blooms, however fine the plants may be, are not intrinsically so valuable to purchasers as plants grown otherwise. These two propositions I think I can make

clear to your readers, and I will endeavour to do so at an early date. But I should like first to hear a little more of the "Drawing-room" discussion. The little bit we have already got is the fullest endorsement I could wish for of an important feature (freshness) in my show; and perhaps when we have the remainder further correspondence on my part may be rendered nugatory—who knows? All that I did and which was "the talk of the town the next day," may have been revolving for years in the hidden and mysterious depths of other minds, and the horticultural public may as well be informed as to who are its most original and greatest thinkers. I am not afraid that they will forget my Rose shows.

[From "*The Gardeners' Chronicle*," September 5, 1874, p. 306.]

I HAVE said that "the standard of size and shape required at the Rose shows shuts out many of the best sorts of Roses for garden decoration," and this position I will endeavour to establish.

In the latest edition of the "Rose Garden," published in 1872, I have arranged Roses in thirty-two floral groups. Of these not more than three, namely, Hybrid Perpetual, Moss, and Tea-Scented, are fairly represented at our Rose shows; nine-tenths of the prize varieties are drawn from one group, Hybrid Perpetual, while Hybrid Bourbon, Bourbon, Bourbon Perpetual, and Noisette are restricted to one or two sorts of each group.

Now, these prize varieties are selected from the florists' point of view of "quality" in the flower; the constitution and habit of the plant do not influence the selections or awards. They are made on the shape, size, and fulness of the flowers alone. Well, large full Roses as a rule produce but few flowers, and however beautiful these may be, they are not plentiful enough to make a satisfactory display on the plant, or to enable the cultivator to cut freely for the purposes of indoor decoration. From the

present point of view, Roses may be divided into three classes—1, prize Roses; 2, garden or decorative Roses; 3, Roses which in various degrees unite the leading characteristics of the two former. Class 1 contains the largest, fullest, most exact-shaped, or best coloured Roses, but also many of the shyest bloomers and growers—witness Paul Neyron (large, full, shy bloomer), Devienne Lamy (large, fine colour, rather shy), Marquise de Mortemart (desirable colour, shy grower), Louis Van Houtte (fine shape and colour, shy grower). Nevertheless the grower for prizes must select from this class, or he will not win; but if the grower for garden or indoor decoration choose from these alone, failure will mark every step, and he will be miserably disappointed.

The “high educational influences” of our present Rose shows can refer only to these Roses, and I go far with Mr Prior in the remark (p. 244) that “the morality of such exhibitions as now carried on is open to serious doubt.” The one in a thousand who grows for prizes may perhaps judiciously go to a Rose show to choose his varieties, but the 999 who grow for garden decoration, or for the ordinary purpose of cut flowers, would, in my opinion, be misled by pursuing such a course. They had better far choose from plants growing under ordinary culture in gardens or nurseries. I appeal to the skilled gardeners of England whether they would ever think of planting for other purposes than exhibition some of the sorts of Roses which figure so conspicuously at the Rose shows. But the general public does not yet understand this.

Class 2 contains Roses of hardy constitution and elegant habit, which produce plenty of good flowers. Although these latter are not so large, so full, or so precise in form as the former, they answer every purpose for which Roses are grown, except prize winning—witness Boule de Neige, Comte de Raimbaud, Duc de Cazes, Fisher Holmes, Elizabeth Vigneron, Prince Camille de Rohan, Louise Darzens, Anna Alexieff, Madame Alfred de Rougemont, Glory of

Waltham, Princess Christian, Princess of Wales, Safrano, Madame Falcot, Aimée Vibert, and Mrs Bosanquet. If the prize-seeker select from this class, he also will fail and be disappointed. These hardy, free-growing, free-flowering Roses are not as a rule large enough, or full enough, or regular enough in shape to win 1st prizes. Class 3 contains those sorts which are not at one and the same time the best show Roses and the best decorative Roses, but which occupy a sort of debateable ground, standing in various positions between the two, and which may be used for either purpose. Général Jacqueminot, Jules Margottin, Dr Andry, Beauty of Waltham, and Lord Macaulay are examples of this class. Let it be remarked, then, that our present Rose shows draw principally from class 1, shut out almost entirely the varieties of class 2, and admit but few from class 3, and these only from necessity and under protest. It was once remarked to me by one of our cleverest horticulturists that "the florists, having got hold of the Rose, would in time bring it to the same pass that they had brought other flowers to." I asked, "What was that?" He replied, "They will improve (?) them so much that the masses will not be able to grow them." And surely the history of florists' flowers warrants this view. But do not let it be supposed that I wish to depreciate the Rose as a prize winning or florists' flower. It has a right to be such. I simply hold that it has a higher and wider title to popular favour than this, namely, that it is a first-class decorative or garden plant. The florist, with his artificial standard of excellence, after forcing or coaxing a portion of poor plant nature into a mould of his own conceiving, throws cold water on all outside of it. I do not object to the first step; men might be worse employed; but I cannot submit to be bound hand and foot within the narrow limits of the florist's view. I hold that there are other and even higher aims to secure, namely, to obtain varieties which grow and bloom freely, and display their flowers to advantage on the tree, and

which shall be to the garden and to the house what the prize flowers are to the exhibition tables.

I think that I have already proved my position. But there are twenty-five out of the thirty-two floral groups which I have not yet spoken of, and these the prize-seeker never touches. Their value and beauty as garden plants I need not, however, enlarge on, because they must be well known to all who have any claim to be considered rosarians. *P.S.*—I find in your columns (p. 238) Mr G. Paul says, "All Teas are moderate growers." (!) Let me ask, Are Gloire de Dijon, Climbing Devoniensis, Belle de Bordeaux, Madame Berard, Madame Levet, Triomphe de Guillot fils, and Cheshunt Hybrid moderate growers? Why, the same writer in his descriptive catalogue describes these and many others as "vigorous," and says of Climbing Devoniensis "of rampant growth," and of Cheshunt Hybrid that "it grows vigorous as Blairii No. 2." But Cheshunt Hybrid, although classed as a Tea Rose, is, in my opinion, neither more nor less than a Hybrid China, giving an occasional bloom in autumn, and ought never to have been allowed to win prizes as a Tea Rose.

[From "*The Gardeners' Chronicle*," September 19th 1874, p. 368.]

THE second proposition which I undertook to discuss was, "that Rose plants grown for prize blooms, however fine the plants may be, are not intrinsically so valuable as plants grown otherwise." Let me relate how plants which are expected to produce prize blooms are cultivated. First of all, the best possible Rose soil, a soil which few possess, is selected, and large quantities of stocks are planted on it, after it has been deeply dug and highly manured, in order that a great breadth of highly-fed plants may be had to cut the flowers from.

Large quantities of water are given throughout the growing season, the flower-buds are freely removed at an early stage of growth, so that each plant is allowed to

develope only a limited number of flowers, and every appliance is resorted to to encourage a strong growth, as such is necessary to get size in the flowers. Mr Prior remarks (p. 244):—"Large plants may be produced, veritable Titans or Tichbornes in bulk, but more *pithy* than woody, &c." Here lies one of my objections to sale plants which have been grown for prize blooms—the quantity of pith in strong shoots is greater relatively than in moderate shoots of Roses, and the wood is less hard and sound. Now what are the consequences? In the first place these gorged shoots do not ripen sufficiently in our climate, as in the gross shoots of peach trees, and the plants suffer more from frost; then the state of the roots being equally gross, the shock of removal is greater, and this is a second cause of suffering. To me it is an oft-told tale, and accords entirely with my own experience, that plants with moderate-sized, well-ripened shoots, always thrive best after removal. The "Tichborne" plants of the prize-growers often die, and oftener still produce short feeble growths the first year after removal; some of these growths die also, while those which live are longer than others in realising the desired end of soundly constituted, well-shaped plants. Let us suppose, which is seldom the case, that the purchaser of such plants has the fine soil, can dig it as deeply, manure it as highly, and water it as constantly as the prize-grower. Even then the violence of the shock these highly-wrought plants receive by removal places him at a disadvantage. But supposing, as is usually the case, that these plants are going into a good ordinary garden, where the soil is only ordinarily good, and where amidst the numerous claims pressing upon the grower's time and consideration they can only receive ordinary care and attention. Why, it is like moving a rich man from his daily table of soup, fish, poultry, meat, &c., to a diet of bread and cheese or cold meat. Men from custom seem to thrive well under both conditions; but the sudden transition from the one to the other can

hardly be accomplished without material physical suffering. Hence I hold that the fact of being able to win prizes with Rose blooms does not logically lead to the conclusion that the prize-winner's sale plants are the best. Reasoning from analogy, would anyone maintain that the exhibitors of prize sheep, prize oxen, and prize pigs, produce the best mutton, beef, and pork? Now I argue that the exhibitors of "fat" Roses are entitled to all the money and all the honour of their prizes—which, as in the case of exhibitors of prize cattle, are not won without a large expenditure of money; but to assume from their "fat" flowers that their "fat" plants are better than other people's plants is not only unwarrantable, but is contrary to evidence and contrary to fact.

THE ROSE CONTROVERSY.

[From "*The Gardeners' Chronicle*," September 19th 1874, p. 369.]

YOUR correspondent Mr G. Paul seems to forget that he was the attacking party in this controversy. If he is making good his case, why the remarkable change of front displayed in his last letter? Your correspondent tells us that he applied for space at the Rose show but did not get it. Is it good taste after so applying to depreciate what he incorrectly terms the "happy thought of Mr Sowerby," and the labour of another grower and exhibitor? Against his opinion of this show (which he did not see and inaccurately describes) are arrayed the opinions of all the gardening papers, the leading daily papers from *The Times* downwards, the Council of the Royal Botanic Society, and nearly 10,000 visitors. The idea which prompted it was not conceived or worked out in opposition to existing Rose shows, but to occupy ground which they failed to touch; to show Roses in a free and natural, rather than in

a crowded, formal, and artificial state—in a state in which anyone might produce them with ordinary advantages and ordinary cultivation, without the technical knowledge of the florists' art. For this effort I think I should claim the sympathy and support, rather than excite the alarm and arouse the prejudices, of rival growers.

I have said that some good show Roses are also good garden Roses, but that many are not. If he demurs to this we here differ in opinion, and let the public be the judge between us. I am not surprised that he finds we agree on so many points about Roses and Rose showing. Of course we do; for here as in most other questions nearly all men think alike on many points. But the points on which we differ he does not meet and answer fairly, but raises and argues on others as to which we are generally agreed. I have never disputed that many Roses are equally good as show Roses and garden Roses, but have clearly asserted it. I say that "the standard of size and shape required at the Rose shows shuts out many of the best Roses for garden decoration." He says that his assertion "all Teas are moderate growers" was only "meant to refer" to such as were moderate growers. His criticisms on my examples of "Show Roses," "Garden Roses," and "Show and Garden Roses," do not alter or modify my opinion of the distinctions I endeavoured to point out. He may claim *Boule de Neige*, *Safrano*, and other similar good garden Roses as show Roses, but I do not think many Rose growers will endorse that opinion, or that these varieties will be found in many first prize stands. *Devienne Lamy* and *Marquise de Mortemart* may be in his opinion "doubtful Roses for show," but they have been shown fine, and many who have bought them through the flowers shown have found in these instances, as in many others, that good show Roses and good garden Roses are not always identical. To class *Comte Raimbaud* with Roses of "dull colours," "dear from old associations" shows, to put the most favourable

construction on that statement, that the writer is not an accurate observer of objects, or a faithful chronicler of events, as that Rose is very bright, and by no means an old Rose. One would think from the whole tenor of his letter, and from the remarks of some other writers, that I was opposed to the improvement of the Rose, whereas I am, and always have been, advocating it, and have been for years, and still am, zealously engaged in working for it. I love progress, but it must be upwards, not downwards.

I have no sympathy with the so-called progress which, in placing one foot forward in an unsound position, is compelled to turn and retrace its steps. I have never objected to the florists improving the form, &c., of the Rose, but to their neglect of the constitution of the plant, which the public cannot form a correct judgment of from the flowers on the exhibition tables.

I quite agree "that the public after a season or two won't buy them" (that is, bad growers), but then the mischief is done; *they have bought them*, and probably at high prices, through the fine flowers shown—to find by experience, which they pay for, that they are not worth the trouble of growing. There are, in my opinion, very few Rose growers of ten years' standing who cannot recall many instances of this kind. Your correspondent, in naming four Roses sent out by him, ought in common fairness to have told your readers that two of them, namely, Lord Clyde and Duke of Edinburgh, were raised by me when partner with the late Mr G. Paul in the now defunct firm of A. Paul & Son.

[From "*The Gardeners' Chronicle*," October 10th, 1874, p. 465.]

THE "argument" of this subject seems to be drawing into a very narrow compass. I formerly expressed the opinion "that Rose plants grown for prize blooms, however fine the plants might be, are not intrinsically so valuable as plants grown otherwise." I have met with nothing in the

controversy to shake this opinion. In the attempt to controvert it in last week's "Gardeners' Chronicle," new ground is taken up by starting from the point of "fine blooms" instead of "prize blooms." The case there assumed as the "negatives" in which "the worst possible soil is selected"—"dug not deeply"—"as manure is injurious none is given either directly or indirectly"—"water, however much needed, is withheld"—"and especially the grosser feeding sorts are encouraged," throws no new or valuable light on the subject, because it is only an imaginary case opposed to actual facts. If these are "the negatives of the practices of exhibiting firms," they are only imaginary negatives, have no existence in fact, are things *in posse* rather than *in esse*. Starving is not met with in any Rose nurseries, whereas "cobbing" for prize blooms is commonly practised. Now facts cannot be successfully assailed by imaginary statements, but only by facts. The treatment here assumed is not practised or advocated, and no sane man is likely to practise or advocate it. Although the grower for prize blooms selects the best soil, digs it deeply, fills it with manure, deluges it at times with water, and adopts various practices to get the strong growth necessary to produce large blooms, it by no means follows that the grower who does not compete for prizes selects "the worst possible soil," and in other matters rushes to the opposite extremes.

Is there no standing ground between the system of cultivation which produces gorged plants, with more sap and pith than wood and fibre, and that which produces starved plants? No one who reasons can doubt that the health and constitution of a plant, as of an individual, may be injured by starvation as well as by gluttony, but this is a curious argument to advance against healthy and moderate feeding. Some men and the lower animals suffer from gluttony, but would it be fair in argument to accuse those who condemn over-feeding of advocating starvation?

The sentence "I also fail to see the justice of the simile between a well-cultivated plant, with all its parts in healthy fine condition, and a Dives removed from luxury to penury," is open to question. No such simile exists. A gorged plant in which the natural equilibrium of wood, pith, sap, fibre, &c., is disturbed cannot be called "a well cultivated plant, with all its parts in healthy fine condition," although it is a Dives removed (and too often harshly removed) from luxury to comparative penury. I do not contend for starvation or repletion; neither is, in my judgment, good cultivation. The best cultivation in relation to maiden plants of Roses (and it is mostly maiden plants that are sold by the nurseryman, and it is from them for the most part that the prize blooms are derived) is that which ignores too much fat, and produces moderate solid wood, no stronger than our climate will thoroughly ripen, and roots no coarser than can be withdrawn from the ground without doing violence to the plants.

STANDARD ROSES.

[*From the "Journal of Horticulture," August 24th, 1882, p. 170.*]

THERE is a cry recently raised against Standard Roses which I venture to think has been taken up and pushed beyond the bounds of reason and common sense, as many a cry has been in times gone by. If I were asked, "Whence this cry?" I should answer that it has apparently been started by those who are innocent of this particular form of the Rose while abounding in dwarfs. I cannot understand why Standard Roses, which in the past have been admitted on the highest authority indispensable in the composition of garden scenery and otherwise desirable in both large and small gardens, should be

altogether undesirable now. Is not the cry an exemplification of the old fable of "The Fox and the Grapes?"

Nevertheless, I am free to admit that the former popularity of the name, and the matchless splendour of the objects, both as individuals and in groups, have led people deficient in taste to place them in unsuitable positions. But this surely tells no more against their proper employment than the traveller's tale of the savage's use of an Englishman's wardrobe does against the proper employment by the owner of any special article of civilised dress.

One great use of Standard Roses in large gardens is the elevated masses of colour they present to the eye both in near and distant views, while in small gardens the avenue of standards is often one of its prettiest features. Then what is more beautiful in the conservatory than standard Tea-Scented Roses? Without following out all the uses to which they may be advantageously applied, I venture to predict that they who discard them from their gardens now, will miss them greatly in the future, and seek in vain for something that will satisfactorily fill their places. With greater reason might a cry have been raised against the sorts of Roses that have been, and still are, in some instances grown as standards. Here, indeed, is the modicum of truth in the cry which gives it a temporary hold on the public mind, and renders the matter worthy of investigation.

It is beyond controversy that the natural term of life of certain sorts of Roses when grown as standards is three years, two years, or even one year only, as that of man is three score years and ten, and that a prolongation of this term carries with it all the accompaniments of old age. What will the uninitiated say when they are told that certain sorts of Roses seen at the Rose shows are budded yearly by the exhibitors, and never cared for after they have given their first year's blooms? But it may here be asked, "Why does the Rose grower bring such ephemeral

goods into the market?" His reply probably would be, "Why does the public persist in purchasing them?" and add that it is not his business to dictate to his customers what they shall buy, but to be prepared to supply what they demand. The remedy on the part of the purchaser would be to choose his sorts from trees seen growing in nurseries or gardens, and in doing so inquire (if the fact is not apparent on the surface by the age of the tree or otherwise) whether the sort has a good constitution and habit as well as a handsome flower.

There is one special advantage in growing Roses as standards which was suggested to me by an old friend, a distinguished horticulturist, when discussing the subject the other day, and I will put it in his words—"I agree with all you say, and will add one reason more: in growing Roses as standards the flowers are brought near to our eyes and noses, and those who, like you and I, are growing old have not to bend the back or go on all fours to see and smell them."

ON THE GROUPING OF THE GARDEN VARIETIES OF ROSES.*

IF all the garden varieties of Roses could be brought under view at one and the same time, they would be found to compose a very heterogeneous mass. The Rose has been treated as a domesticated plant for so long a period that the varieties are almost innumerable and are also remarkable for the extent to which they differ in habit, foliage, and flowers. So widely have our modern garden varieties departed from what may fairly be assumed to be Nature's Roses, that it is difficult, if not impossible in some instances, to conjecture from what species

* Read at the "National Rose Conference" of the Royal Horticultural Society at Chiswick, July 2nd, 1889.

they have descended. Roses were grown from seed at least 2000 years ago, and the seedlings would no doubt vary in appearance of plant and flower even then. This variation would go on widening and increasing up to a certain period, and finally the hybridising and cross-breeding of modern times comes into play. The latter process has so mixed up the botanist's species, that in studying the modern varieties I often see, or fancy I see, features or traces of more than one or two species in the same variety.

Now, the grouping of the garden varieties of Roses, might be attempted from various points of view; for example, they might be grouped (1) according to their botanical affinities, (2) according to their season of flowering, (3) according to their habit of growth, (4) according to the colours of the flowers, and so on. If, however, I rightly understand my work, I have nothing to do to-day with botanical affinities. Monsieur Crepin, who has greatly distinguished himself in this line, will no doubt efficiently cover this ground; I have to deal with Roses from the cultivator's point of view. In taking up this work, two lines of action present themselves to my mind as the most desirable to follow—the one to sweep away every vestige of the labours of previous workmen, and rear a structure entirely new; the other to preserve the foundations and solid walls of the old building, re-arranging both old and new materials in such order as congruity, taste, and convenience may dictate. After due study and reflection I have chosen the latter course, and in doing so I have not striven to differ *as much as possible* from my predecessors in this line in order to appear original, but *as little as possible* that I might not add to the perplexities already existing from the too frequent practice of changing names. The classification which I have endeavoured to work out has been largely influenced by the desire to bring into closest proximity those garden varieties which have the greatest external resemblance *in foliage and flowers*, so

that the whole may be readily grasped and most advantageously dealt with by the practical mind in the decoration of our gardens and our homes.

I do not for a moment suppose that any classification would meet with universal consent. Probably no two persons, even if possessing equal knowledge of the subject, would agree to follow precisely the same lines. Should they agree at the outset as to the primary objects to be attained, they would almost surely *attach different degrees of weight* to the numerous features they must study and deal with, and on a summing up of the various details, they would likely arrive at different conclusions.

This view of the subject does not, however, render the attempt to grapple with it the less desirable, and however inadequate for its solution may be the single ray of light thrown upon it by any one individual, the desired goal may be clearly indicated and attained under the additional and converging rays of an intellectual discussion.

I propose to arrange all garden Roses under two primary divisions:—Division I. SUMMER ROSES, and Division II. AUTUMNAL ROSES.

DIVISION I.—SUMMER ROSES.

SECTION I.

- Group 1. The Scotch Rose
 „ 2. The Austrian Briar
 „ 3. The Double Yellow

SECTION II.

- „ 4. The Sweet Briar

SECTION III.

- „ 5. The Alba Rose
 „ 6. The Damask
 „ 7. The Provence
 „ 8. The Pompon Provence
 „ 9. The Moss
 „ 10. The Pompon Moss
 „ 11. The French
 „ 12. The Hybrid French
 „ 13. „ „ Chinese

SECTION III.—*contd.*

- Group 14. The Hybrid Noisette
 „ 15. „ „ Bourbon

SECTION IV.

- „ 16. The Prairie

SECTION V.

- „ 17. The Ayrshire
 „ 18. The Sempervirens

SECTION VI.

- „ 19. The Boursault

SECTION VII.

- „ 20. The Multiflora
 „ 21. The Polyantha

SECTION VIII.

- „ 22. The Banksian

DIVISION II.—AUTUMNAL ROSES.

SECTION IX.		SECTION XIII.— <i>contd.</i>	
<i>Group</i>	23. The Berberry-leaved	<i>Group</i>	34. Chinese
SECTION X.		"	35. Crimson Chinese
"	24. The Perpetual Scotch	"	36. Fairy
"	25. The Perpetual Moss	"	37. Tea-Scented
SECTION XI.		"	38. Climbing Tea-Scented
"	26. The Macartney	"	39. Hybrid Tea-Scented
"	27. The Clynophylla	SECTION XIV.	
SECTION XII.		"	40. Musk
"	28. Microphylla	"	41. Noisette
"	29. Rugosa	"	42. Noisette Perpetual
SECTION XIII.		SECTION XV.	
"	30. Hybrid Perpetual	"	43. Ayrshire Perpetual
"	31. Bourbon Perpetual	SECTION XVI.	
"	32. Rose de Rosomane	"	44. Polyantha Perpetual
"	33. Bourbon		

Of the 44 groups into which the garden varieties are cast, the summer kinds bloom in June and July only, but the autumnal flower both in June and July, and some of them throughout the autumnal months. Perhaps there is no great difference in the number of flowers produced plant for plant between given individuals of these two primary divisions. The summer kinds produce large quantities of flowers in the summer, and are consequently more gorgeous at that season; the autumnals flower then more sparingly, and some of them give forth a second crop of flowers at a later period, while others continue putting forth dribblets of flowers throughout the autumnal months. This I think may be stated as the actual difference between the varieties comprising our two primary divisions. The first division, summer Roses, may be arranged in 22 groups.

DIVISION I.—SUMMER ROSES.

SECTION I.

GROUP I.—*The Scotch Rose* is composed of low round bushes, rarely exceeding 3 ft. in height, which when properly managed are literally covered with small double

globular, sweet-scented flowers of various colours. They form neat banks and exquisite low hedges, are very distinct, and flower early sometimes in the month of May.

GROUP II.—*The Austrian Briar*. These approach somewhat to the Scotch Roses, but the growth is more vigorous and the flowers are larger. The Copper Austrian which belongs here stands alone among Roses in point of colour.

GROUP III.—*The Double Yellow*. Beautiful as this Rose is, in size, form, and colour, it is so capricious that very few care to be troubled with it; nevertheless it may form a subject of interest and amusement to those who are fond of attempting the solution of difficult problems.

SECTION II.

GROUP IV.—*The Sweet Briar*. The species of this Rose should find place in every garden, the fragrance of its leaves in Spring, the delicately tinted blossoms in Summer, and the rich glow of the scarlet hips in Autumn are successive objects of delight. A Sweet Briar hedge forms a picturesque object when suitably placed in the garden. There are various hybrids, but they do not possess the fragrance or interest of the species nor the beauty of many other hybrids.

SECTION III.

GROUP V.—*The Alba Rose*. This group which contains the "Maiden's Blush," is desirable both for our gardens and our tables, on account of the distinct and delicately coloured blossoms, and the ample cool-looking leaves which it supplies.

GROUP VI.—*The Damask Rose*. To those who look closely into things these Roses are distinct enough, they are sweet and bright, and there is a hardy roughness in their appearance which is pleasing to look upon. "Madame Hardy," one of the finest of white Summer Roses, belongs to this group, and if we go back for a

remote ancestry of the Hybrid Perpetuals, one parent, the *Rosa bifera*, the "Pæstan Roses with their double spring," are found here.

GROUP VII.—*The Provence Rose*. These Roses somewhat resemble the Damask, but not very closely; the growth is more pendulous and the flowers are more globular. The old Cabbage Rose is an example of this group.

GROUP VIII.—*The Pompon or Dwarf Provence*. These are a separation from the preceding on account of their dwarf habit. They rarely exceed a few inches in height, the flowers are tiny and produced in great profusion. They form exceedingly pretty edgings to beds of Roses of larger growth.

GROUP IX.—*The Moss Rose*. It is hardly necessary to point out the distinguishing feature of this group, the moss-like surroundings of the flower-buds being known and appreciated by everybody. There are here certain hybrids between the "Hybrid Chinese" and the "Moss" which are of greater vigour than the true Moss, but in such the mossy characteristic is less plentifully developed.

GROUP X.—*The Pompon Moss*. An exquisite little group composed of two or three varieties only, separated from the preceding on account of their pigmy stature. The best varieties are "Little Gem" and "Moss de Meaux," and their fairy-like aspect appeals irresistibly to the lovers of the tiny.

GROUP XI.—*The French Rose*. There was a time, and that within my memory, when this was the most important group of Roses. But it is out of fashion now. A French or Gallica Rose bush well cultivated is, however, still a striking object in the garden, owing to the profusion and brilliancy of its expanded flowers.

GROUP XII.—*The Hybrid French*. This group is very similar to the last; it furnishes us however with some very lovely blush and creamy flowers, not to be paralleled by flowers of the same colours in any other group.

GROUP XIII.—*The Hybrid Chinese*. This group is not so fashionable as formerly, although individuals of it, as Chénédolé, when in full bloom are gorgeously beautiful. It is reasonable to suppose that they are hybrids between the “French” and “Chinese” Roses. Where large headed standard and tall pillar Roses are valued, these and the varieties of the next two groups are of the very best.

GROUP XIV.—*The Hybrid Noisette*. Similar to the last, except that the flowers are smaller and produced in considerable clusters. The lovely white Rose “Madame Plantier” belongs here.

GROUP XV.—*The Hybrid Bourbon*. These Roses are probably hybrids between the “Bourbon” and “Hybrid Chinese,” resembling the latter parent in the more prominent features. The well-known “Charles Lawson” and “Coupe d’Hébé” belong here. This and the two preceding groups are invaluable for planting where masses of flowers are wanted for distant effect in summer.

SECTION IV.

GROUP XVI.—*The Prairie Rose*. This is a group of promise rather than of actual merit; I do not know any one variety that I should care to grow in the garden. Nuttall calls it a very fine flowering species, and it does look as if something might come of it in the future if judiciously hybridised.

SECTION V.

GROUP XVII.—*The Ayrshire Rose*. These are climbing Roses of hardy vigorous growth, well suited for covering rough places, whether banks, fences, or old trees on lawns, or in shrubberies.

GROUP XVIII.—*The Evergreen Rose*. This is another group of hardy vigorous climbing Roses, similar to the last in appearance, and more valuable for many purposes, as they hold some of their leaves during winter. “Félicité Perpétue” is a splendid white Rose for a wall or house

with north or west aspect, growing rampantly and flowering freely there.

SECTION VI.

GROUP XIX.—*The Boursault Rose*. I have never seen the varieties of this group grow and flower better than they did on a north wall in my father's nursery some forty years ago. Although a gravel walk ran within two feet of the wall, the latter was every year completely covered with hanging masses of flowers.

SECTION VII.

GROUP XX.—*The Multiflora Rose*. This group furnishes some very pretty and distinct Roses, and I remember when they were much more popular than at present. Some of the loveliest varieties are tender, and it is probably owing to this fact that they have lost caste. Still they are well worthy of a place in some sheltered spot in the garden.

GROUP XXI.—*The Polyantha Rose*. This is a comparatively modern group similar to the last, but sufficiently distinct from it, *from the cultivator's point of view*, to demand separation. The flowers are small and produced in enormous clusters.

SECTION VIII.

GROUP XXII.—*The Banksian Rose*. This is the last of our summer-flowering groups. The flowers are very small and produced in clusters. The prettiest varieties are the ordinary white and yellow, the former of which is sweet-scented. Both in this country require a wall and warm soil, and they should be pruned immediately after flowering.

DIVISION II.—AUTUMNAL ROSES.

SECTION IX.

GROUP XXIII. — *The Berberry-leaved Rose*. The "*Berberiifolia Hardii*" is a well-known variety, with small

single yellow flowers, and a chocolate-coloured spot at the bottom of each petal. It is not only singularly beautiful, but has the great merit of distinctness.

SECTION X.

GROUP XXIV.—*The Perpetual Scotch*. The only variety in this group of special value as a garden Rose is the “Stanwell Perpetual.” It flowers early and late, and is deliciously sweet.

GROUP XXV.—*The Perpetual Moss*. It is a great thing to have Moss Roses flowering in the autumn, although the mossy surroundings of the buds is not so prominent a feature here as with the summer-blooming kinds.

SECTION XI.

GROUP XXVI.—*The Macartney Rose*. Both the single and the “Maria Leonida” are well worthy of cultivation. They are best grown on a wall or fence, or in some sheltered spot in the garden, as they are not very hardy.

GROUP XXVII.—*The Clyrophylla Rose*. “Lucida Duplex,” which we place under this heading, is one of the loveliest of blush Roses. I must confess that I have some doubt whether it is in its right position here, and shall not be surprised if in the future some other group should establish a stronger claim to its possession.

SECTION XII.

GROUP XXVIII.—*The Microphylla Rose*. The original Microphylla Rose is an exceedingly pretty variety, well suited for placing against a south wall. Both leaves and flowers are distinct and interesting.

GROUP XXIX.—*The Rugosa Rose*. Where large showy Roses are valued these flowers will not fail to please, and the bright scarlet fruit of the “Regeliana” and the “Rugosa alba” is very attractive in the autumn.

SECTION XIII.

GROUP XXX.—*The Hybrid Perpetual Rose*. We have here a group that requires something more than a passing word, for it contains the largest proportion of our most valued garden varieties, and which have all sprung into existence within the last forty or fifty years. The "Damask Perpetual," which were the immediate source of this group, were exceedingly popular at that time, although now scarcely ever heard of. If we wish to trace their origin still further back, and some may, as the "pedigree" movement among Roses is fashionable just now, we must go to the old Four Seasons Roses, which is a variety of the "Damask." Our first "Hybrid Perpetual" Roses were hybrids of the "Damask Perpetual," and later on a stronger race was reared between the "Damask Perpetual" and "Hybrid Chinese," and still more recently a more varied brood from between the "Hybrid Perpetuals" themselves and various groups, the Tea-Scented and Bourbon especially.

GROUP XXXI.—*The Bourbon Perpetual*. It would seem that we have here a race between the "Hybrid Perpetual" and "Bourbon." The flowers are mostly white, blush, and rose, not large, but nicely shaped, and there is a finished appearance about them that pleases the lovers of precision. They bloom more freely in the autumn than the ordinary run of Hybrid Perpetuals.

GROUP XXXII.—*The Rose de Rosomane*. I have often thought that this group has some of the blood of the "Crimson Chinese" in it, and it is possible that some "Bourbon" Rose might be the other parent.

GROUP XXXIII.—*The Bourbon Rose*. This is supposed to be a hybrid between the "Chinese" and "Four Seasons." The flowers as a rule are not large, but many of them are rich in colour, finely formed, and produced in great abundance. The long nights and copious dews of autumn are particularly favourable to their development.

GROUP XXXIV.—*The Chinese Rose*. One of the most valuable groups for massing in the flower garden, as the plants scarcely cease flowering from June to November. As the flowers are small, and not very regular in shape, they are seldom seen at flower shows.

GROUP XXXV.—*The Crimson Chinese*. Here we have a group somewhat similar to the last in appearance, and valuable for the same purposes. The flowers are mostly small, and dark crimson.

GROUP XXXVI.—*The Lawrenceana or Fairy Rose*. Tiny bushes with tiny white, pink, and crimson flowers is a correct description of the "Lawrenceana" Roses.

GROUP XXXVII.—*The Tea-Scented Rose*. This popular group cannot be too highly commended. Most of the varieties grow and flower freely, but are not hardy, and consequently must be protected during winter and spring, except in sheltered or otherwise favoured situations. The colours of the flowers are white, yellow, rose, copper, and crimson of various shades, and the long shell-like buds are of exquisite beauty. The fragrance is peculiar and delicious, and they are excellent forcing Roses.

GROUP XXXVIII.—*The Climbing Tea-Scented*. These are separated from the last on account of their extremely vigorous growth. They are admirable for planting against lofty walls, and flourish well as climbers in the conservatory. "Gloire de Dijon" and "Maréchal Niel" are two of the best. I was the first to exhibit these Roses in England, the former in 1854 and the latter in 1865. The following notice of the latter is from the *Journal of Horticulture*, April 11th 1865, p. 286—"Mr Wm. Paul receiving in addition a first-class certificate for the new Tea Rose Maréchal Niel, with large deep yellow delightfully fragrant flowers, a variety which will doubtless take a prominent position among the Roses of its class."

GROUP XXXIX.—*The Hybrid Tea-Scented*. The separation of these hybrids from the parent group has not been made too soon, although I think some varieties that

have been placed here might have remained with the "Tea-Scented" and others have been placed with the "Hybrid Perpetuals." They are hybrids between individuals of these groups, and are not always a distinct departure from one or the other parent. We gain something in constancy of flowering by this cross, but the offspring is often susceptible to injury by frost.

SECTION XIV.

GROUP XL.—*The Musk Rose*. Interesting from the peculiar odour of the flowers, and as the parent on one side of the "Noisette" Roses.

GROUP XLI.—*The Noisette Rose*. The original varieties of this group produced their flowers in immense clusters, a peculiarity which does not distinguish the modern kinds. It was a pleasing and distinct feature, which ought not to be allowed to slip away. Many of the modern kinds are hybrids of the "Tea-Scented," and are not so hardy as the original "Noisette."

GROUP XLII.—*The Noisette Perpetual*. These are selected from the group "Hybrid Perpetual," on account of flowering in clusters, they are hardy, and although not large enough for show Roses are extremely pretty in the garden.

SECTION XV.

GROUP XLIII.—*The Ayrshire Perpetual*. This group is made for the convenience of one autumn-flowering "Ayrshire Rose—Madame Vivian Morel."

SECTION XVI.

GROUP XLIV.—*The Polyantha Perpetual*. These Roses are so novel in character, and so beautiful—"Perle d'Or" for example—that one could dwell long on their charms. They seem to be hardy and free-flowering, and will no doubt soon rise into a large and important group. The flowers are small, hundreds of them sometimes clustering on a single stem.

With this group I conclude my task. This is the way in which I would group the garden Roses of the present day. But I believe great alterations and improvements lie before us in the future. To those who are engaged in the floricultural development of the Rose, I would say, do not depend too much on following the beaten track, as the result of doing so will be too great a resemblance in your acquisitions. I have thrown away scores of good seedling Roses because I thought they bore too close a resemblance to pre-existing kinds. The raiser of seedlings should endeavour to break new ground, strike out new combinations by bringing the hitherto uncultivated species into his arrangements, and it is reasonable to suppose that in dealing with them in the present as with others in the past he will ultimately be richly awarded.

ON THE DEVELOPMENT OF HYBRID PERPETUAL ROSES.

[From "*The Gardeners' Magazine*," July 4th 1891, p. 396.]

I DO not think it is possible to say when the first Hybrid Perpetual Rose sprang into existence. It is much easier to speak as to the origin of the group. It is descended from the Four Seasons Rose (*R. damascena*) through the Damask Perpetual on the one side, and the Gallica, Hybrid China, Bourbon, and almost every other group on the other side. If we go back to the year 1812, when the Rose du Roi was raised in the gardens of St Cloud, near Paris, we shall find in that variety a marked divergence from all pre-existing kinds, and the compilers of catalogues of that day must have been puzzled where to place it. Apparently a hybrid between the Damask Perpetual and the Gallica, it was grouped with the former because it produced flowers in the autumn. In the

"Nomenclature du genre Rosier" of M. de Pronville (Paris, 1818), the *R. damascena perpetua* (Four Seasons) is spoken of as still rare in our gardens, but there were then at least three other varieties of it known under the names of *R. portlandica bifera*, *bifera*, and *bifera alba*. M. Vibert's catalogue of Roses of 1820 offers eleven varieties of Four Seasons Roses, among which is Palmyre, raised in 1817, and following, except in point of colour, the Rose du Roi. These, and later on a few others, might have been called Hybrid Perpetuals. But there was no such class then. The Rose du Roi, in a catalogue of eight hundred and thirty one varieties, was classed as a Hybrid Gallica. There were Damask Perpetual Roses, and plenty of them, more than fifty years ago, and they differed so much in appearance that they formed a very incongruous group; still in a comprehensive Rose catalogue of 1837 now before me, there is no such group as Hybrid Perpetual!

Matters horticultural moved slowly then. But there was soon to be a general awakening in regard to the improvement of garden flowers, and certain keen-eyed reasoning horticulturists saw in the marked, although slow development of the Rose, a new field in which they might enter and work with brilliant prospects of success. New varieties were consequently appearing in greater numbers every year, but they were for a time still classed with the Damask Perpetuals, although getting further and further away from the first forms of that group. So late as the year 1840, there was no group recognised as Hybrid Perpetual, although amongst perpetuals were ranked three evident hybrids, Rose du Roi, Bernard, and De Neuilly, the two former allied to the Damask Perpetuals, and the latter approaching more closely to the group Bourbon. In 1844 was published "La Rose," &c., by J. L. A. Loisleleur Deslongchamps, in which "Roses Perpetuelles remontantes" figure as a separate group by the side of Damask Perpetuals. These and others form the group of "hybrides

remontantes" of the French, and Hybrid Perpetual of the English catalogues. The earliest of these were Du Roi, Antinous, Belle Faber, Bernard, De Neuilly, D'Esquermes, Duc d'Enghien, Josephine Antoinette, La Mienne, Palmyre, Requier, &c., and a little later on appeared Aubernon, Baronne Prevost, Duchess of Sutherland, Lady Alice Peel, La Reine, Louis Bonaparte, Madame Laffay, Mrs Elliot, William Jesse, and some twenty others, all introduced before 1846. Onwards from this date the novelties kept increasing in number yearly, till sometimes as many as one hundred new names appeared in a single year. Monsieur Laffay, of Bellevue, near Paris, was the largest and most successful raiser, but there were others as MM. Verdier, Portemer, Guerin, Duval, Vibert, Guillot, and Lacharme, who helped on the development. The favourite seed-bearers with M. Laffay were for a long time Hybrid Chinas and Hybrid Bourbons, crossed with the Bourbon and Damask Perpetual, and the divergence of the offspring on these two lines became year by year more strongly marked. But M. Laffay did not restrict himself for any length of time to these lines, using step by step almost every popular form of the flower with the view of development, hybrids of the Moss Rose being perhaps the most original and distinct of his later gains. The development of this group (Hybrid Perpetual) over the last forty years is no doubt in the memory of many of your readers. The group has now been so long popular, and so many have been working to improve it, that we may find among its various members traces of almost every floricultural group into which the genus *Rosa* stands divided. Most distinctly do we see traces of the Moss Rose (Perpetual Moss), the Provence, the Alba, the Noisette, the Bourbon, and Tea-Scented. In dealing with the latter (Tea-Scented) the late Mr Henry Bennett, of Shepperton, has been perhaps the most successful operator. His earliest varieties, although distinct, were not possessed of any marked excellence, but as time

went on he attained results which have given pleasure to thousands of cultivators, and should long keep his memory green.

It will be expected that I should say something about my own efforts in the development of Hybrid Perpetual Roses. My objects from the first were to widen the range of colour in the flower and strengthen the constitution of the plant. Later on the advancement of every feature of the flower towards a fixed ideal took possession of me, and for this I worked. Some of the results have been long before the world, and it is not for me to pass an opinion on them.

As to the future, I am of the opinion that an immense deal may yet be done in the development of this lovely group by cross-breeding. It is impossible to say, except after actual experiment, what can and what cannot be done. It is, however, sufficiently reasonable to suppose that the various groups will intermix, almost without limit, to justify a certain expenditure of time in making the experiment.

SEEDLING ROSES.

[From "The Gardeners' Magazine," 2nd July 1892, p. 363.]

I HAVE often wondered that our Rose amateurs do not engage more frequently in the raising of Seedling Roses. It is a most fascinating employment, and one which the man of leisure might be content to call profitable. Leisure for reflection, and also leisure for planning and acting, are, however, a *sine quâ non* of success, and hence the grower of Roses for sale, with the constant calls on his time and the difficulty of securing uninterrupted leisure, finds it hard to follow as a matter of profit. Once during my life I gave up a summer's holiday of some weeks, and during the whole of the time did nothing but

cross Roses. What pleasures of castle-building arose in my mind as I saw the seed ripening, and the seedlings which resulted from this and that cross springing into life. Some things foreshadowed were actually realised, and I gained, or thought I gained, in addition, a valuable insight into some of the hidden workings of plant nature. Well, it was a real pleasure, and those who can afford or may be inclined to work for pleasure may here find a reasonable amount of it.

To begin at the beginning, select a good number of seed-bearing sorts, and if one cannot pursue this work in a glass-house, it is well to place the plants in a warm soil and sunny situation out of doors. As, however, our autumns in England are not always long enough or warm enough to ripen the seed of Roses perfectly out of doors, it is better to grow the plants under glass in beds or pots to bloom in May. By this means an extra month is obtained to aid in the process of ripening, and that month is June, when there is usually some warm and sunny weather. Here are a dozen free-seeding Roses which I should judge eligible as seed bearers—*Moss*, *Celina*; *H.P.* Jean Cherpin, *Madame Victor Verdier*, *Duke of Edinburgh*, *Victor Verdier*, *Henry Schultheis*, *Madame Vidot* (indoors only); *Austrian*, *Harrisonii*; *H.B.* *Coupe d'Hébé*, *Paul Ricaut*; *Bourbon*, *Baron Gonella*; *T. Maréchal Niel* (indoors only); and *H.T.* *White Lady*.

Before commencing work we ought to have a pre-arranged plan—some definite object or objects in view—and work for their achievement. For instance, if we want *Moss* Roses with flowers as handsome and symmetrical as the *Hybrid Perpetuals*, the union of the best individuals of each group may be sought for. If we want a *Hybrid Perpetual* Rose with leaves scented like those of the *Sweet Brier*, varieties from these two groups may be brought together. There would seem no bounds to the variety of crosses that might be effected, but to conceive and obtain something that would “take” with the

Rose-loving world would likely result in the most profit to the operator.

It is well to remove the stamens from the flowers of the seed-bearing plants about to be crossed before they shed their pollen, and we should hardly call it superfluous work to enclose such flowers in a small canvas bag after fertilisation.

When the seed pods of Roses begin to swell, and up to the time of ripening, the soil, whether in beds or pots, should be kept regularly and fairly moist; too wet or too dry a soil is equally prejudicial to the perfect development of the seed. The seed pods should likewise be left on the plants till thoroughly ripe. When gathered they may be sown at once or stored in sand and sown in February. It was formerly my practice to sow out of doors, but I have recently sown in beds under glass on account of the depredations of mice and birds (greenfinches especially). Most of the seeds, but not all, germinate the first year. Close watch must be kept for mildew from the time the seedlings rise, and careful watering must be attended to. Some will flower in a month or two, but these are not often of any value as they are of weakly constitution. The majority will flower when one, two, or three years old, but some not till even a later period.

It is reasonable to assume that the flowering will be closely watched, and any varieties that please should be marked and budded on the brier stock as soon as sound healthy buds can be obtained. When flowering on this stock a year after being budded one will be able to judge pretty accurately of the value of his acquisitions, and can continue to propagate them if he think them worthy of it.

TOWN ROSES.

[From "*The Journal of Horticulture*," July 7th 1892, p. 6.]

SO much has been written on Roses of late that one feels it almost necessary to offer an apology for taking up the pen to add to the already abundant literature on the subject, and yet day by day we receive letters seeking information on various points in Rose culture, which show that the writers have not met with the information they stand in need of or have failed to understand it. The most numerous queries that reach us relate to the management of Roses in and around large towns, and to that phase of the subject I propose at the present moment to give my attention.

Even in and around large towns the disadvantages which vegetable life have to contend with vary to a considerable extent. Dense smoke is not always the most inimical of these. The existence of certain chemical works filling the air with the noxious vapours they exhale are often more pernicious. We have known Roses and other plants prosper fairly well amidst dust and smoke, but succumb rapidly after the working of a manufactory of chemicals. If the latter exist extensively, and the consequences of the mischief they produce cannot be modified by scientific or other means, we fear the cultivation of Roses within their influence will give little satisfaction. But mere smoke, the smoke rising from the consumption of ordinary coke and coal, unless in unusual quantities, may be met and negated to more or less extent by proceedings which, if costly, may yet compensate for the trouble and expense incurred.

In very smoky districts we would not recommend the cultivation of Roses otherwise than under glass. A span-roofed house, the slopes facing east and west, the top lights removeable, is recommended for this purpose. It should be heated with 4-inch pipes, and the plants may be

either planted in beds or kept in pots. In districts less smoky the plants may be placed in beds or borders out of doors. As in both cases it is the pursuit of Rose growing under difficulties, no point should be missed that is likely to minimise the existing disadvantages. A good soil should be secured for them to grow in. A careful regulation of the temperature and moisture should be secured for the plants indoors, and shelter in spring and winter be provided for those out of doors. Cleanliness is in both cases very important. Not only keeping the plants free from insects by smoking or washing, but keeping the leaves free from sediments of various kinds should be sedulously attended to. A good syringe is an indispensable instrument for this purpose, and a solution of soft-soap and quassia forms an excellent wash. Never allow dirt of any kind to remain settled on the leaves, nor allow any insects to rest there long enough to look upon the plants as a home.

Perhaps one of the greatest mistakes made when about to grow Roses in smoky and other unfavourable districts is in an unfortunate or injudicious choice of plants and sorts. Free-breathing Roses are wanted for smoky districts, as free-rooting Roses are wanted for heavy soils. But little attention has hitherto been paid to these distinctions, although the practical cultivator knows how important they are. First let me offer a list of sorts that appear most likely to flourish in and around large towns.

FIFTY ROSES FOR VERY SMOKY DISTRICTS, TO BE GROWN UNDER GLASS.

Moss.—Crimson Globe and Zenobia.

Hybrid China, &c.—Charles Lawson, Chénédolé, Coupe d'Hébé, Paul Perras, Paul Ricaut, and Paul Verdier.

Hybrid Perpetual. — Albert la Blotais, Alphonse Soupert, Anna Alexieff, Anna de Diesbach, Baroness Rothschild, Boule de Neige, Captain Christy, Charles

Dickens, Charles Lamb, Countess of Rosebery, Countess of Oxford, Crown Prince, Dupuy Jamain, Edward Morren, Elizabeth Vigneron, Ella Gordon, Général Jacqueminot, Heinrich Schultheis, Inigo Jones, Jean Rosenkrantz, John Hopper, Jules Margottin, La France, Madame Cesar Brunier, Madame Clemence Joigneaux, Magna Charta, Marchioness of Lorne, Merveille de Lyon, Mrs John Laing, Paul Neyron, Pride of Waltham, Ulrich Brunner, Victor Verdier, and Violette Bouyer.

Noisette.—Bouquet d'Or.

Tea-Scented and Hybrids.—Cheshunt Hybrid, Climbing Niphetos, Gloire de Dijon, Madame Berard, The Bride, Sunset, and White Lady.

FIFTY ROSES FOR LESS SMOKY DISTRICTS, FOR BEDS OR BORDERS OUT OF DOORS.

Moss.—Baron de Wassenäer and Captain Ingram.

Damask.—La Ville de Bruxelles.

Alba.—Celestial.

Gallica.—Cynthia, Duchess of Buccleuch, Ohl, and Surpasse Tout.

Rugosa.—Mme. Georges Bruant.

Perpetual Scotch.—Stanwell.

Hybrid Perpetual.—Alphonse Soupert, Anna Alexieff, Antoine Mouton, Baroness Rothschild, Boule de Neige, Centifolia Rosea, Coquette des Blanches, Dr Andry, Duke of Edinburgh, Gabriel Tournier, Garden Favourite, Général Jacqueminot, Gloire de Margottin, Glory of Waltham, Hippolyte Jamain, Jean Cherpin, La Duchesse de Morny, La France de '89, Lord Bacon, Mme. Isaac Pereire, Magna Charta, Mrs John Laing, Paul Neyron, Prince Arthur, Princess Louise Victoria, and Prosper Laugier.

Bourbon.—Madame Baron Veillard, Madame Desprez, Robusta, Sir J. Paxton, and Souvenir de Malmaison.

Noisette.—Aimée Vibert, Céline Forestier, Rêve d'Or, and William Allen Richardson.

Tea-Scented and Hybrids.—Gloire de Dijon, Grace Darling, Pink Rover, Reine Marie Henriette, and Waltham Climber.

Thus far of sorts. We have still a few words to say with regard to the selection of plants. Above all things avoid plants that have been made tender by the employment of excessive heat. In May of this year we were in a house of young Roses where the thermometer stood at 96° in the shade at half-past six o'clock in the evening. The grower very truly said "that was the way to make them grow." But is it the way to produce plants that will flourish in the future under the ordinary conditions of plant life? We think not. What sort of men and women should we expect our children to become if in their infancy they were coddled in this manner? Again, we have heard of plants from the north of Britain recommended on the ground that "they are hardier than those brought up in the south." This is a fallacy. The ripening of the wood is, as all experienced persons know, the true test of hardiness, and the shoots of Roses are not likely to ripen better in the north than in the south. Once more, plants that are overfed for the purpose of getting large and fat flowers for exhibition, and plants that are underfed through indolence or greed of gain, are equally objectionable. Everywhere, and always, but in town gardening especially, the purchaser should look for moderate well-ripened wood when purchasing his Roses; he would do so if about to purchase Grape Vines or Peach trees, and this state of the wood is as important in the one case as in the others.

VIEW FROM CAMELLIA HOUSE IN PAULS' NURSERIES, WALTHAM CROSS.

PART II.

TREES AND PLANTS.

NOTES ON THE VARIETIES OF COMMON YEW (*Taxus baccata*).

[From "*Proceedings of the Royal Horticultural Society*,"
March 1861, Vol. I., p. 491].

AS many of our favourite evergreens hitherto reputed hardy have been seriously damaged or destroyed by the last winter's frost, we turn with increased interest to those which remain to us uninjured. Bays, evergreen Oaks, Arbutus, Euonymus, Laurustinus, Common Laurels, Cypress, and in some cases, Portugal Laurels, are killed. Araucarias, Deodaras, and some other South American and Indian beauties have in many places complexions as brown as ground rhubarb; Phillyreas and more hardy evergreens are stripped of their leaves. But our native plant the Common Yew is safe; none of the varieties have a leaf injured in this valley of the Lea, where the thermometer on Christmas Day 1860 was 5 degrees below zero.

The Common Yew is no doubt well known to every observer, but perhaps the numerous and beautiful forms which have descended from it are as yet strangers to the many. It is these varieties which I would now attempt to describe. They are many in number, beautiful in appearance, and vary greatly among themselves. Neat, graceful, elegant, picturesque, sombre, massive, grand, are terms which may be appropriately used to one or the other of them.

It is my present intention to look at them from one point of view only, and that a popular one—their value as ornamental trees in garden scenery—and so regarded, they seem to fall naturally into four groups, viz.:—

GROUP I.—*Varieties of a spreading habit*, of which the Common Yew is the type.

GROUP II.—*Varieties of a pyramidal or columnar habit*, of which the Irish Yew is the type.

GROUP III.—*Varieties of weeping habit*.

GROUP IV.—*Varieties with variegated foliage*.

GROUP I.—*Varieties of spreading habit*.

1. *T. baccata*, Common Yew.
2. *T. b. fructu-luteo*, the yellow-berried Yew. This is one of the most elegant; the pulp surrounding the seed is of a dull yellow colour instead of red, as in the ordinary kind. The growth is vigorous; the leaves are of a very pleasing green medium tint.
3. *T. b. nigra*. This is a striking plant, of bold and rather varied growth; the leaves are of a bluish or blackish-green. It flowers abundantly, and is very effective in the landscape, forming a somewhat sombre but grand and massive tree.
4. *T. b. procumbens*, forms a huge spreading bush; leaves bright green, the plant looked at as a whole having a reddish appearance.

GROUP II.—*Varieties of pyramidal or columnar habit*.

5. *T. b. fastigiata*, the Irish or Florence Court Yew, is a plant of rigid growth, columnar in form, leaves dark green. This plant is too familiar to require an extended notice, although very useful in formal gardening. Seeds of this variety produce for the most part the common Yew, but some vary in form and tint.

6. *T. b. cheshuntensis* is a very graceful variety, of pyramidal growth, the leaves small and closely set on the

branches; the colour is of a bright glossy green. It appears to stand midway between the Common and Irish Yew, but is less formal than the latter, and grows twice as fast. This variety was raised by me some years ago from the seeds of the Irish Yew.

7. *T. b. pyramidalis*. This variety resembles *cheshuntensis* in outward form; the leaves are, however, broader and shorter, and the bark of the young shoots reddish.

8. *T. b. nidpathensis*, the Nidpath Yew, resembles *cheshuntensis* in the leaf, branch, and colour of the foliage, but is of stiffer growth, being columnar rather than pyramidal in habit, with a disposition to spread at the top.

9. *T. b. stricta* is similar to the preceding, but with smaller and paler green leaves; it is almost as erect as the Irish Yew, and forms a compact dense tree. This is a seedling from the Irish Yew, raised from the same batch as *cheshuntensis*.

10. *T. b. nana* is a neat plant of dwarf habit and compact upright growth, the leaves of a dark and more glossy green than the Common Yew. It appears equally suitable for a single tree on the lawn, for planting in masses, for the shrubbery, or for a dwarf hedge in a geometrical garden. This also is one of my seedlings raised from the Irish Yew.

11. *T. b. erecta* is similar to the preceding, but of larger growth, although with smaller leaves.

12. *T. b. erecta Crowderi*, the variety recently brought under notice by Mr Crowder, of Horncastle, is of compact pyramidal growth, and approaches more nearly to *erecta* than to any other, but has smaller branches, and will probably not grow to so large a size. It appears of more regular growth than *erecta*, and may perhaps be considered an improved variety of it.

13. *T. b. ericoides (empetrifolia)* is an interesting and neat little plant of dwarf growth, closely set with branches; the leaves are small, the bark reddish.

GROUP III.—*Varieties of weeping habit.*

14. *T. b. Dovastonii* is a weeping variety, somewhat picturesque, the branches shooting horizontally to some distance from the main stem, and drooping at their points. The foliage is ample, of a dull dark green.

15. *T. b. Jacksonii* is a distinct and elegant weeping variety, with small light green leaves somewhat curled.

16. *T. b. recurvata* is a handsome variety, with leaves of a pale dull green. The habit is diffuse, rather drooping, the leaves curled in the same way as in *Picea nobilis*.

GROUP IV.—*Varieties with variegated foliage.*

17. *T. b. variegata*, the Golden Yew, is a well-known plant of great beauty, well suited for planting in masses, and relieving the monotony of large surfaces of green. The gardens at Elvaston Castle derived some of their celebrity from the artistic working up of quantities of this beautiful tree in contrast with the darker shades of green. I have heard it said, on good authority, that the Golden Yew is a male plant, but as I have seeded it, I strongly suspect that there are two or more varieties of too close an external resemblance to be distinguished. This supposition is strengthened by the fact that the offspring from seed retain the variegation of the parent, though differing slightly among themselves.

18. *T. b. elegantissima* is paler in colour, and of more erect and uniform growth than the last mentioned. Both these varieties, if grown entirely in the shade, quickly become green, but regain their golden appearance on re-exposure to the sun. They make handsome formal plants when worked standard high on the Irish or common Yew.

19. *T. b. "silver variegated"* is a seedling from the Golden Yew, but which I never thought sufficiently distinct or attractive to merit a name.

20. *T. b. fastigiata variegata*, the variegated Irish Yew, is a sport from the Irish Yew, with occasional silver leaves. The plant is of slow growth, and still scarce, but it is hardly striking enough to become a general favourite.

[In addition to the above I should now (1892) recommend *T. Dovastoni aurea*; *T. japonica aurea*; *T. gracilis pendula*, and *T. f. foliis aureis*.]

NOTES ON THE VARIETIES OF ENGLISH HOLLY (*Ilex aquifolium*).

[From "Proceedings of the Royal Horticultural Society,"
April 1863, vol. iii., p. 110.]

THE ENGLISH HOLLY (*Ilex Aquifolium*) is a plant well-known to every lover of nature. In Lindley's "Vegetable Kingdom" it is placed between the genera *Cassine* and *Prinos*, in the natural order of *Aquifoliaceæ*, or *Hollyworts*.

It is not, however, my intention to enter the domain of the botanist; that were a work of supererogation, as the characteristics of the genus and species are already clearly set forth in various botanical publications. My business is with the varieties of the English species only, which have been raised from seed by the cultivator, or have come to us by what are known in the horticultural world as freaks or sports of nature. Here, as with the varieties of English Yew, which I was privileged to bring under your notice a short time since (see "Proceedings of the Royal Horticultural Society," vol. i., page 491). I hope to render some service to horticulture by arranging and describing, if not all, at least the *most prominent* members of this charming family. I do not indeed pretend to include *all* the varieties, as the differences are in some cases so slight that it seems undesirable to perpetuate them.

The Holly is not geographically confined to Britain,

but extends throughout the middle and south of Europe. The tree is, however, more beautiful, grows more vigorously, and attains to a larger size in Great Britain and Ireland than in any Continental country that I have visited, owing, no doubt, to the moist climate which our insular position secures to us. It may be difficult to decide which is the handsomest, the original form with its rich green leaves and scarlet berries, or the numerous variations of green, gold, and silver; but any one of them would be sufficient to place it in the very foremost rank of English evergreens.

In the second edition of Duhamel's treatise on hardy trees and shrubs, it is remarked—"After the Pines the Holly is the only evergreen tree indigenous in northern climates which adorns the forest during winter. In that drear season, when all others appear dead, it stands forth an image of life, and rejoices the heart of the observer of nature; in sunshine its brilliant leaves reflect the feeble solar rays, and in gloom they make a charming contrast with the dead-leaf colour of the Beech, which is often found in company with it." I heartily adopt the language of Duhamel, and add that we have no evergreen shrub at all comparable with the Holly for usefulness, variety, and beauty. The Holly forms an admirable single tree or group of trees, alike appropriate on lawns or in woods and hedgerows. It is also the densest and warmest of hedge-plants, though of slow growth in comparison with the Hawthorn. It is again invaluable as an undergrowth in plantations and preserves.

There is a fine group of the original English Holly growing nearly opposite the entrance to Panshanger, near Hertford, a seat of the Earl Cowper, and numberless fine specimens may be seen in the hedges of that district. I have observed two distinct forms of the wild Holly growing in the Hertfordshire lanes, the one prickly, the other smooth, the latter growing more vigorously and becoming the larger tree. Perhaps it may be the latter that Southey

alludes to in his elegant poem "The Holly Tree," when he says :—

"Below a circling fence its leaves are seen
Wrinkled and keen,
No grazing cattle through their prickly round,
Can reach to wound ;
But as they grow where nothing is to fear,
Smooth and unarmed the pointless leaves appear."

It may seem ungracious to throw a doubt on so charming a fantasy, and my opportunities of observation have not been sufficiently extended to allow me to speak decidedly, but as far as I *have* observed, the evidence is not conclusively in favour of Southey's view.

Many exquisite pictures of Holly and Hawthorn carelessly intertwined exist in Epping Forest, and they are scarcely less lovely when the Hawthorn is in blossom than when the Holly is in berry. The Holly hedges at Tyninghame, in Scotland, planted about 1705 by Thomas, sixth Earl of Haddington, have attained a world-wide celebrity. They are 2952 yards in length, from 16 to 25 feet in height, and from 14 to 17 feet broad at the base. Mr Lees, the intelligent gardener there, informs me that they are clipped annually in April. The soil is a fine deep yellow loam, resting on gravel. A clipped Holly hedge near one of my nurseries here was once a source of attraction to every passer-by. Though now neglected, it originally formed a dense, impenetrable fence, inaccessible to birds, and impregnable to those boys to whom palings, walls, and ordinary fences offer difficulties, tempting even for the pleasure of overcoming them.

The common green Holly is propagated by seeds gathered at Christmas, stored in heaps, and sown in light sandy soil the autumn following. The varieties do not reproduce themselves true from seed, and are consequently increased by cuttings, layers, budding, and grafting. From a large sowing of the berries of variegated Holly once made in these nurseries only one plant reproduced the

variegation, the others reverted to the type. Some years ago I met with a beautiful Holly with broad prickly leaves in the Botanic Gardens of Edinburgh, which the late Mr M'Nab informed me was raised from the *Ilex perado*, hybridised with the English Holly.

In a recent correspondence with Mr James M'Nab, he obligingly furnished me with leaves of several seedlings still growing there raised from the *I. perado*, supposed to be fertilised with the English Holly, a large flowering plant of which was growing in the immediate vicinity. It is interesting to note the variation of these seedlings. Not one has the smooth entire leaves of the female parent (*I. perado*), but all bear more or less resemblance to the English Holly. One is scarcely distinguishable from the latter; another has almost ovate leaves; a third, large broad leaves 3 to 4 inches in diameter; while the young shoots of a fourth are of a purplish hue. Some of these varieties are reported to be less hardy than the English Holly, which unfortunately diminishes their value for cold exposed situations.

It is worthy of remark that the green varieties seem in many cases to repeat themselves as to form in both a gold and silver dress; and I willingly indulge the hope that at no distant period some at least of those splendid acquisitions of modern times, as *I. latifolia* and *I. tarajo*, may, by the skill of the hybridiser or cultivator, or by some natural freak, be brought to assume distinctly variegated forms.

Loudon observes (Arb. et Fruit. Brit., p. 506) that the collections of Hollies in the time of Miller appear from his lists to have been more extensive, and to have been attended to with much more care than they are at present. There are fine specimens of the Gold Holly at the Grange, Hoddesdon, the residence of the Rev. C. G. Chittenden, growing on a gravelly soil, three of which are the variety known as the "Old Gold," while the fourth is the "Golden Queen." Previous to the winter of 1860-61 these and two

of the Silver variety formed the most perfect living pyramids imaginable, averaging 30 feet in height, their lower branches sweeping the ground. The Silvers were killed by that winter; the Golds, although much injured, are gradually recovering. There is still a magnificent pyramid of the Silver Holly, probably matchless for size and beauty, growing on the lawn at the Misses Harman's, Theobalds, near Waltham Cross. It is 40 feet in height, and 30 feet in diameter at the base, and each year is literally covered with berries. The soil here is sand or gravel, the sub-soil clay.

There exists a difference of opinion as to the best season for transplanting Hollies. Some say transplant in summer, immediately after the first growth; others say early in autumn; and others again late in spring. Now, I have transplanted with success at all these seasons, but am in favour of *early* autumn or *late* spring, attaching great importance to the adherence of soil to the roots, and looking for more complete success if the weather is showery at the time, and immediately after the work is done. The Holly in a young state likes the shade, and flourishes most in a rich sandy loam that is tolerably dry; it is, however, less particular in this respect than many trees.

With these preliminary remarks I shall proceed to arrange and describe the principal varieties:—

ILEX AQUIFOLIUM. L. (THE COMMON HOLLY).

A.—*Leaves Green.*

1. Green Hollies, resembling the type	4. Long-leaved green
(a) Prickly (b) Smooth
2. Broad-leaved green	5. Small-leaved dwarf green
3. Blunt-leaved green, smooth or almost smooth	6. Curled-leaved green
	7. Broad-spined green

B.—*Leaves variegated.*

1. Gold-blotched	3. Broad-leaved gold-edged
2. Long-leaved gold edged
(a) Prickly (b) Smooth	4. Silver-blotched
	5. Silver-edged

A.—LEAVES GREEN.

GROUP I.—*Green Hollies resembling the type.*

1. *Ilex Aquifolium*.—This must be considered as the progenitor of those which are to follow, and is too well known to need description. Its dominant feature consists in the dark glossy green leaves of elliptical outline, armed with long spiny teeth, and very much undulated at the margin. The offspring are in some few instances hybridised with other species, but in the majority of cases they are mere variations from seed or sports of nature.

2. *I. A. pendula*.—This beautiful variety resembles the parent except that it is of drooping growth. It forms the handsomest of all pendulous evergreen trees, and bears berries as freely as the type.

3. *I. A. fructu aurantiaco*.—The orange-berried Holly also resembles the type, except that it bears orange-coloured instead of red berries, and is highly ornamental.

4. *I. A. fructu luteo*.—Yellow-berried, has paler foliage and berries than the preceding, and is altogether of a smoother aspect; a beautiful tree.

5. *I. A. compacta*.—Forms a closer and denser bush than the common sort, with shorter and thicker leaves, and scarcely rises into a tree.

6. *I. A. Handsworthiana*.—Similar to the preceding, but of larger growth with longer leaves.

GROUP II.—*Broad-leaved green.*

7. *I. A. Beetii*.—Leaves broad, much waved. A shining-leaved, smooth-looking sort, having somewhat the aspect of *Ilex cornuta*.

8. *I. A. Foxii*.—Leaves larger in every part, and darker in colour than the preceding. A compact, good-looking sort.

9. *I. A. hybrida*.—Leaves and shoots more erect than in the two previous kinds, forms a handsome pyramid, and bears berries freely.

10. *I. A. platyphylla*.—A handsome dense bush, thickly clothed with broad flattish leaves.

11. *I. A. nigrescens*.—This is sometimes called *Maderensis nigrescens*, and is no doubt a hybrid between *I. maderensis* and *I. Aquifolium*. Leaves broad, long, smooth, and shining. A handsome sort of vigorous growth.

12. *I. A. atrovirens*.—Here is another hybrid apparently from the same source, with broader, flatter, and lighter coloured leaves than the preceding. A very fine showy Holly.

13. *I. A. Shepherdii*.—Leaves very broad and prickly; a blackish-green tree, densely clothed. One of the handsomest.

14. *I. A. nobilis* and *I. A. altaclerense*.—Two of the many seedlings apparently raised from the same source as the three preceding, but not considered sufficiently distinct to be kept apart.

GROUP III.—*Blunt-leaved green, smooth,
or almost smooth.*

15. *I. A. lævigata*.—A close growing variety of neat aspect, with moderate sized thick fleshy leaves.

16. *I. A. ovata*.—Leaves oval, thick, dark green, beautifully chiselled at their margin, habit close and uniform. Invaluable as a medium sized evergreen of the richest aspect.

17. *I. A. Scotica* (qy. *scurtica*).—A beautiful tree with roundish, dark, glossy leaves of a leathery consistence, occasionally cupped at the points. One of the handsomest.

18. *I. A. Hendersonii*.—A free-growing handsome variety with broad, almost smooth, dull, dark leaves of the richest aspect.

19. *I. A. Hodginsii*.—A good useful blunt-leaved Holly, which must not be confounded with *I. A. Shepherdii*, which is sometimes miscalled *Hodginsii*.

GROUP IV.—*Long-leaved green.*(a) *Prickly.*

20. *I. A. Donningtoniensis*.—Leaves very long, pointed, waved, thick; spines few and irregularly placed. This forms a dark impenetrable bush of distinct and pleasing aspect.

21. *I. A. Smithiana*.—Leaves long and flat. It forms a graceful tree, quite distinct both from that which precedes, and that which follows it.

22. *I. A. Whittingtoniensis*.—Leaves long and very spiny.

23. *I. A. heterophylla*.—Leaves light green, very variable both as to size and smoothness, some entirely free from thorns, but generally prickly.

24. *I. A. ciliata major*.—A dark purplish green looking kind, with long hair-like spines, leaves very glossy. One of the best.

25. *I. A. arbutifolia*.—Spines close set on the edge of the leaf, and very long. Distinct and handsome; leaves light green.

(b) *Smooth.*

26. *I. A. senescens*.—Leaves tolerably broad, shining dark green, some almost spineless. A handsome variety of freer growth than the type. This sort bears berries freely and stands the smoke well.

27. *I. A. Fisheri*.—Leaves very large, acutely pointed, mostly smooth. A fine showy Holly, of giant growth.

28. *I. A. heterophylla major*.—Leaves large, long, smooth, pleasingly undulated, one of the best.

29. *I. A. laurifolia*.—Leaves quite smooth, dark green, growth spreading and free. An excellent sort.

GROUP V.—*Small-leaved dwarf green.*

30. *I. A. serratifolia*.—Leaves small, with pale green margins. A compact growing and very pretty sort.

31. *I. A. angustifolia*.—Leaves longer and flatter than the preceding, and less distinctly marked at the edges.

32. *I. A. ciliata*.—Leaves purplish-green and shining ; distinct and handsome.

33. *I. A. myrtifolia*.—Leaves small, pale green, thickly set on the branches, producing an elegant dwarf bush.

34. *I. A. pumila*.—A very pretty dwarf Holly, with glossy flattened leaves.

GROUP VI.—*Curled-leaved green*.

35. *I. A. tortuosa*.—A dark green, spiny, curled-leaved Holly, of dwarf growth, and very pretty.

36. *I. A. crassifolia*.—Leaves lighter in colour, thicker, and more curled than the preceding. Very distinct.

37. *I. A. ferox*.—This, the well-known Hedgehog Holly, is the most spiny of the tribe, and is at once distinct and handsome.

38. *I. A. recurva*.—The Screw Holly is also a very excellent variety, and highly ornamental.

GROUP VII.—*Broad-spined green*.

39. *I. A. latispina minor*.—A small thick-leaved kind of dwarf growth ; spines few and long.

40. *I. A. monstrosa*.—A very spiny variety, quite a curiosity from the singular contortions of the spines. Foliage lighter green than in *latispina*.

41. *I. A. latispina*.—A variety of vigorous growth, with broad flat leaves and few long spines. The spines of this variety almost invariably turn outwards or downwards ; those of the two preceding inwards or upwards.

B.—*LEAVES VARIEGATED*.

GROUP VIII.—*Gold-blotched*.

42. *I. A. Cookii*.—Leaves broad and handsome, though but faintly marked with gold. A sport from the gold striped. The original plant is now growing at Sir W. Cooke's, Bart., of Wheatley Hall, Doncaster.

43. *I. A. recurva variegata*.—Too often resembles the common Screw Holly, but one of the handsomest when well variegated.

44. *I. A. ferox aurea*.—The gold-blotched Hedgehog Holly is a very good variety, but here, as with the preceding, there are many shades of variegation, some of which are much handsomer than others.

45. *I. A. flammea angustifolia*.—An exceedingly showy and distinct variety. Leaves long, smooth, pleasingly undulated, and well blotched with gold. Bears berries freely.

46. *I. A. aurea picta*.—The Gold Milkmaid; leaves very prickly, rich gold, variously blotched.

47. *I. A. picta*.—Leaves large, well blotched, and very handsome.

48. *I. A. flava*.—The Bronze Holly; leaves bronzy-yellow, exceedingly rich in winter.

49. *I. A. multispina*.—Leaves green and gold, variously blotched, and very prickly. Discovered growing in a bed of green hollies in my nurseries at Waltham Cross.

GROUP IX.—*Long-leaved Gold-edged.*

(a) *Prickly.*

50. *I. A. aurea nana*.—Leaves long, very prickly, well edged with gold; a beautiful compact bush, of low growth.

51. *I. A. aurea angustifolia*.—Rather larger than the preceding, and of freer growth, but not so gay.

52. *I. A. aurea myrtifolia*.—A fine free flat-leaved sort, of good average colour; very compact, and invaluable for flower beds in winter.

53. *I. A. aurea Scotica*.—Leaves dark ochreous yellow; good and distinct.

54. *I. A. Walthamensis*.—Leaves very long, moderately broad, well edged with gold. One of the best; of more erect and probably freer growth than the *Golden Queen*.

This and *I. A. multispina* are at present only in my collection.

55. *I. A. aurea mucronata*.—Leaves rich medium gold.

56. *I. A. aurea serrata*.—A fine showy holly, but not so densely clothed with leaves as some ; spines few.

(b) *Smooth*.

57. *I. A. aurea lævigata*.—A fine free-growing variety, with flat deeply-margined leaves.

58. *I. A. aurea pumila*.—Waterer's Gold. The leaves are rich in colour ; an excellent low bush, of compact growth, well clothed with foliage.

GROUP X.—*Broad-leaved Gold-edged*.

59. *I. A. aurea vestita*.—Not one of the gayest, but a good useful sort, very free and hardy, and thickly set with glossy leaves.

60. *I. A. bicolor*.—Leaves broad and short, well edged with bright gold. This bears berries freely.

61. *I. A. speciosa*.—The Golden Queen ; the handsomest of the section, but does not grow so vigorously as some.

62. *I. A. aurea marginata*.—The old gold-edged, an excellent variety, and grows very freely ; the gold margin is however dull in comparison with that of the preceding.

63. *I. A. obscura*.—A good hardy free sort, the branches closely set with leaves, edged with bronzy-gold.

GROUP XI.—*Silver-blotched*.

64. *I. A. albo-picta*.—The Silver Milkmaid ; a distinct and interesting variety.

65. *I. A. ferox argentea*.—The Silver Hedgehog Holly, also a good hardy sort, and forming a dense bush.

GROUP XII.—*Silver-edged*.

66. *I. A. argentea angustifolia*.—A fine dwarf bush, with bright prickly leaves.

67. *I. A. argentea elegantissima*.—Leaves long and prickly, bright and elegant; larger in all its proportions than the preceding.

68. *I. A. argentea stricta*.—Leaves flat, well edged, growth erect; forms a fine pyramid.

69. *I. A. argentea longifolia*.—The Handsworth New Silver-striped; leaves very long, well edged; a first-class sort.

70. *I. A. lucida*.—The Silver Queen; leaves broadly margined with silver; the gayest of the group.

71. *I. A. argentea latifolia*.—Leaves almost round, well edged; growth compact.

72. *I. A. albo-marginata*.—Leaves large broad dark shining green; very handsome, and grows to a large size.

73. *I. A. albo-marginata pendula*.—This is similar to the preceding, but of a beautiful pendulous habit.

Several of the above have been raised or introduced by Messrs Fisher, Holmes, & Co., of the Handsworth Nurseries, near Sheffield, and I am indebted to that eminent firm for the opportunity of exhibiting the following varieties, lent to me for the occasion:—*aurea myrtifolia*, *latispina minor*, and *pumila*.

I have only to add that, in my opinion, the most ornamental of these varieties are—of the green-leaved section: *pendula*, *fructu luteo*, *Beetii*, *platyphylla*, *atrovirens*, *Shepherdii*, *ovata*, *Scotica*, *Hendersonii*, *Donningtoniensis*, *Smithiana*, *ciliata major*, *senescens*, *Fisheri*, *heterophylla major*, *laurifolia*, *angustifolia*, *ciliata*, *myrtifolia*, *tortuosa*, *ferox*, and *recurva*; and of the variegated-leaved section: *recurva variegata*, *ferox aurea*, *flammea angustifolia*, *aurea picta*, *flava*, *aurea nana*, *aurea myrtifolia*, *Walthamensis*, *aurea serrata*, *aurea pumila*, *bicolor*, *speciosa*, *argentea angustifolia*, *argentea elegantissima*, *argentea stricta*, *argentea longifolia*, *lucida*, and *albo-marginata*.

LANDSCAPE GARDENING.

[From "*The Gardeners' Chronicle*" *Leading Article*, August 13th
1864, p. 770.]

SOME one has noted as a characteristic of the present age its tendency to diffusion, expansion, and universality. Horticulture and Landscape Gardening, quiet professions as they are, are nevertheless influenced by this onward movement. Horticulture is rapidly becoming a science built on the solid and secure foundation of the physiologist's labours in the field of vegetable anatomy. Landscape Gardening, roused and excited by the progress of the sister arts, and aided by the introductions of modern travellers and hybridists, has entered on a new era, and embraces a field wide as it is fertile, and one in which the most industrious and gifted may find ample scope for the exercise of his ingenuity and taste.

Time was when Landscape Gardening had but few professors, and the materials with which they had to work were limited in the extreme. How would Brown and Repton, Price and Gilpin, have rejoiced over the trees, shrubs, and plants which their successors have at their disposal? Readily accessible by hundreds and thousands, in a condition to produce immediate effect, and at a price which recent improvements in the art of propagation have made marvellously low, we can only imagine what would have been the effect of England's landscapes *now* had these things been accessible in their day.

But while modern landscape gardeners revel amidst the wealth and variety of these later times, they should not forget that the happier days in which they work entail upon them increased responsibilities. And while reminding them of this fact, we cannot but record here

our conviction that they have not hitherto sufficiently availed themselves of the treasures recently brought within their reach. If they are acquainted with them, they have not shown the alacrity displayed in other branches of art in availing themselves of their aid; if they are not, it is surely an important part of their business to study and master them. We predict that he who shall first do this, and display in good taste the almost infinite variety in form and tint now existing among trees and shrubs will not only obtain for his profession a higher rank, but win for himself the best position in it.

Familiar acquaintance with many of the leading gardens and estates in England compels us to say that the great want in the landscape is VARIETY. There is a monotony in form and colour that should be, and must be corrected. Why indeed should it not? There is no lack of materials. As to form, there are spreading, columnar, and weeping, large-leaved and small-leaved trees in abundance. As to colour, there are light green, dark green, silver, gold, and purple trees, shrubs and plants *ad infinitum*, to say nothing of the varied tints of spring, and the changing hues of autumn. When planting an estate or garden these objects, or the best of them, should be so chosen and arranged as to heighten the beauty of each other by harmony or contrast; and convert the present unmeaning landscape into a series of beautiful pictures, perfect in themselves, yet sufficiently connected to form a complete whole.

Are we met by the objection that there is not even yet sufficient variety to accomplish all this? We join issue with the objector. It is true that we cannot find among trees and shrubs the bright colours and strong contrasts met with in flowers. But we do not want them. We would not have the whole country a flower garden. We seek not repetition or repletion, but would rather avoid both. Quite as appropriate in their sphere are the more

sober hues. The remedy we seek is to be found in breadth rather than in intensity of colour. "In further elucidation of these views we are promised a series of papers from a well-known correspondent." *

ORNAMENTAL PLANTING.

[From "*The Gardeners' Chronicle*," August 27, 1864, p. 819.]

NO. I.—SPRING.

I HAVE somewhere met with the remark that the poet revels most in the beauties of spring, the painter in those of autumn. The landscape gardener when selecting trees should perhaps be conversant with and consider the effect they produce at all seasons. Spring is the time of promise in gardening, and I purpose in the present instance to confine my remarks to that season. The dominant features of tree scenery in spring are:—

1. The outline of the trees.
2. The colours of the flowers.
3. The colours of the leaves.

1. *The outline of trees.*—From among the various forms which trees assume, I may perhaps be permitted to instance the following as clearly defined points of departure—*spreading, round-headed, pyramidal, and weeping*. Not that it is intended to say that all trees are well defined examples of one or other of these forms; for it is admitted that in many there is an absence of strongly marked character, and that a tree may be neither perfectly spreading, round-headed, pyramidal, nor weeping, but in the intermediate forms will generally be found a dominant habit which renders them easily referrible to one or other of these divisions.

* The last sentence was added by the editor.

Spreading.—This is the form most prevalent in nature, and such must be the staple of ornamental planting. The Ash, the Beech, the Oak, and the Spanish Chestnut, are of this character. Look abroad on the uncultivated landscape, and the probability is that nothing else will meet the view, unless it be a few Lombardy Poplars whose spire-like tops everywhere break into the blue vault above.

Round-headed.—Of these the Robinia inermis is perhaps the most strongly marked. This beautiful tree is not planted in England half so much as it deserves to be. In France it is met with at every step, and the dense masses of leaves of a fresh bright and beautiful light green, never fail to attract the attention of the traveller. Most of the round-headed trees are, however, of moderate or small growth, and therefore better fitted to fill various positions in the flower garden, than to adorn the distant landscape.

Pyramidal.—Pyramidal trees of large size are more numerous than round-headed ones. The Lombardy Poplar, Turkey Oak, and White Beam tree (Pyrus Aria), are well known examples of these. There are also pyramidal forms of the Acacia, the common Oak, the Elm, the Elder, and a beautiful new Alder known in nurseries as Alnus asplenifolia. Then among evergreen trees we have the common Cypress, the Red Cedar, and the Irish Yew.

Weeping.—The Weeping Birch and Weeping Willow are both familiar trees, and form good illustrations of this group. They are less common round London than many other kinds, but they are distinct and attractive and not likely to be passed unnoticed.

2. *The colours of the flowers.*—Trees and shrubs which flower in spring are especially valuable, and fortunately there is no dearth of such. A group composed of Scarlet Thorns, Laburnums, and Lilacs, will furnish an example of what may be effected by the introduction of spring flowering trees.

3. *The colours of the leaves.*—Some deciduous trees put forth their leaves early, others late ; but at whatever time they appear, being constantly moistened with the showers of spring, they present the eye with an agreeable freshness which we in vain look for at a later date. The varied tints of the bursting leaves form a most agreeable feature in the landscape in spring—the blood-red of the Purple Beech, the yellow of the Caragana, offer contrasts in themselves pleasing, but which lessen in intensity as the summer advances.

With evergreens the difference in colour between the new growth and the old, especially in the Pine tribe, is too strongly marked to escape notice, and produces a very pleasing variety. The darkest and the lightest shades of green are often thus brought in immediate contact. Within view of the spot where these lines were written is a stream, whose margin at the time they were penned was overhung with the pale tender green spray of a Weeping Willow ; behind were dark masses of the common Yew, and still further beyond groups of blossoming Hawthorn. The effect of this combination was admirable. Onward still, and in the distant upland were trees innumerable, but so far as could be distinguished, each seemed but a counterpart of the other.

Although not in a severely critical mood, I have been indulging the fancy by obliterating certain objects within range of sight—some of the comparatively meaningless trees which in many instances have been planted by the hand of man, but more commonly by nature.

In their places I have conjured up examples of the rarer and more modern trees, and the landscape thus improved lies before me in increased loveliness. I have gazed and am satisfied. The youth and freshness of spring are still there, but the monotony has disappeared ; the whole landscape is inspirited.

In endeavouring to give utterance to these views I do not seek to ignore the fact that the prevailing colour in

tree scenery is green, varying in shades, but still green. This is as it should be, for no other colour in nature is so agreeable to the eye. Let us then take this colour as the ground work of our operations, and retain its ascendancy, but let us vary and increase the pictorial effect of the landscape by a more liberal introduction of other colours.

Every domain should be in itself a picture, or rather a series of skilfully united pictures.

NO. II.—SUMMER.

[From "*The Gardeners' Chronicle*," September 3rd 1864, p. 844.]

WHATEVER may be the beauty of trees in spring, there is an incompleteness attending it—the incompleteness of progress; it is not until the arrival of summer, when the leaves have attained their full size, that trees appear in full dress, and produce that depth of light and shade in which the lover of nature finds so much pleasure.

If we seek to produce variety through the diversity in *form* of the leaves, we shall find no difficulty in doing so. There are the needle-shaped, of which the Pines, Firs, and Junipers are examples. The small-leaved, which include such trees as the Oak, the Elm, the Beech; the large leaved, to which belong the Catalpa and Paulownia; and the compound-leaved, grand examples of which are met with in the Ailantus, Kolreuteria, &c.

But the *colour* of the leaves in summer is the most fertile source of variety. There are *light green*—for example, *Taxodium distichum*, and *Gleditschia*; *dark green*—*Fraxinus crispa* and *Castanea vesca*; *purple*—Beech, Elm, and Sycamore; *yellow*—variegated Turkey Oak, Ash, and Sycamore; *white*—*Acer negundo variegatum* and Silver Poplar. I know of no trees so beautiful in the landscape in summer as the two latter, on account of the idea of coolness they suggest by the glitter of their white leaves. The Aspen, too, is desirable at the same season, the ceaseless play of its foliage disclosing a breeze

so faint as to be scarcely distinguishable by any other test.

Then as to *shade*—we want shade in summer. Trees which produce the densest masses of foliage should be selected for this purpose and planted in appropriate spots. Although “deciduous” trees are in their greatest beauty at this season, we cannot altogether dispense with “ever-greens.” The latter are invaluable on account of the variety they produce, and also for the coolness and almost impenetrable shade which they afford.

“ Before me rose an avenue
Of tall and sombrous Pines
Abroad their fan-like branches grew
And when the sunshine darted through
Spread a vapour soft and blue
In long and sloping lines.”

The *Abies Douglasii*, *A. Deodara*, and *Pinus Austriaca* stand in the very foremost rank, both as summer and winter trees, for avenues, groups, or single specimens.

The examples above given are mostly trees attaining to considerable size, and familiar samples of such. There are, however, others of medium and lowly growth similar in form, colour, and general character.

Among novelties I have not forgotten the remarkably beautiful trees introduced from Japan by Mr Fortune and Mr Veitch. Some of these, the *Acers* especially, are wondrously beautiful, but are they hardy? Time is necessary to prove this. It is reported that some are difficult of propagation, and if so it will require time before they become sufficiently reasonable in price to be generally available.

NO. III.—AUTUMN.

[From “*The Gardeners' Chronicle*,” September 17th 1864, p. 893.]

THE feature of Tree scenery in autumn is the changing and varied colours of the leaves. As green is the
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dominant colour of the mature leaf in summer, so is russet brown that of the falling leaf in autumn. But there are some trees whose leaves grow brighter as they advance to maturity, and in the red, purple, and yellow hues which they assume in autumn we find materials to vary and increase the beauty of the landscape.

The leaves of the scarlet Maple and the scarlet Oak change to a fine red; those of the Norway Maple, the Birch, the Ash, the Kœlreuteria, and the Tulip tree to yellow; the Liquidambar dies a variegated mass of green, red, purple, and yellow; and there are various intermediate tints, which if less marked, are nevertheless of infinite value. These, in our opinion, are seldom sufficiently used in the composition of tree scenery. The Sumach (*Rhus typhina*) is valuable not only for the brilliant tints of its dying leaves but also for the feathery tufts of flowers which it produces, and which become dry and remain on the tree during autumn and winter.

Trees which bear fruits or berries are also worthy of notice at this season. The red and the yellow berried Mountain Ash are beautiful. Then there are numerous varieties of the Thorn (*Cratægus*) producing yellow, red, and black berries, some of them of large size; and the Siberian Crab and the Transparent Crab, when laden with their respective fruits, are objects of matchless beauty.

As the greater number of English landed proprietors spend the autumn at their country seats, it becomes of first importance that every feature of beauty at that season should be fairly and fully developed. But what is the fact? We know of many first-class English residences where the monotony previously condemned in spring exists alike in autumn. From universal green to universal brown, and back again as the seasons revolve, is all the change that takes place. The flower garden, planted and arranged with exquisite skill and taste, forms a series of glowing pictures, but everything beyond is dull, tame, heavy, and monotonous. Now, we would not that

the garden should be a whit less beautiful, but the proprietor of a demesne is not expected to spend all his time there. The pursuit of country sports, if nothing else, will take him into the outlying parts of his estate, and as he traverses the dewy meads amid fogs and falling leaves the intervals of sport may be enchantingly filled up by the contemplation of a varied, vigorous, and well-composed landscape. Whatever therefore is left undone, at least the park and the outlines of woods and plantations should be varied and adorned by all the forms and colours that can be drawn from the rich repertory of the vegetable kingdom.

At this season, as at others, there requires a due admixture of the deciduous and the evergreen to attain all that is desirable. The airiness, the grace, the glow of the former is rendered far more beautiful when associated with the more solid-looking and durable forms of the latter. As the deciduous forms are stripped bare, and their leaves scattered by the autumnal whirlwind, it is pleasant to contemplate the permanency and repose of the evergreens, fitly represented by the Pine and Yew.

NO. IV.—WINTER.

[From "*The Gardeners' Chronicle*," October 8th 1864, p. 963.]

IT may probably startle some of my readers when I essay to speak of the "Beauties of Winter." But the real lover of nature who possesses the *mens sana in corpore sano* will find in the changes of the seasons pleasure rather than discomfort. To an individual thus soundly constituted the balmy breezes of spring, the noontide heat of summer, the whirlwind of autumn, and the snows of winter, with their varying preliminaries, accompaniments, and sequences, are only so many fresh sources of knowledge, gratification, and delight. To draw on one's own experience, I remember riding over a bleak plain one December day many years ago, in face of a biting north-

cast wind, with the thermometer 20 degs. below the freezing point. Shortly afterwards I entered a wood of Scotch Pines, and was struck with the change of climate—a change of which the thermometer gave no adequate indication, and which deeply impressed me not only with the sense of increased personal comfort, but also with the value of shelter to the young and delicate objects of vegetable life. I thought then, and have thought since, that the horticulturist who measures the probable influences of the weather by the thermometer alone does not rise to a correct estimate of the powers he has to contend with.

Thus, while I regard with no antipathy the biting frost and the searching wind, knowing that these things are of vast importance in the order of nature's laws, it is my purpose to advocate the use of those objects and agencies which art and science have placed at our disposal to modify and subdue those influences uncongenial to the comforts of an English home.

The real value of SHELTER can scarcely be too highly estimated in many of the delicate operations of modern gardening, and the idea of it when associated with warmth is no less pleasing to the mind in winter. On both grounds the free use of *evergreens* when forming new gardens or plantations is strongly advocated. They are invaluable for the shelter they afford and the idea of warmth which they convey. But a garden or pleasure-ground planted wholly with evergreens, few would be bold enough to advocate; such would be heavy in summer, and monotonous in winter. Evergreens may abound, but they must not superabound. To abound even, they require to be judiciously varied. The free and spreading forms should be mingled with the formal; the large-leaved and small-leaved kinds must be properly arranged and adjusted; the light green, the dark green, the glaucous, and the variegated, must be represented in varying proportions to suit the character of the mansion

and the surrounding scenery. A group of the Golden Holly forms a glowing picture in winter; the Silver Holly with its clusters of bright red berries is no less pleasing; the yellow green of the Laurel and the black green of the Yew produce a beautiful contrast both in form and tint, and they may at times be brought in contact for the sake of contrast, and at times be separated and softened down by the intermediate tints of light and glaucous green.

But the beauty of our gardens out of doors in winter need not be wholly dependent on the forms of trees and the tints of their foliage. There are some few plants which bear berries, and these should be introduced without stint. Besides the common form of Holly so familiar to us through its bright red berries, there are also the yellow-berried and the orange-berried varieties, both noble trees, well worthy of general cultivation.

Then there are the Thorns, alluded to in a former paper, which retain their fruit through a part of winter, the *Pyracantha*, the *Arbutus*, the *Skimmia*, the *Coton-easter*, the *Pernettya*, the *Privet* (both black and yellow-berried), the *Ivy* and others. The beauty of the bark of certain deciduous trees in winter is also a feature which should not be lost sight of. The true Silver Birch, glittering in the sunshine and bright even in the gloom, is one of the most prominent of these; the golden-barked Ash, the yellow, purple, and white-barked Willows, the red-barked Dogwood, and the snake-barked Maple, belong also to the same category. To those who are professionally interested in, or may have the leisure to study the subject, the spray of the leafless trees in winter opens up a boundless source of pleasure and instruction. Infinite is the variety of nature; every kind of tree differs in the form, character, and direction of the spray, and it is at least a harmless pleasure to engage mentally in the disentanglement of the sinuous masses or to track their labyrinthian paths.

Again, there are trees whose leaves, though they

change, remain on the branches during winter; the Beech, the Hornbeam, and the Turkey Oak are familiar examples of these, and their dress of rich russet brown provides both shelter and warmth. Lastly, there are some few shrubs and trees which blossom even amidst the storms of winter; the *Andromeda floribunda*, with flowers chaste and pure as driven snow; the *Chimonanthus* possessing at once a rare and delicate beauty and an unapproachable fragrance; the *Cornus*, the *Forsythia*, and the *Jasminum nudiflorum* belong to this class. These are the beauties of winter, and by a wise use of them the gardens of England, now often so bare and cheerless at that drear season, may be made bright, pleasant, and joyous. Comparative warmth and comfort may be secured within the charmed circle of the *sheltered* English home, while in the distance we hear "the stormy wind howling among the trees and raving over the plain." My next essay will form a classified list of materials for ornamental planting.

NO. V.—PICTORIAL TREES AND SHRUBS.

[From "*The Gardeners' Chronicle*," October 29th 1864, p. 1035.]

IT is not my intention here to offer a general list of trees that can be used intact in ornamental planting. Information of that kind to be of any value must be founded on a knowledge of the particular soil, situation, and objects in view. My purpose is merely to single out a few of the most prominent trees—representative trees may I call them?—which it would seem desirable to introduce everywhere for the sake of their strongly marked characters, beauty, or distinctness. Around these, others of similar character may be gathered, should it be found necessary to extend the number of any particular group. From this point of view I shall arrange the materials which I propose to select, under the two leading heads of Form and Colour.

Under the primary division of *form* the following subdivisions appear warranted :—

1. *Pyramidal trees and shrubs.*
2. *Round-headed trees and shrubs.*
3. *Spreading trees and shrubs.*
4. *Weeping trees and shrubs.*
5. *Trees and shrubs with large compound leaves.*
6. *Trees and shrubs with large simple leaves.*
7. *Trees and shrubs with small simple leaves.*
8. *Pillar, climbing, or wall plants.*
9. *Trailing plants for low banks, rock-work, Ferneries, &c.*

I. PYRAMIDAL TREES AND SHRUBS.

Evergreens.

<i>Abies excelsa pyramidalis</i>	<i>Juniperus hibernica</i>
<i>Cupressus sempervirens</i>	„ <i>stricta</i>
„ <i>torulosa</i>	„ <i>virginiana</i>
<i>Ilex Aquifolium argentea</i>	<i>Pinus Laricio</i>
<i>stricta</i>	<i>Quercus Ilex Fordii</i>
<i>Ilex Aquifolium ovata</i>	<i>Taxus baccata fastigiata</i>
„ <i>balearica</i>	„ „ <i>pyramidalis</i>
<i>Juniperus excelsa</i>	<i>Thuja gigantea</i>
„ <i>fragrans</i>	„ <i>pyramidalis</i>

Deciduous.

<i>Alnus glutinosa laciniata</i>	<i>Quercus pedunculata</i>
„ <i>asplenifolia</i>	<i>fastigiata</i>
<i>Cratægus Oxyacantha stricta</i>	<i>Robinia Pseud-Acacia pyramidalis</i>
<i>Fraxinus monophylla</i>	
<i>Larix europæa</i>	<i>Sambucus pyramidalis</i>
<i>Populus fastigiata</i>	<i>Ulmus campestris stricta</i>
<i>Pyrus Aria</i>	„ <i>montana fastigiata</i>
<i>Quercus Cerris</i>	

2. ROUND-HEADED TREES AND SHRUBS.

These require to be grown as standards, and some of them kept in this form by occasional pruning.

Evergreen.

Buxus, of sorts	Juniperus virginiana, in vars.
Cerasus Laurocerasus	Laurus nobilis
„ „ colchica	Viburnum Tinus
„ lusitanica	Taxus baccata, in vars.
Ilex Aquifolium	

Deciduous.

Æsculus Hippocastanum	Prunus myrobalana
„ rubicunda	„ spinosa fl. pl.
Caragana Chamlagu	„ prunifolia
Cerasus Chamæcerasus	Pyrus arbutifolia
„ vulgaris fl. pl.	Robinia Pseud-Acacia
Cratægus, of sorts	umbraculifera
Cytisus, of sorts	Syringa persica
Ornus europæa	Viburnum Opulus sterilis

3. SPREADING TREES AND SHRUBS.

This, the commonest form in the vegetable kingdom, will be sufficiently represented by the selections made under other heads.

4. WEEPING TREES AND SHRUBS.

Evergreen.

Cotoneaster buxifolia	Juniperus communis pendula
„ microphylla	„ „ oblonga
Ilex Aquifolium pendula	pendula
„ „ albo-marginata pendula	Juniperus virginiana pendula
	„ „ viridis
Abies excelsa pendula	Taxus baccata Dovastoni
„ „ monstrosa	„ „ Jacksoni
Glyptostrobus pendulus	

Deciduous.

Amygdalus communis	Ligustrum, two sorts
pendula	Populus, two sorts
Betula, three sorts	Pyrus, two sorts
Cratægus Oxyacantha	Quercus, two sorts
pendula	Robinia Pseud-Acacia
Cytisus, of sorts	pendula
Fagus, two sorts	Salix, four sorts
Fraxinus, three sorts	Sophora japonica pendula
Gleditschia Boqui	Tilia alba pendula
Juglans regia pendula	Ulmus, four sorts

5. TREES AND SHRUBS WITH LARGE COMPOUND LEAVES.

Evergreen—Mahonia aquifolium

Deciduous.

Ailantus glandulosa	Gleditschia, of sorts
Aralia japonica	Juglans, of sorts
Fraxinus, of sorts	Rhus typhina
Amorpha fruticosa	

6. TREES AND SHRUBS WITH LARGE SIMPLE LEAVES.

Evergreen.

Aucuba, of sorts	Cerasus lusitanica
Cerasus Laurocerasus	Photinia serrulata
" " colchica	Yucca, of sorts

Deciduous.

Acer, of sorts	Paulownia imperialis
Castanea, of sorts	Platanus, of sorts
Catalpa syringæfolia	Populus candicans
Liriodendron tulipiferum	Rhamnus latifolius
Magnolia, of sorts	

7. TREES AND SHRUBS WITH SMALL SIMPLE LEAVES.

Evergreen.

Artemisia Abrotanum	Thuja, of sorts
Berberis, of sorts	Taxus, of sorts
Buxus, of sorts	Phillyrea, of sorts
Cotoneaster, of sorts	Quercus Ilex
Fontanesia phillyræoides	Abies, of sorts
Wellingtonia gigantea	Cedrus, of sorts
Cupressus, of sorts	Picea, of sorts
Juniperus, of sorts	Pinus, of sorts

Deciduous.

Berberis, of sorts	Populus, of sorts
Betula, of sorts	Prunus, of sorts
Coriaria myrtifolia	Pyrus, of sorts
Cratægus, of sorts	Salix, of sorts
Hippophae, of sorts	Spiræa, of sorts
Hypericum, of sorts	Ulmus, of sorts

8. PILLAR, CLIMBING, OR WALL PLANTS.

*P. Pillar or Climbing. W. Wall Plants.**Evergreen.*

Berberis Darwinii, W.	Osmanthus, of sorts, W.
Ceanothus, of sorts, W.	Photinia serrulata, W.
Cotoneaster, of sorts, W.	Rhamnus Alaternus, of sorts, W.
Cratægus Pyracantha, W.	Hedera, of sorts, W. P.
Escallonia, of sorts, W.	Jasminum revolutum, W.
Eurya latifolia variegata, W.	Lonicera, of sorts, W. P.
Garrya elliptica, W.	
Magnolia, of sorts, W.	

Deciduous.

Cercis Siliquastrum, W.	Forsythia viridissima, W.
Chionanthus fragrans, W.	Magnolia, of sorts, W.
Cydonia, of sorts, W.	Rosa, of sorts, W. P.

Rubus, of sorts, W. P.	Jasminum, of sorts, W. P.
Ampelopsis, of sorts, W. P.	Lonicera, of sorts, W. P.
Aristolochia siphon, W. P.	Tecoma, of sorts, W. P.
Atragene, of sorts, W. P.	Vitis, of sorts, W. P.
Bignonia, of sorts, W.	Wistaria, of sorts, W. P.
Clematis, of sorts, W. P.	

9. TRAILING AND DWARF FLOWERING PLANTS FOR
LOW BANKS, ROCK-WORK, FERNERIES, &c.

Evergreen.

Cistus, of sorts	Abies, dwarf sorts
Cotoneaster, of sorts	Juniperus, trailing sorts
Cratægus Pyracantha	Arctostaphylos uva ursi
Daphne Cneorum	Pernettya, of sorts
Hypericum calycinum	Polygonum vaccinifolium
Ruscus Hypoglossum	Vaccinium vitis idæa
Skimmia japonica	Hedera, of sorts
Cryptomeria nana	

Deciduous.

Amygdalus, dwarf sorts	Rubus fruticosus fol. variegatis
Cydonia, of sorts	
Cytisus, of sorts	Salix, dwarf sorts
Genista, of sorts	Ampelopsis, of sorts
Philadelphus coronarius	Aristolochia Siphon
nanus	Memispermum canadense
Ribes alpinum pumilum	Periploca græca
	Vinca, of sorts

In addition to the foregoing, sundry spring-flowering bulbs as Snowdrops, Winter Aconites, Scillas, Lily of the Valley, Narcissus Bulbocodium, and minor Fritillarias, Erythronium, dwarf Iris, Leucojum vernum, and others may be added to the Fernery. They will flower early and disappear before the Ferns are in condition.

No. VI.—PICTORIAL TREES AND SHRUBS.

[From "*The Gardeners' Chronicle*," November 26th 1864, p. 1131.]

IN continuation of my last paper, I come to speak of the second division—COLOUR—under the following heads:—

1. *Trees and shrubs with the leaves light green.*
2. *Trees and shrubs with the leaves dark green.*
3. *Trees and shrubs with the leaves purple.*
4. *Trees and shrubs with the leaves yellow.*
5. *Trees and shrubs with the leaves white.*
6. *Trees and shrubs whose leaves acquire bright colours in autumn.*
7. *Trees and shrubs with red, yellow, or white bark.*
8. *Flowering trees and shrubs.*
9. *Trees and shrubs which retain their berries.*

I. TREES AND SHRUBS WITH LIGHT GREEN LEAVES.

Evergreen.

<i>Abies excelsa rubra</i>	<i>Juniperus oblonga pendula</i>
„ <i>orientalis</i>	„ <i>thurifera</i>
<i>Berberis fascicularis hybrida</i>	„ <i>Virginiana</i>
<i>Buxus balearica</i>	<i>Pinus pyrenaica</i>
<i>Cedrus Deodara</i>	<i>Ruscus racemosus</i>
<i>Chamæcyparis sphæroides</i>	<i>Thuja Wareana</i>
<i>Ilex balearica</i>	„ <i>orientalis</i>
<i>Juniperus chinensis</i>	<i>Wellingtonia gigantea</i>

Deciduous.

<i>Acer platanoides</i>	<i>Catalpa syringæfolia</i>
„ <i>Pseudo-Platanus</i>	<i>Chionanthus virginica</i>
<i>Ampelopsis hederacea</i>	<i>Cistus capitatus</i>

Coriaria myrtifolia	Negundo fraxinifolium
Gleditschia triacanthos	Quercus laciniata
Juglans monophylla	Rhus cotinus
„ laciniata	Taxodium distichum
Lonicera hybrida nova	Tilia europæa
„ Magnevillea	Vitis vinifera apiifolia

2. TREES AND SHRUBS WITH DARK GREEN LEAVES.

Evergreen.

Araucaria imbricata	Ilex aquifolium scotica
Berberis Darwinii	„ „ Shepherdii
„ dulcis	Ligustrum japonicum
Cerasus lusitanica	Mahonia Aquifolium
Cotoneaster microphylla	Pernettya mucronata
Cupressus Lambertiana	Picea, of sorts
Garrya elliptica	Pinus, of sorts
Hedera Rœgneriana	Phillyrea, of sorts
Ilex Aquifolium	Quercus Ilex, of sorts
„ „ fructu-luteo	Taxus, of sorts
„ „ laurifolia	

Deciduous.

Alnus, of sorts	Pavia, two sorts
Castanea, two sorts	Potentilla dahurica
Clematis odorata azurea	Prunus, of sorts
Cytisus Laburnum	Ornus europæa
Euonymus, two sorts	Salix caprea pendula
Fraxinus, two sorts	Sophora japonica
Liquidambar	

3. TREES AND SHRUBS WITH PURPLE LEAVES.

Deciduous.

Acer Pseudo-Platanus	Berberis vulgaris foliis
purpurea	purpureis
Acer japonicum atro-	Corylus Avellana purpurea
purpureum	

Daphne mezereum foliis purpureis	Quercus pedunculata purpurea
Euonymus atropurpureus	Quercus pedunculata nigra
Fagus sylvatica purpurea	Ulmus montana purpurea

4. TREES AND SHRUBS WITH YELLOW LEAVES.

THE leaves here are not absolutely yellow, but the effect in the landscape is that of this colour.

Evergreen.

Abies excelsa Finedonensis	Pinus Pinaster variegata
Aucuba japonica	Rhamnus Alaternus foliis aureis
Buxus sempervirens aurea	Rhamnus Alaternus foliis maculatis
Cupressus thyoides variegata	Retinospora pisifera aurea
Euonymus japonicus foliis aureis	Rhododendron ponticum variegatum
Ilex Aquifolium aurea, &c.	Taxus fastigiata aurea
Juniperus virginiana aurea	„ baccata aurea
Hedera canariensis foliis aureis	Thuja aurea
Osmanthus ilicifolius variegatus	Vinca elegantissima

Deciduous.

Æsculus Hippocastanum aureo-variegatum	Ligustrum vulgare variegatum
Acer Pseudo-Platanus variegata	Liriodendron tulipiferum variegatum
Cornus mas. foliis variegatis	Quercus Cerris variegata
Castanea vesca variegata	Sambucus nigra foliis aureis
Fagus sylvatica foliis aureis	Symphoricarpus vulgaris foliis aureis
Fraxinus aucubæfolia	Spiræa opulifolia lutea
Hibiscus syriacus foliis variegatis	Weigela rosea variegata

5. TREES AND SHRUBS WITH WHITE LEAVES.

Here as before the leaves are not absolutely white, but the effect in the landscape is that of this colour.

Evergreen.

<i>Abies alba glauca</i>	<i>Juniperus virginiana foliis argenteis</i>
<i>Astragalus tragacantha</i>	<i>Juniperus Sabina depressa</i>
<i>Bupleurum fruticosum</i>	„ „ <i>variegata</i>
<i>Cedrus Deodara</i>	<i>Lavandula spica</i>
<i>Chamæcyparis sphæroidea atrovirens</i>	<i>Phlomis fruticosa</i>
<i>Cineraria, of sorts</i>	<i>Pinus excelsa</i>
<i>Euonymus japonicus foliis argenteis</i>	„ <i>strobis nivea</i>
„ <i>radicans variegatus</i>	„ <i>monticolor</i>
<i>Ilex Aquifolium argentea, of sorts</i>	<i>Rhamnus Alaternus foliis argenteis</i>
<i>Juniperus virginiana glauca</i>	<i>Santolina chamæcyparissus</i>
	<i>Taxus, two sorts</i>

Deciduous.

<i>Amygdalus communis foliis variegatis</i>	<i>Populus alba</i>
<i>Cistus algarvensis</i>	„ <i>argentea</i>
<i>Cratægus Oxyacantha foliis argenteis</i>	<i>Pyrus aucuparia foliis variegatis</i>
<i>Elæagnus argentea</i>	<i>Pyrus salicifolia</i>
„ <i>fulva</i>	„ <i>malus foliis variegatis</i>
<i>Hippophae rhamnoides</i>	<i>Rubus fruticosus foliis variegatus</i>
<i>Negundo fraxinifolium foliis variegatis</i>	<i>Ulmus campestris foliis variegatis</i>
<i>Philadelphus coronarius variegatus</i>	<i>Ulmus montana variegata</i>

6. TREES WHOSE LEAVES CHANGE TO RED, SCARLET, OR YELLOW IN AUTUMN.

Deciduous (Red.)

<i>Ampelopsis hederacea</i>	<i>Acer rubrum eriocarpum</i>
<i>Acer circinatum</i>	<i>Azalea, of sorts</i>

Berberis vulgaris	Pyrus, of sorts
Cornus alba	Quercus coccinea and others
„ mas.	Ribes aureum
Cratægus punctata	Rhus cotinus
„ prunifolia	„ Toxicodendron
Cerasus nana flore-pleno	„ typhina
Diervilla humilis	Spiræa ariæfolia
Euonymus atropurpureus	„ prunifolia flore-pleno
Liquidambar	Viburnum Lentago
Ostrya virginica	„ opulus

Deciduous (yellow.)

Æsculus Hippocastanum	Gleditschia triacanthos
Acer platanoides	Kolreuteria paniculata
„ Pseudo-platanus	Liriodendron tulipiferum
„ saccharinum	Magnolia tripetala
Amelanchier Botryapium	Morus alba
Amygdalus nana	Pavia flava
Betula, of sorts	Populus, three sorts
Cerasus padus bracteosa	Pyrus torminalis
„ virginiana	Salisburia adiantifolia
Cratægus coccinea maxima	Spiræa lævigata
„ grandiflora	„ opulifolia
„ Oxyacantha aurea	„ ulmifolia
„ pentagyna	Syringa vulgaris
Euonymus latifolius	Tilia europæa
Hydrangea nivea	

7. TREES AND SHRUBS WITH WHITE, YELLOW,
OR RED BARK.

Deciduous.

Acer striatum (white)	Fraxinus excelsa aurea
Betula alba (white)	(yellow)
Cornus alba (red)	Salix glauca (white)
Hippophae rhamnoides	„ purpurea (purple)
(white)	„ vitellina (yellow)
Populus argentea (white)	

8. FLOWERING TREES AND SHRUBS.

Evergreen.

Andromeda floribunda	Kalmia latifolia
Arbutus, of sorts	„ myrtifolia
Berberis Darwinii	Ligustrum lucidum
„ dulcis	Magnolia exoniensis
Ceanothus, of sorts	Mahonia, of sorts
Cistus, of sorts	Rhododendrons, of sorts
Daphne, of sorts	Spartium junceum
Erica, of sorts	Ulex europæa flore pleno
Garrya elliptica	Viburnum Tinus
Helianthemum, of sorts	

Deciduous.

Æsculus, of sorts	Halesia tetraptera
Amelanchier Botryapium	Hibiscus, of sorts
Amygdalus, of sorts	Hydrangea nivea
Azalca, of sorts	Hypericum Kalmianum
Berberis, of sorts	Jasminum, of sorts
Buddlea globosa	Kalmia latifolia
Calycanthus floridus	Lonicera, of sorts
Cerasus, of sorts	Liriodendron tulipiferum
Chimonanthus fragrans	Magnolia, of sorts
Clematis, of sorts	Pavia, of sorts
Cornus mas.	Persica, of sorts
Coronilla emerus	Philadelphus, of sorts
Cratægus, of sorts	Prunus, of sorts
Cydonia japonica	Pyrus spectabilis
„ „ flore albo	Rhus Cotinus
Cytisus, of sorts	„ typhina
Daphne mezereum	Ribes aureum
Deutzia, of sorts	„ sanguineum
Forsythia viridissima	„ „ albidum
„ suspensa	„ speciosum
Fuchsia, two sorts	Robinia hispida
Genista, two sorts	„ viscosa

Rosa, of sorts	Viburnum macrocephalum
Spiræa, of sorts	„ plicatum
Syringa, of sorts	Weigela amabilis
Tecoma, of sorts	„ rosea
Viburnum Opulus sterilis	Wistaria sinensis

9. TREES AND SHRUBS WHICH RETAIN THEIR BERRIES.

Evergreen.

Arbutus Unedo	Gaultheria, two sorts
Aucuba japonica vera	Hedera, of sorts
Berberis Darwinii	Ligustrum sempervirens
„ dulcis	Mahonia Aquifolium
Cotoneaster microphylla	Pernettya mucronata
„ buxifolia	Skimmia japonica
Cratægus Pyracantha	„ oblata
Ilex Aquifolium, in varieties	Vaccinium Vitis idæa

Deciduous.

Berberis vulgaris	Ligustrum vulgare
„ „ foliis	„ „ xantho-
„ „ purpureis	„ „ carpum
Cotoneaster lævis	Pyrus aucuparia
Cratægus Oxyacantha aurea	„ „ fructu-luteo
„ coccinea maxima	„ malus astracanica
„ Layii	„ „ prunifolia

I have now reached the end of the task which I proposed to myself, and on reviewing these papers find that I have touched but slightly on certain points of interest and importance which appear well worthy of fuller treatment. It strikes me that the subject would be rendered of more interest to the readers of "The Gardeners' Chronicle," if such were taken up by other hands. Fresh ideas would likely thus find utterance, and the purpose of my labour be more fully accomplished.

HARDY PICTORIAL TREES.

No. I.

[From "The Gardeners' Chronicle, December 1st 1866, p. 1139.]

IN the autumn of 1864 I endeavoured to show (see p. 219) that the scenery of gardens, parks, &c., might be improved by introducing more plentifully trees with white, yellow, and purple leaves. The natural outlines of different trees was also pointed out as worthy of more attentive consideration, and the use of berry-bearing trees, especially for winter, strongly recommended. The interest which the public took in my collection of "Hardy Pictorial Trees," shown at the International Horticultural Exhibition in May last, has again drawn my attention to this subject, and I propose now to enter into fuller detail, and to furnish descriptions of a few of the most prominent and interesting kinds, under the heads of "Form," "Colour," and "Berry-bearing Trees." In the present paper I shall confine my remarks to "Form," and assuming that the spreading form, which is the commonest in Nature, is already more than sufficiently recognised, I will pass that by in order to dwell more fully on the "Pyramidal" and "Weeping" forms.

TREES AND SHRUBS OF PYRAMIDAL GROWTH.

Abies excelsa pyramidalis.—Evergreen. Height 100 feet. This is a vigorous-growing variety of the Spruce Fir, of close habit, presenting to the eye a dense mass of dark impenetrable verdure. It forms a fine single tree, and is quite worthy of a good position on a lawn.

Cupressus sempervirens (the common Cypress).—Evergreen. Height 30 feet. One of the handsomest and most vigorous of pyramidal evergreens, but suitable only for sheltered or elevated situations, as in exposed and low damp places the tree is usually injured or destroyed by

frost in a young state. Once it becomes old and loses the vigour of growth consequent on youth, the tree is hardy enough.

Cupressus torulosa.—Evergreen. Height 30 feet. This is somewhat similar to but of smaller growth than the preceding, pleasing by the refinement of its beauty rather than by its boldness and rigidity. It is also somewhat tender in a young state north of London, although some beautiful old trees are often met with there.

Ilex Aquifolium argentea stricta (the Upright Silver Holly).—Evergreen. Height 20 feet. The only naturally pyramidal form of the variegated Holly with which I am acquainted, although Hollies in general, improving under a free use of the knife, may be cut into this form if required. This kind has leaves broadly edged with bright silver.

Ilex Aquifolium ovata.—Evergreen. Height, 30 feet. One of the handsomest of the green Hollies. The leaves are rather small, dark green, ovate, of great substance, and thickly set on the branches.

Ilex balearica (the Minorca Holly). — Evergreen. Height, 30 feet. This is of free and rapid growth, and quite distinct from all other kinds. The leaves are broad, pale green, smooth, and the branches are usually thickly set with berries, which remain on the tree during winter; a very handsome tree.

Juniperus excelsa.—Evergreen. Height, 20 feet. We have here a very beautiful and hardy Juniper of close growth; the whole tree of a greyish tint. Like most of the Junipers, it appears to thrive best in lightish soil.

Juniperus fragrans. — Evergreen. Height, 30 feet. Similar to the last, but of more rapid and diffuse growth; the branches powerfully fragrant.

Juniperus ericoides.—Evergreen. Height, 12 feet. A very neat plant with reddish leaves, producing a distinct and pleasing effect among other shrubs and trees, especially in the winter.

Juniperus hibernica (the Irish Juniper).—Evergreen. Height, 20 feet. A greyish-looking plant of close compact growth, and neat in the extreme. Excellent for light sandy soils.

Juniperus virginiana stricta (the Upright Red Cedar).—Evergreen. Height, 30 feet. This is a very beautiful close-growing variety of the Red Cedar, apparently but little known, but valuable for its dense tufts of rich dark foliage and great hardihood, and thriving in almost any soil.

Pinus Larico.—Evergreen. Height, 100 feet. The true Corsican Pine is one of the grandest and most beautiful of strictly pyramidal Pines, so hardy and so free that it deserves a fuller recognition than it has hitherto met with at the hands of planters. Some splendid columns of it exist at Pampesford Hall, near Cambridge, which are worth going many miles to see.

Quercus Ilex Fordii (Ford's Evergreen Oak).—Evergreen. Height, 30 feet. A tree with small dark green leaves, quite distinct from the other kinds of evergreen Oak, and very hardy.

Taxus baccata fastigiata (the Irish Yew).—Evergreen. Height, 20 feet. One of the most rigid and darkest of evergreens, the leaves being of a blackish-green. Good for groups, lines, or avenues. Very hardy, growing in any soil.

Taxus baccata pyramidalis.—Evergreen. Height, 20 feet. This is apparently a hybrid between the common and Irish Yew, less rigid and dark than the latter, more diffuse, but still of pyramidal growth. A handsome tree of free growth, and very hardy.

Thuja gigantea.—Evergreen. Height, 30 feet. A beautiful tree, the colour a rich grass green. It should be removed yearly in the nurseries, or does not transplant well.

Thuja pyramidalis.—Evergreen. Height, 20 feet. This tree, comparatively but little known, is one of the loveliest of the Arborvitæ, and very hardy. The branches, which

are pale green and fan-shaped, turn their edges outwards, which character is at once distinct and pleasing.

Alnus asplenifolia.—Deciduous. Height, 30 feet. The handsomest of the Alders; the growth is regular and the leaves finely cut.

Fraxinus monophylla.—Deciduous. Height, 20 feet. A large simple-leaved Ash of a dark green hue. Very effective in mixed plantations.

Populus fastigiata (the Lombardy Poplar).—Deciduous. Height, 100 feet. A most desirable tree for breaking the sky outline of plantations, being of distinct form and rapid growth. Hardy, thriving in any soil, the leaves dying off bright yellow.

Pyrus Aria (the White Beam Tree).—Deciduous. Height, 40 feet. A handsome tree with large simple leaves, white on their under side. Hardy, free, distinct, and effective.

Quercus pedunculata fastigiata (the Pyramidal Oak).—Deciduous. Height, 50 feet. A very desirable large pyramidal tree, of regular growth, and great beauty.

Robinia Pseud-Acacia pyramidalis (the Pyramidal Acacia).—Deciduous. Height, 40 feet. A beautiful tree; leaves clear light green, hardy, and of rapid growth.

Sambucus pyramidalis (the Pyramidal Elder).—Deciduous. Height, 12 feet. A distinct tree, producing dense tufts of dark green leaves.

Ulmus monumentalis.—Deciduous. Height, 30 feet. Apparently an upright variety of the English Elm, of regular, rapid, and handsome growth.

Ulmus montana fastigiata (the Pyramidal Mountain Elm).—Deciduous. Height, 30 feet. A hardy free-growing kind, with large dark leaves. Distinct and effective.

As already stated, I have in the preceding brief list selected only a few of the most marked in character, and those which I conceive to be the most generally useful. This list might, if desired, be considerably extended.

WEeping TREES AND SHRUBS.

Cotoneaster microphylla.—Evergreen. Height, 4 feet. This is a beautiful plant for beds or the front of shrubberies, the dark green leaves and scarlet berries producing a nice contrast in the winter. There are several other kinds, of which *C. buxifolia* and *C. marginata* may be instanced, which, as well as the species described, form beautiful evergreen weeping lawn trees when grafted on 5 feet stems of the Hawthorn.

Ilex Aquifolium pendula (the Weeping Holly).—Evergreen. Height, 20 feet. A really pendulous variety of the common Holly, producing its bright red berries in great profusion. It may be grown from its own roots as a weeping pyramid, or be budded on tall stems of the type, and in either case it is a valuable addition to our hardy evergreens.

Ilex Aquifolium albo-marginata pendula (the Weeping Silver Holly).—Evergreen. Height, 12 feet. Equally valuable with the preceding, either as a standard or pyramidal weeping tree.

Abies excelsa pendula (the Weeping Spruce Fir).—Evergreen. Height, 40 feet. There are several varieties of this tree, which doubtless have been selected at various times by different observers. They vary much in character, and while all are interesting, some only possess the regularity of growth and finished beauty which make them desirable in formal gardens.

Biota pendula.—Evergreen. Height, 12 feet. A distinct and beautiful weeping tree, with light green leaves.

Juniperus communis pendula.—Evergreen. Height, 12 feet. A weeping form of the common Juniper, of free elegant growth, and very hardy.

Juniperus oblonga pendula.—Evergreen. Height, 10 feet. A variety of smaller growth than the preceding, with long flexible branches, producing a small tree of perfect beauty.

Juniperus virginiana viridis.—Evergreen. Height, 20 feet. A weeping variety of the Red Cedar, with bright grass-green leaves, far superior to all other weeping forms of this tree. This and the two preceding varieties of Junipers rank among the most beautiful of small weeping trees, and should abound in all suitable positions.

Taxus baccata Dovastoni.—Evergreen. Height, 12 feet. A dark green almost black-leaved weeping Yew, of vigorous growth, distinct form, and very hardy.

Taxus baccata Jacksoni.—Evergreen. Height, 10 feet. Another form of the Weeping Yew, of smaller growth; leaves pale green, very elegant.

Amygdalus communis pendula (the Weeping Almond).—Deciduous. Height, 12 feet. A distinct form of a well-known and valuable spring-flowering tree.

Betula alba pendula (the common Weeping Birch).—Deciduous. Height, 50 feet. These trees, being raised from seed, vary in character, some being much more pendulous than others, and assuming the weeping habit at an earlier age.

Betula laciniata pendula (the Cut-leaved Weeping Birch).—Deciduous. Height, 50 feet. The most beautiful of the genus, the bark white; hardy, and free, the leaves finely cut.

Cratægus Oxyacantha pendula (the Weeping Thorn).—Deciduous. Height, 12 feet. So regular in growth and so pendulous is this variety that it forms a very elegant tree for planting singly on lawns, when grafted on stems of the common Hawthorn. It is also very suitable for planting in shrubberies.

Cerasus Chamæcerasus (the Weeping Cherry).—Deciduous. Height, 10 feet. This also is a beautiful lawn-tree; when worked on 5 feet stems of the common Cherry it forms a neat and compact pendulous head.

Fagus sylvatica pendula (the Weeping Beech).—Deciduous. Height, 30 feet. This, when worked on stems of the common Beech, 8 or 9 feet high, forms a capital

arbour, the branches soon reaching to the ground, the broad leaves forming a complete screen.

Fraxinus excelsior pendula (the Weeping Ash). — Deciduous. Height, 30 feet. A noble weeping tree, also suitable for arbours, hardy, and of rapid growth.

Fraxinus lentiscifolia pendula (the Chinese Weeping Ash).—Deciduous. Height, 20 feet. Of smaller growth than the preceding ; the branches small and flexile, very pendulous.

Fraxinus excelsior aurea pendula (the Gold-barked Weeping Ash).—Deciduous. Height, 15 feet. A beautiful half-pendulous tree, the yellow bark of the branches having a fine effect in the winter when the tree is denuded of its leaves.

Gleditschia Bujoti.—Deciduous. Height, 10 feet. One of the most graceful of small pendulous trees.

Ligustrum vulgare variegatum (the Variegated Privet).—Deciduous. Height, 6 feet. When worked on 5 feet stems of the common Privet this forms a very graceful pendulous tree, the golden hue of the leaves showing to great advantage.

Populus grandidentata pendula (the Weeping Poplar). — Deciduous. Height, 30 feet. There are several varieties of weeping Poplars, but this is one of if not the best.

Quercus pedunculata pendula (the Weeping English Oak).—Deciduous. Height, 40 feet. This forms a fine feature in the landscape when of some size and age. There are also weeping forms of *Quercus Cerris* (Turkey Oak) and *Quercus Tauzin*, both highly ornamental.

Salix babylonica (the Weeping Willow).—Deciduous. Height, 40 feet. One of the commonest and most beautiful of pendulous trees, which can scarcely be misplaced in planting where the weeping form is desired.

Salix americana pendula (the American Weeping Willow).—Deciduous. Height, 20 feet. Of finer growth and more decidedly pendulous than the preceding ; forms

a graceful lawn tree when worked on stems of the common kind.

Salix caprea pendula (the Kilmarnock Weeping Willow).—Deciduous. Height, 10 feet. Leaves larger and shoots stouter than either of the preceding ; forms a dense umbrageous tree when worked on stems of the common kind.

Salix Wolseyana.—Deciduous. Height, 10 feet. Certainly one of the prettiest weeping trees when worked on stems of the common kind ; the leaves are of medium size, almost round, and thickly set on the branches.

Sophora japonica pendula.—Deciduous. Height, 12 feet. A decidedly pendulous tree, with dark green leaves.

Tilia alba pendula (the Weeping Lime).—Deciduous. Height, 20 feet. A beautiful weeping tree ; the leaves white on the under sides.

Ulmus microphylla pendula.—Deciduous. A weeping Elm with very small leaves, forming a pretty tree when worked on 6 feet stems of the common Elm.

Ulmus montana pendula (the Weeping Mountain Elm).—Deciduous. Height, 20 feet. A handsome broad-leaved variety, with dark green leaves. Distinct and remarkably effective.

Ulmus rugosa pendula.—Deciduous. Height, 25 feet. This is more thoroughly weeping than either of the preceding forms, often making shoots many feet in length in a single year.

As with the pyramidal forms, so also with the weeping, it would be easy to extend the number of varieties ; the preceding list is merely a selection of those which seem to me the most valuable.

If it were desirable to extend these descriptions, proceeding from the form of the tree to the form of the leaf, I might associate together the following :—

Trees and shrubs with large compound leaves, including *Mahonia aquifolium*, *Amorpha fruticosa*, *Ailantus*

glandulosa, *Aralia japonica*, *Æsculus*, of sorts, *Fraxinus*, of sorts, *Juglans*, of sorts, *Rhus typhina*, and the like.

Trees and shrubs with large simple leaves, including the *Aucubas*, *Laurels*, *Portugal Laurels*, *Photinias*, *Yuccas*, *Maples*, *Spanish Chestnuts*, *Catalpas*, *Tulip Trees*, *Magnolias*, *Paulownias*, *Planes*, *Poplars*, &c.

Trees and shrubs with small simple leaves, embracing the *Conifers*, with their needle-shaped leaves; and the *Berberis*, *Box*, *Phillyreas*, *Yews*, and the like.

I apprehend, however, that these are so familiar to all likely to be engaged in planting, that to describe them would be superfluous. Suffice it then to record them here, and to remark that the best forms of them should not be lost sight of when making arrangements for planting. Let it be remembered that well-arranged plantations should comprise the widest possible diversity both in form and colour.

NO. II.

[From "The Gardeners' Chronicle," February 2nd, 1867, p. 103.]

FROM the "Form" of the tree, as treated on at p. 1139 of your last year's volume, I proceed to "Colour" of foliage, under which head will be included—light green, dark green, purple, gold, silver, and the tints of autumn, reserving flowering trees and shrubs to be treated on hereafter.

TREES AND SHRUBS WITH LEAVES LIGHT GREEN.

Abies orientalis.—Evergreen. Height, 60 feet. A beautiful medium-sized tree of dense formal growth; leaves very glossy.

Aucuba japonica vera (male and female).—Evergreen. Height, 6 feet. Leaves dark green, a splendid evergreen, the female bearing scarlet berries in the winter. Of the numerous varieties of green-leaved *Aucubas*, *A. himalaica*, and *A. japonica macrophylla*, *longifolia*, and *viridis* are the most desirable that I have yet seen.

Berberis fascicularis hybrida.—Evergreen. Height, 6 feet. This is perhaps the handsomest of the Mahonia section of Berberies. The leaves are of a lighter green, and longer and narrower than those of *B. aquifolium*; the flower spikes are also much longer. An indispensable low evergreen.

Cedrus Deodara.—Evergreen. Height, 100 feet. One of the grandest and most beautiful of Conifers, suitable for specimens, groups, or avenues; varying much in form and colour, embracing the erect, spreading, and pendulous, the light green, dark green, and glaucous. There are also selected varieties in commerce under the names of *C. D. crassifolia*, *viridis*, and *robusta*.

Juniperus chinensis (the Chinese Juniper).—Evergreen. Height, 20 feet. A graceful medium-sized tree of free growth, usually covered with flowers in winter and early spring. *J. oblonga pendula* and *J. thurifera* have also light green leaves, and are beautiful kinds, quite distinct in character.

Pinus pyrenaica.—Evergreen. Height, 60 feet. Perhaps the handsomest of this section of two-leaved Pines. The foliage is of a most beautiful light green, the bark cinnamon colour.

Thuja orientalis (the Chinese Arbor Vitæ).—Evergreen. Height, 15 feet. A very beautiful evergreen, hardy generally in the neighbourhood of London, where it appears to thrive well, and is not particular as to soil. A very available plant on account of its cheapness.

Wellingtonia gigantea.—Evergreen. Height, 100 feet. A beautiful and gigantic tree of rapid growth. Good for specimens, groups, and avenues.

Acer platanoides (the Norway Maple).—Deciduous. Height, 40 feet. A handsome hardy tree of rapid growth, and not particular as to soil. Young and dying leaves yellow.

Catalpa syriacifolia.—Deciduous. Height, 25 feet.

A medium-sized formal tree with large flat leaves, producing purplish-white Bignonia-like flowers.

Coriaria myrtifolia.—Deciduous. Height, 3 feet. A dwarf shrub with frond-like branches. Distinct and graceful.

Gleditschia triacanthos.—Deciduous. Height, 40 feet. A picturesque tree with distinct and elegant pinnated foliage; the leaves dying bright yellow in autumn.

Negundo fraxinifolium.—Deciduous. Height, 30 feet. An umbrageous tree, hardy, and of rapid growth.

Rhus Cotinus (the Venice Sumach).—Deciduous. Height, 5 feet. A pretty dwarf shrub, covered in summer with pink feather-like pedicels and flowers. Decaying leaves reddish yellow.

Taxodium distichum (the Deciduous Cypress). Height, 60 feet. A beautiful feathery tree, varying much in character from seed, and delighting most in damp soils. When the tree becomes of some age the roots often obtrude in large knobs above the ground.

Tilia europæa (the Lime Tree).—Deciduous. Height, 70 feet. A hardy tree of rapid growth, not particular as to soil, and well suited to the vicinity of large towns; flowers sweet-scented, decaying leaves yellow.

TREES AND SHRUBS WITH LEAVES DARK GREEN.

Araucaria imbricata.—Evergreen. Height, 60 feet. This tree is unique among evergreens, nothing approaching it in boldness and rigidity of form and darkness of foliage. Good as specimens, groups, and avenues.

Berberis Aquifolium.—Evergreen. Height, 5 feet. A hardy free-growing flowering evergreen, of great beauty, which can scarcely be misplaced, and which is generally available on account of the lowness of price. For clumps, the fronts of shrubberies, and underwood for game, it is equally valuable, producing masses of yellow flowers in spring, and berries in autumn, the latter proving valuable food for game.

Berberis Darwinii.—Evergreen. Height, 5 feet. The handsomest of the Berberries; of free growth, covered with a profusion of orange-coloured blossoms in summer, often repeated late in autumn.

Cerasus lusitanica (the Portugal Laurel).—Evergreen. Height, 20 feet. A hardy handsome evergreen, of free growth, producing spikes of white flowers in June, followed by purple fruit in autumn. Good for shrubberies; forms also a handsome round-headed standard tree, much used in formal gardening.

Cupressus Lambertiana.—Evergreen. Height, 50 feet. The hardiest of the Cypress tribe; of free growth, and very handsome.

Garrya elliptica.—Evergreen. Height, 10 feet. One of the most striking and beautiful of evergreens, covered with numerous pendulous green catkins throughout the winter months; the pollen is so plentiful in spring that if the tree is shaken the air is filled with a cloud of yellow dust.

Ilex Aquifolium (the Holly).—Evergreen. Height, 10 to 20 feet. The varieties of this plant with dark green leaves are so numerous that I cannot include even all those worthy of notice; *Shepherdii*, *nigrescens*, *ovata*, *scurtica*, *Donningtoniensis*, *Fisherii*, *laurifolia*, *serratifolia*, *latispina*, and *ferox*, are distinct and very select. This, when we combine leaves and berries, is certainly the first of evergreens, and should abound in every garden and plantation.

Ligustrum japonicum (the Japan Privet).—Evergreen. Height, 5 feet. A handsome evergreen shrub, producing spikes of white flowers.

Picea Nordmanniana.—Evergreen. Height, 80 feet. Very hardy, free, and of incomparable beauty. Suitable for specimens on lawns, groups in parks, and avenues. Of other *Piceas*—*Amabilis*, *grandis*, *Lowii*, *nobilis*, *magnifica*, and *pinsapo*, are of a high order of merit.

Pinus insignis.—Evergreen. Height, 60 feet. A magnificent Pine, of the loveliest and richest dark green, but

unfortunately not very hardy, and therefore suitable only for high situations or dry subsoils.

Pinus austriaca.—Evergreen. Height, 60 feet. A noble Pine, very hardy, and not particular as to soil; as the plants vary much from seed they should be selected if wanted for avenues or single specimens; the variety is not usually so great as to produce incongruity in groups.

Quercus Ilex (the Evergreen Oak).—Height, 40 feet. The various kinds of this tree are invaluable in winter, almost rivalling the Holly in regard to foliage and outline. Unless removed almost yearly in the nurseries the plants are apt to die when transplanted; it is therefore safest to plant them small and from pots.

Phillyrea latifolia.—Evergreen. Height, 12 feet. A medium-sized evergreen, excellent for shrubberies.

Alnus cordifolia.—Sub-evergreen. Height, 20 feet. A handsome dark-looking tree.

Fraxinus monophylla.—Deciduous. Height, 30 feet. A bold rigid-looking Ash, with broad simple leaves.

Ornus europæa (the Flowering Ash).—Deciduous. Height, 25 feet. A handsome small tree, producing clusters of white flowers freely in June.

Sophora japonica.—Deciduous. Height, 30 feet. Very distinct and ornamental, the leaves pinnate, bluish green, the bark dark green.

NO. III.

[From "The Gardeners' Chronicle," March 9, 1867, p. 237.]

TREES AND SHRUBS WITH PURPLE LEAVES.

Acer Pseudo-Platanus purpurea (the Purple Sycamore).—Deciduous. Height, 40 feet. A distinct variety of the common Sycamore; the underside of the leaves purple, deepening in colour as they advance in age. *Acer japonicum rubrum* should be a valuable plant here, but from what I have hitherto seen of it the growth is delicate.

Berberis vulgaris foliis purpureis (the Purple Berberis).

—Deciduous. Height, 10 feet. A very distinct and beautiful shrub, the numerous yellow flowers contrasting admirably with the reddish-purple leaves in spring.

Corylus avellana purpurea (the Purple Nut).—Deciduous. Height, 6 feet. A valuable shrub, with broad dark purple leaves.

Daphne mezereum foliis purpureis (the Purple Mezereum).—Deciduous. Height, 4 feet. Free only in warm loamy soils, but desirable for the colour of its leaves.

Euonymus atropurpureus.—Deciduous. Height, 6 feet. A very distinct and effective shrub, occasionally presenting a mixture of green, scarlet, and purple leaves.

Fagus sylvatica purpurea (the Purple Beech).—Deciduous. Height, 40 feet. The monarch of purple-leaved trees, well suited for parks and the outline of shrubberies. There are many varieties of this tree, shading from copper-colour to blackish purple.

Quercus nigra (the Black Oak).—Deciduous. Height, 30 feet. This beautiful tree is at present but little known; the leaves are as dark as those of the Purple Nut, and there seems a probability that if it does not rival it will at least take a place beside the Purple Beech in the future of gardening.

Ulmus montana purpurea (the Purple Elm).—Deciduous. Height, 50 feet. This tree is less marked in colour than most of the preceding, yet when it becomes of some size the effect is sufficiently striking to make it desirable.

TREES AND SHRUBS WITH LEAVES YELLOWISH OR GOLDEN.

Aucuba japonica maculata (male and female).—Evergreen. Height, 6 feet. Very useful and ornamental in beds or shrubberies, and stands the smoke of large towns better than any other evergreen. The female plant bears an abundance of scarlet berries. Of other golden-leaved Aucubas, among the best are *limbata*, *bicolor*, and *lati-maculata*.

Buxus sempervirens aurea (the Gold-edged Box).—Evergreen. Height, 8 feet. An invaluable and very hardy evergreen of formal growth, that may be clipped at pleasure.

Chamæcyparis sphaeroidea variegata.—Evergreen. Height, 10 feet. A graceful Cypress-like plant. Leaves green, beautifully blotched with gold.

Eleagnus pungens variegata.—Evergreen. Height 8 feet. Leaves green, broadly and distinctly margined with bright gold.

Euonymus japonicus aureo-variegatus.—Evergreen. Height, 8 feet. Leaves dark green, with bright yellow blotch in centre, very beautiful. *Euonymus japonicus aureo-marginatus* is also a beautiful variety of this plant, the leaves being regularly edged instead of blotched with gold.

Ilex Aquifolium aurea (the Gold Holly).—Evergreen. Height, 3 to 20 feet. The old Gold Holly is perhaps the best for general purposes, because it grows so freely. Of others, *picta*, *flava*, *aurea angustifolia*, *bicolor*, *speciosa*, and *obscura* are the best; *aurea nana* and *aurea pumila* are beautiful dwarf kinds of great value in ornamental gardening. In the garden and in shrubberies these Gold Hollies can hardly be omitted.

Juniperus virginiana aurea (the Golden Cedar).—Evergreen. Height, 20 feet. Leaves green and gold in patches; an effective and beautiful small tree.

Ligustrum japonicum variegatum (the variegated Japan Privet).—Evergreen. Height, 6 feet. Leaves dark green, beautifully blotched with gold.

Ligustrum lucidum variegatum (the variegated Chinese Privet).—Evergreen. Height, 8 feet. Leaves green, much larger than the preceding, evenly and broadly margined with gold. A very showy plant.

Retinospora pisifera aurea.—Evergreen. Height, 6 feet. A Juniper-like plant, of a golden hue.

Rhododendron ponticum foliis auris.—Evergreen.

Height, 6 feet. Leaves green, well edged with gold. A bright-looking and beautiful evergreen.

Taxus baccata aurea (the Golden Yew).—Evergreen. Height, 20 feet. A very hardy and effective gold-coloured tree.

Thuja aurea (the Golden Arborvitæ).—Evergreen. Height, 4 feet. A dwarf compact golden-hued plant of great beauty.

Thuja orientalis foliis aureis.—Evergreen. Height, 10 feet. Leaves green and gold in patches, very effective.

Castanea vesca variegata (the variegated Spanish Chestnut).—Deciduous. Height, 10 feet. Leaves green, broadly margined with bright gold, very beautiful in early spring.

Fagus sylvatica foliis aureis (the variegated Beech).—Deciduous. Height, 20 feet. There are several varieties of variegated Beech, the one much handsomer than the rest, the leaves distinctly edged with bright gold.

Fraxinus aucubæfolia.—Deciduous. Height, 30 feet. Leaves green and marbled with gold, as in the Aucuba; very graceful.

Hibiscus syriacus foliis variegatis.—Deciduous. Height, 4 feet. A beautiful dwarf shrub, well variegated.

Ligustrum vulgare variegatum (the variegated common Privet).—Deciduous. Height, 6 feet. Leaves green, regularly margined with bright gold, very effective.

Prunus Padus aucubæfolia.—Deciduous. Height, 25 feet. Leaves green, distinctly spotted with yellow; a very interesting tree.

Quercus Cerris variegata (the variegated Turkey Oak).—Deciduous. Height, 30 feet. Leaves green, well margined with yellow. A distinct handsome tree.

Sambucus nigra foliis aureis (the Golden-leaved Elder).—Deciduous. Height, 20 feet. Leaves green, margined with gold.

Spiræa opulifolia lutea.—Deciduous. Height, 5 feet. Leaves yellow. A most beautiful dwarf shrub in early spring.

Symphoricarpos vulgaris foliis aureis. — Deciduous. Height, 6 feet. Leaves green, edged with gold. A very pretty shrub.

Weigela rosea variegata. — Deciduous. Height, 4 feet. Leaves green, well edged with gold. A beautiful plant.

NO. IV.

[From "The Gardeners' Chronicle," April 20th 1867, p. 404.]

TREES AND SHRUBS WITH LEAVES SILVERY OR WHITISH.

Abies alba glauca. — Evergreen. Height, 20 feet. A variety of the white Spruce Fir, forming a beautiful medium sized tree, with bluish white leaves. Very effective in the landscape, especially when the sun shines on it.

Aucuba japonica medio-variegata. — Evergreen. Height, 4 feet. Leaves green, with distinct white blotch in centre, bearing red berries in the autumn. Very distinct and handsome.

Bupleurum fruticosum. — Evergreen. Height, 5 feet. A bluish-white-looking shrub with greenish-yellow flowers. Very hardy, free, and distinct.

Cedrus Deodara. — Evergreen. Height, 100 feet. Among the seedlings of *Cedrus Deodara* may be selected plants of a bluish-white colour, which are invaluable for the variety they afford.

Chamæcyparis sphæroidea glauca. — Evergreen. Height, 10 feet. A bluish-white Cypress-like plant. Distinct and pleasing.

Euonymus radicans variegatus. — Evergreen. Height, 1 foot. A beautiful silvery-looking plant, very desirable for the front of borders and shrubberies, also for the edging of flower beds.

Ilex Aquifolium argentea (the Silver Holly). — Evergreen. Height, 10 to 20 feet. The silver Hollies, like the gold and green, vary much in size and character. Among the

best are *ferox argentea*, *argentea angustifolia*, *elegantissima*, *longifolia*, *lucida*, *marginata*.

Juniperus virginiana glauca.—Evergreen. Height, 30 feet. Leaves greyish white, distinct and beautiful. There is also a variety of this species in which the leaves are produced in patches of green and white, which is very ornamental.

Ligustrum ovalifolium variegatum.—Evergreen. Height, 8 feet. Leaves green, distinctly and broadly margined with silver; very showy.

Phlomis fruticosa.—Evergreen. Height, 2 feet. Leaves greyish white, flowers yellow. A pretty and distinct dwarf plant.

Pinus excelsa.—Evergreen. Height, 100 feet. A free-growing and very handsome white-leaved Pine, good for specimens, groups, and avenues.

Pinus strobus nivea (the Snow Pine).—Evergreen. Height, 100 feet. A handsome silvery-leaved Pine of slender but graceful and rapid growth.

Picea nobilis glauca.—Evergreen. Height, 100 feet. One of the most beautiful of the Piceas, the leaves almost white.

Rhamnus Alaternus foliis argenteis.—Evergreen. Height, 10 feet. Leaves green, broadly and regularly margined with silver. A very beautiful plant, best against a wall, except in warm dry localities.

Acer Negundo variegatum.—Deciduous. Height, 20 feet. Leaves almost white, hardy, of free growth, and altogether one of the most beautiful white-leaved trees ever introduced.

Amygdalus communis foliis variegatis (the Variegated Almond).—Deciduous. Height, 20 feet. Leaves green, well and regularly edged with white. A showy and beautiful tree.

Hippophae rhamnoides (the Sea Buckthorn).—Deciduous. Height, 15 feet. Leaves and bark greyish white, distinct and effective. Well adapted for the seaside.

Philadelphus coronarius variegatus (the Variegated Syringa).—Deciduous. Height, 3 feet. Leaves green, broadly margined with white. A beautiful dwarf shrub.

Populus argentea vera (the Silver Poplar).—Deciduous. Height, 60 feet. Leaves and bark much whiter than those of the Abele Poplar. A beautiful cool-looking tree in summer, worthy of very general adoption.

Shepherdia argentea.—Deciduous. Height, 6 feet. Leaves like frosted silver. A beautiful dwarf shrub.

Tilia argentea (the Silver Lime).—Deciduous. Height, 40 feet. Leaves large, whitish above, quite white underneath, very effective when the leaves are moved by the wind.

Ulmus campestris variegata (the Variegated Elm).—Deciduous. Height, 40 feet. Leaves white and green. Very effective.

Under the head of colour we must rank those trees whose leaves change before their fall in autumn. The most effective are: *Red*—*Acer rubrum* (Scarlet Maple), *Berberis vulgaris*, *Cornus alba* (Dogwood), *Liquidambar*, *Quercus coccinea* (Scarlet Oak), *Rhus Cotinus* (Venice Sumach), *Rhus typhina* (Stag's-horn Sumach), *Spiræa ariæfolia*, *Spiræa prunifolia* fl. pl., *Viburnum Lentago*, *Viburnum Opulus* (Gueldres Rose), *Cratægus prunifolia*.

Yellow—*Æsculus Hippocastanum* (Horse Chestnut), *Acer platanoides* (Norway Maple), *A. Pseudo-Platanus* (Sycamore), *A. saccharinum* (Sugar Maple), *Amelanchier*, *Botryapium* (Snowy Mespilus), *Betula* (Birch), of sorts, *Cerasus Padus bracteosa* (Bird Cherry), *Cerasus Virginiana*, *Cratægus* (Thorns), of sorts, *Gleditschia triacanthos*, *Kolreuteria paniculata*, *Liriodendron tulipiferum* (Tulip Tree), *Magnolia tripetala*, *Morus alba*, *Pavia flava*, *Populus* (Poplars), of sorts, *Salisburia adiantifolia*, *Syringa vulgaris* (Lilac), and *Tilia europæa* (Lime). The colours of the decaying leaves were less vivid than usual last autumn, owing probably to the quantity of rain that fell late in summer.

No. V.

[From "The Gardeners' Chronicle," June 15th 1867, p. 628.]

FLOWERING TREES AND SHRUBS (EVERGREEN).

SO numerous are the species and varieties of hardy flowering trees and shrubs that there is a difficulty in reducing the number within reasonable limits. Many of the old kinds which have had a name in the past, must now give place to kinds of recent introduction, which while they serve to fill the place of the former as regards general character and foliage, excel them in the beauty of their flowers. In making a selection, the amateur will be guided by the season at which he wishes to have the greatest display; in some places this may be spring, in others summer, and in others again autumn. Leaving this and other special objects to be sought out and realised by the individual planter, I can but deal with the matter from a general point of view, selecting the most desirable kinds at whatever season they may flower.

Andromeda floribunda.—Height, 2 feet. This beautiful dwarf evergreen, which is covered with numerous spikes of snow-white flowers in winter and early spring, thrives best in peat or light loam. It is worthy of a special plot in every garden.

Arbutus Unedo.—Height, 15 feet. This is the type of a numerous family, all more or less interesting, thriving best in light loam. The flowers are white. Of the scarlet flowering kinds, *A. U. Croomii* is the largest and handsomest. *A. Andrachne hybrida* is also a beautiful kind, with large shining leaves, and long spikes of white flowers.

Berberis Aquifolium.—Height, 5 feet. A dark green evergreen with ample foliage, producing an abundance of yellow flowers in early spring, succeeded by clusters of purple berries in autumn. Hardy, handsome, and free, thriving in any soil, this plant on account of its beauty and cheapness should be abundantly planted. It forms ex-

cellent cover, pheasants and birds generally feeding freely on the berries. *B. fascicularis hybrida* is also a beautiful kind of taller growth.

Berberis Darwinii.—Height, 5 feet. Perhaps the loveliest of this genus, thriving in common garden soil. The flowers are rich deep orange, often so abundant as to completely cover the plant.

Ceanothus pallidus.—Height, 6 feet. A beautiful shrub, producing spikes of sky-blue flowers, very hardy. Of other species, *azureus*, *dentatus*, *divaricatus*, *rigidus*, and *papillosus* are good, but not quite hardy; they are however valuable and suitable as wall plants.

Daphne pontica.—Height, 4 feet. This is a valuable hardy plant on account of the sweetness of its insignificant greenish flowers, which perfume the garden and shrubbery in the evening. *D. Cneorum*, and *D. Cneorum* fol. var. are also charming plants of trailing habit, with pink sweet-scented flowers. The latter are of less easy culture than the former and require light loamy or peaty soil. *D. Fioni-ana* is a pretty dwarf free-blooming kind with lilac flowers, thriving like the *D. pontica* in any soil.

Erica, in varieties (the Hardy Heath).—The varieties of hardy Heath are almost endless, if we include, as from the mere decorative point of view we may well do, the *Gypsocallis* (Moor Heath) and *Calluna* (Ling or Heather). They range in height from 1 to 4 feet, are mostly very hardy, and thrive best in peat. For a small collection take the following—*C. vulgaris*, 6 varieties; *Erica*, 10 varieties; *Gypsocallis*, 4 varieties. The flowers are white or red.

Garrya elliptica.—Height, 8 feet. A fine evergreen, with dark shining oblong leaves, producing in mid-winter catkins resembling those of the Filbert. The plant is sometimes damaged by frost in winter, but quickly recovers. Thrives in any soil.

Kalmia latifolia.—Height, 6 feet. This is one of the chastest of what are popularly called American plants; the leaves are of a beautiful dark green, the flowers white,

tinted with pink. *K. myrtifolia* is similar in character, but has flowers of a deeper colour. *K. glauca* is a lovely little plant, rarely exceeding 1 or 1½ feet in height, covering its branches with pale red flowers in April and May. All these require peat or light loam.

Ligustrum lucidum (the Chinese Privet).—Height, 12 feet. A very handsome evergreen, but scarcely hardy enough for the climate of London except in dryish soils and sheltered situations.

Magnolia grandiflora exoniensis.—Height, 30 feet. One of the grandest of flowering evergreens, most suitable for training against mansions and dwelling-houses, where in time it will rise to the height of 30 or 40 feet. The large oval flowers are white, very fragrant. Thrives best in sandy loam or peat.

Rhododendron.—Of all flowering evergreens the Rhododendrons are pre-eminent. They require peat or turfy loam, natural or artificial. The garden varieties are so hybridised that I shall not attempt to bring them under any one species, but simply give a list of names and colours of a few of the best. *R. arboreum*, *catawbiense*, *maximum*, and *ponticum*, are the species from which our best garden varieties have descended. *White, variously spotted with black or brown, or shaded*: *Album elegans*, *Chianoides*, *Gulnare*, *Ingramii*, *Madame Miolan Carvalho*, *Minnie*, *Mr Otto Forster*, *Mrs Mangles*, *Papilionaceum*, *Zuleika*. *Lilac*: *Fastuosum*, *maculatum superbum*, *Sherwoodianum*. *Pinkish White*: *Star of England*. *White or blush edged with rose*: *Bylsianum*, *concessum*, *Comtesse de Morella*, *Limbatum*, *The Gem*. *Peach colour*: *Standish's Perfection*. *Rose and cerise*: *Blandyanum superbum*, *Etoile de Flandres*, *Lady E. Cathcart*, *Madame Titiens*, *Mrs John Waterer*, *Paxtonii*. *Crimson of various shades*: *Blandyanum*, *Fleur de Marie*, *Atrosanguineum*, *Barclayanum*, *Grand Arab*, *Iago*, *John Waterer*, *Robert Burns*. *Purplish crimson and lake*: *Brayanum*, *General Wilson*, *Neilsonii*. *Blood colour*: *Brebnerii*. *Purplish*

claret: *Blatteum*, *maculatum grandiflorum*. *Bluish purple*: Schiller. (See NOTE A., end of volume).

Spartium junceum (the Spanish Broom).—Height, 8 feet. One of the gayest of flowering evergreens; flowers yellow, thriving in common soil.

Ulex europæa flore pleno (the double-flowered Furze).—Height, 5 feet. A compact evergreen, thriving in common soil, the yellow flowers are produced so freely in spring that it forms a complete golden bush. Very effective, but apt to suffer from severe frosts.

Viburnum Tinus (the Laurustinus).—Height, 8 feet. This is perhaps the most beautiful of winter-flowering dwarf evergreens, thriving in common garden soil. It is sometimes damaged in low damp situations if the winter be severe, but is seldom killed. *Viburnum lucidum* (the black Laurustinus) and *V. suspensum* are also valuable and handsome evergreens.

NO. VI.

[From "The Gardeners' Chronicle," August 3rd 1867, p. 805.]

FLOWERING TREES AND SHRUBS (DECIDUOUS).

AS in my last paper, which dealt with evergreen flowering trees and shrubs, I shall here select and describe only a few of the choicest of the deciduous kinds.

Æsculus Hippocastanum (the Horse Chestnut).—Height, 60 feet. One of the grandest of flowering trees, to which the avenue in Bushy Park bears ample testimony. The double-flowering kind (*Æ. H. flore-pleno*) is equally beautiful, and more suitable for many purposes, growing slowly, and seldom attaining to more than half the height of the former. * The Scarlet Horse Chestnut (*Æ. H. rubicunda*) is of still slower and smaller growth, rarely exceeding 20 or 25 feet in height, and from its symmetry and beauty forms an admirable park tree.

Amelanchier Botryapium (the Snowy Mespilus).—Height,

30 feet. This is one of the most beautiful of spring-flowering trees, growing well in common soil. The white blossoms are produced in such abundance as to completely cover the tree early in April.

Amygdalus communis (the common Almond).—Height, 20 feet. Another spring-flowering tree of great beauty; the flowers are pink, profusely adorning the tree in March and April. Hardy, free, thriving in any soil, and apparently indifferent to the smoke and confinement of large towns. The double-flowering Almond is also a good hardy tree; the dwarf Almond (*A. nana*), of which there are both red and white varieties, is very useful and pretty in the front of shrubberies, rarely exceeding 1 foot or 1½ foot in height.

Azalea.—See *Rhododendron viscosum*.

Buddlea globosa.—Height, 12 feet. This is a very showy plant, producing numerous globes of orange-coloured flowers in the summer. It is unfortunately not very hardy, and except in sheltered situations is best placed against a wall.

Calycanthus floridus (the Carolina Allspice).—Height, 6 feet. The flowers of this plant are not striking or showy, but their delightful fragrance commends it for general cultivation. The leaves die off bright yellow. It prefers a peaty soil, but this is by no means indispensable.

Cerasus sylvestris flore-pleno (the double French Cherry).—Height, 20 to 30 feet. We have here one of the most beautiful of spring-flowering medium-sized trees, the branches in early spring being literally covered with large double white flowers.

C. vulgaris flore-pleno (the common double-blossomed Cherry) is also a beautiful tree, usually of somewhat less vigorous growth. There is also a beautiful dwarf variety *C. japonica fl.-pl.* rarely exceeding 4 feet in height, with double white flowers, and a double rose-coloured variety, well worthy of general cultivation for shrubberies and forcing.

Coronilla Emerus.—Height, 6 feet. This is a pretty dwarf shrub, the flowers yellow, tipped with red, produced in May and June. It is very hardy, thriving in any soil.

Cratægus Oxyacantha punicea (the Scarlet Thorn).—Height, 15 feet. No plant is more beautiful in early spring, the dark red flowers being produced in magnificent profusion. The species and varieties of *Cratægus* are almost endless, and nearly all are desirable when space admits of their introduction. The best for ornamental planting are the double white (*C. Oxyacantha fl.-pl.*), the double pink (*C. O. punicea fl.-pl.*), and the double crimson (*C. O. coccinea fl. pl.*), the last named promising to eclipse all others in point of effect.

Cytisus albus (the White or Portugal Broom).—Height, 6 feet. This is desirable among white-flowering shrubs on account of the mass of flowers it produces in early spring. There is a variety (*C. A. incarnatus*) bearing white flowers tipped with pink, also very beautiful. The common Laburnum (*C. Laburnum*, height, 20 feet) belongs here, and there are many dwarf-growing varieties of great beauty, ranging in height from 1 to 4 feet; of these *nigricans*, *patens*, *purpureus*, *purpureus flore-albo*, *elongatus*, *supinus*, and *capitatus*, may be regarded as the best.

Daphne Mezereum (the Mezereon).—Height, 4 feet. Both the white and pink varieties of this plant are desirable on account of flowering in mid-winter.

Deutzia gracilis.—Height, 2 to 3 feet. A pretty dwarf shrub of free hardy growth thriving in any soil; admirably adapted for the front of shrubberies. The white flowers are freely produced in early spring. *D. scabra* is similar in character, although of larger growth. *D. crenata flore-pleno* is very handsome, the flowers white, often tinged with rose colour. All these are excellent for forcing.

Forsythia viridissima.—Height, 4 feet. The flowers of this plant, which are greenish yellow, appear in great profusion in winter before the leaves. Hardy, thriving in

any soil. *F. suspensa* is also a good hardy climbing shrub.

Fuchsia Riccartoni.—Height, 8 feet. This plant is almost hardy, and if injured by frost will spring up from beneath the ground and flower freely in the autumn. The same may be said of *F. virgata*. Both bear red flowers, and are very graceful.

Genista tinctoria flore pleno.—Height, 1 foot. This beautiful little plant is profusely adorned with yellow flowers in early spring, and is well suited for the front of borders and for rockwork. *G. purgans* is a very showy kind, and, as in the case of many species of *Cytisus*, forms a fine lawn tree worked on stems of the Laburnum.

Hibiscus syriacus (*Althæa frutex*).—Height, 5 feet. There are few autumn-flowering shrubs so handsome as these, and they grow freely in any soil. There are many varieties with red, white, purple, and variegated flowers; some are single, others double.

Liriodendron tulipiferum (the Tulip Tree).—Height, 60 feet. One of the grandest of park or lawn trees, but requiring considerable space. The leaves are large and curiously cut; the flowers, which are greenish yellow, of a deeper colour inside, are produced in June and July.

Magnolia conspicua.—Height, 20 feet. This plant is usually placed against a wall, but in light loamy or peaty soils it thrives well in the open garden, where the masses of large white oval flowers make it a conspicuous object in early spring. *M. purpurea* and *M. Lennè*, the latter especially, are beautiful purple-flowered kinds. *M. Soulangiana* is also a desirable variety, the flowers being white tinged with purple.

Persica vulgaris flore pleno (the double-flowering Peach). Height, 15 feet. We know not whether to admire these plants most as pyramids in the forcing-house or as standards out-of-doors; in both positions they are exquisitely beautiful. The double rose, double crimson, double white, and camellia-flowered are the best. A striped variety of

great beauty was introduced from China a few years since, but the variegation has in many cases that we know of disappeared.

Philadelphus coronarius (the Syringa).—Height, 10 to 20 feet. This old-fashioned plant cannot yet be dispensed with; it is indeed one of the most useful of shrubby plants. Among other kinds, *P. grandiflorus*, *speciosus*, *verrucosus*, and *Zeyheri*, are perhaps the best.

Prunus domestica flore pleno (the double-flowered Plum).—Height, 20 feet. This is a useful early-flowering tree, and the same may be said of the Cherry Plum (*P. myrobalana*). The double sloe (*P. spinosa flore pleno*) is perhaps the most beautiful and useful of the Plums, flowering early, profusely, and remaining a long time in flower; it is of smaller growth than the preceding, rarely attaining the height of 12 feet.

Pyrus spectabilis.—Height, 30 feet. One of the most effective of spring-flowering trees. The flower-buds are deep red in April, changing to rose-colour on expansion in May. Very hardy and free.

Pyrus Malus floribunda.—Height, 10 feet. A beautiful medium-sized tree, covered with pink buds, expanding white edged with pink in early spring. Very effective.

Rhus Cotinus (the Venetian Sumach).—Height, 5 feet. The reddish feathery pedicels of this plant attract the attention of all observers, and are quite unique in appearance in the shrubbery and garden. Free, hardy, and highly ornamental. *R. typhina* (the Stag's-horn Sumach) is a singular looking pinnate-leaved low tree, not without beauty.

Ribes sanguineum (the Red-flowering Currant).—Height, 6 feet. One of the hardiest, finest, and loveliest of early spring-flowering shrubs; there are pink, red, white, and double red varieties, all worthy of universal cultivation. There are other species interesting enough, but hardly equal to the above for effect in ornamental planting.

Robinia hispida (the Rose Acacia).—Height, 10 to 15 feet. A beautiful low tree, the branches of which are exceedingly brittle, and liable to be broken by the wind in exposed places. The flowers are rose colour, produced in loose racemes from June to September.

Rhododendron viscosum.—Height, 3 to 4 feet. Under this heading we class the Azaleas of gardens; and where peat is of ready access, the Ghent Azaleas are most desirable. They are very showy and effective in early spring, the colours being mostly yellow, buff, and orange, but there are also white, pink, and scarlet varieties. The *Azalea mollis* is also of great value here.

Rosa (the Rose).—Although Roses fall naturally within our scope, space will not allow of more than the briefest allusion to them. Standards in beds or lines on lawns, and dwarfs in beds or borders are equally in place. Their culture and lists of varieties are now matter of everyday discussion.

Spiræa ariæfolia.—Height, 6 feet. This is one of the best, and perhaps the best, of the white *Spiræas*; but *ulmifolia*, *Lindleyana*, and *prunifolia* are also very good. Of pink kinds we should select *S. bella*, *californica*, *callosa*, and *Douglasii*. All are hardy and free-flowering, and will grow in almost any soil.

Syringa vulgaris (the Lilac).—Height, 10 to 20 feet. Among common flowering shrubs the Lilac is deservedly a great favourite, and in addition to the old-fashioned sorts, *La Liberté*, *Dr Lindley*, *Charles X.*, *alba grandiflora*, *Madame Lemoine*, and *Marie Lequay* are acquisitions.

The Persian Lilac (*S. persica*, 6 feet) and the *Siberian Lilac* (*S. rothamagensis*, 8 feet), of which there are both red and white varieties, are also valuable where a lower growth is required.

Viburnum Opulus sterilis (the Gueldres Rose).—Height, 10 feet. The beautiful balls of white flowers which this tree produces in spring give it a high rank among flowering shrubs. It thrives in the commonest soil, and should

be planted freely, and cut into shape if it becomes straggling. *Viburnum plicatum*, of which the original tree is in these Nurseries, and *Viburnum macrocephalum* are also of great beauty.

Weigela rosea.—Height, 4 feet. One of the handsomest of flowering shrubs, the flowers covering the branches with their rosy-coloured blossoms in May. There are many varieties of this plant, all worthy of general cultivation; *amabilis*, *Stelzneri*, and *Van Houttei* are perhaps the best.

NO. VII.

[From "*The Gardeners' Chronicle*," September 7th 1867, p. 926.]

CLIMBING PLANTS.

WHAT garden is so fortunately circumstanced as to have green hedges on all sides for boundaries, and within no buildings the walls or boards of which left bare are anything but sightly? But the ugliest walls and buildings may be covered—may be converted into breadths of beautiful foliage and flowers by the use of climbing plants. Various are the objects to which these climbing plants may be applied, as for instance to cover trellis-work and pillars, to be trained in a recumbent position, or to be clipped to form edgings to flower beds; but my object now is not so much to suggest uses for them as to enumerate and describe the best. Of climbing plants valuable for the beauty of their leaves in winter, the different kinds of Ivy, green and variegated, stand pre-eminent and almost alone. Of the 40 different kinds cultivated here, the following are considered the most desirable:—

Hedera canariensis aurea maculata.—A plant of rapid growth, leaves large, well clouded with gold.

Hedera marginata argentea.—Leaves green, broadly margined with silver; growth free and rapid; the best of the white-leaved Ivies.

Hedera donerailensis minor.—Leaves small, dark green, deeply cleft ; shoots numerous and slender ; growth rapid.

Hedera minor marmorata.—Leaves small, beautifully marbled with white ; growth rapid ; exceedingly pretty.

Hedera poetica.—Leaves of medium size, pale green, almost entire, very glossy, the whole plant looking as if varnished ; growth very rapid.

Hedera latifolia maculata.—Leaves large, marbled, and clouded with gold and silver ; growth rapid ; very handsome.

Hedera digitata.—Leaves dark green, long and pointed at the apex, broad at the base, deeply cleft ; growth rapid, but shoots less numerous than most others.

Hedera palmata.—Leaves dark green, of medium size, very broad and deeply cleft, veins unusually prominent ; very vigorous.

Hedera sagittæfolia.—Leaves medium size, dark green, very distinct.

Hedera Helix foliis aureis.—Leaves small, green and gold, some wholly of each colour, others finely blotched ; growth rapid, very beautiful.

Hedera rhombea.—Leaves broad, dark green, narrowly but regularly margined with silver ; very distinct and elegant.

Hedera japonica.—Leaves small, regularly and clearly margined with white ; growth dense and moderate ; very pretty.

Hedera Walthamensis.—Leaves very small, green ; growth very rapid. The prettiest of all small-leaved Ivies.

Hedera canariensis foliis aureis.—Leaves large, some entirely green, others blotched, or entirely gold ; growth vigorous, very handsome.

Hedera algeriensis variegata.—Leaves large, broadly margined with white ; growth rapid ; one of the handsomest.

Hedera canariensis nova (the new Irish Ivy).—Leaves

larger and of a paler green than the common Irish Ivy, also of more rapid growth.

Hedera algeriensis.—Leaves pale green, large, entire ; a very handsome sort, of rapid growth.

Hedera Rægneriana.—Leaves dark green, large, thick and leathery ; growth rapid ; very handsome. This and the two preceding are the best kinds for covering a large surface quickly.

Of Evergreen Shrubs, suited for placing against walls, I recommend *Jasminum revolutum* (flowers yellow), *Ceanothus*, of sorts (flowers blue), *Cratægus Pyracantha* (flowers white, berries orange red), *Escallonia*, of sorts (flowers red or white), *Photinia serrulata* (fine large glossy leaves), *Rhamnus Alaternus* (the green, the gold, and the silver varieties).

The following are amongst the best of climbing plants, selected for the rapidity of their growth or the beauty of their flowers ; they lose their leaves on the approach of winter :—

Ampelopsis hederacea (the Virginian Creeper).—Very hardy, very rapid in growth ; leaves dying off scarlet in autumn.

Aristolochia siphon.—Also a rapid climber ; best against a wall, where the splendid large round leaves are protected from the wind and displayed to great advantage.

Clematis Amelia.—Flowers lilac blush. This variety is very hardy, flowers freely, and grows rapidly.

Clematis azurea grandiflora.—Flowers fine purplish blue.

Clematis Flammula sempervirens.—Flowers white, very sweet. This plant is of very rapid growth, and sub-evergreen.

Clematis Fortunei.—Flowers white, double, large and fine.

Clematis Hélène.—Flowers pale blue, almost white, very hardy and free.

Clematis Jackmani.—Flowers dark purple, hardy and free. Very beautiful.

Clematis lanuginosa.—Flowers light blue; one of the best.

Clematis montana.—Flowers white, small, growth very rapid.

Clematis odorata azurea.—Flowers blue, small, very sweet; a beautiful sort.

Clematis Sophia flore pleno.—Flowers pale blue, whitish towards the centre, double.

Clematis Standishii.—Flowers deep blue, free, hardy and good.

Clematis viticella venosa.—Flowers reddish - purple, striped, very handsome. There are also other varieties of *Clematis* well worthy of culture.

Jasminum nudiflorum.—Very hardy, of rapid growth, the branches covered with bright yellow flowers in mid-winter.

Jasminum officinale (the Common Jasmine). Flowers white, very sweet, growth rapid.

Lonicera aureo-reticulata.—Leaves green and gold, beautifully marbled, the gold colour usually predominating, very handsome; growth rapid; sub-evergreen.

Lonicera brachypoda.—A rapid growing climber, the shoots well clothed with beautiful green leaves, invaluable on account of the masses of foliage it produces; sub-evergreen.

Lonicera flava nova (the Yellow Trumpet Honeysuckle).—Hardy, free, but of moderate growth only; flowers pure yellow.

Lonicera flexuosa.—A beautiful sort, producing fine masses of foliage and clusters of red and yellow flowers late in the year. Of rapid growth; sub-evergreen, but not very hardy, therefore should be put in a sheltered situation or against a wall.

Lonicera Magnevillea.—A hardy free-growing kind, producing an abundance of large trusses of flowers.

Lonicera grata (the Evergreen Honeysuckle).—Flowers yellow, red, and white; sub-evergreen, hardy and free.

Lonicera Periclymenum belgicum (the Dutch Honey-suckle).—A capital variety for common purposes, hardy and free.

Lonicera Brownii.—This is perhaps the best of the scarlet trumpet Honeysuckles.

Passiflora cærulea racemosa.—A good plant for a wall in a sheltered situation. Of other hardy Passion-flowers, *P. Colvillii* and *P. Neumannii* are the best.

Rosa.—Of Climbing Roses the best for arches and like purposes, where a rapid growth is required, are the "Boursault" and "Sempervirens;" for walls or fences, the vigorous kinds of "Noisette" and "Tea-Scented;" for pillars, the vigorous kinds of "Hybrid Perpetual" and "Hybrid Bourbon."

Tecoma radicans major (the Trumpet Flower).—Flowers yellowish red: growth when established very rapid. A magnificent plant for a south or east wall. Of other hardy Tecomas, *T. atrosanguineum* (dark crimson) and *T. flava speciosa* (yellow) are the best.

Vitis (the Vine).—Where masses of broad handsome foliage are required there are no plants more beautiful than certain kinds of the Vine: Coussi Noir, Castello de Donello, and Muscat Noir de Jura are among the best, the leaves changing in autumn to crimson, yellow, and scarlet. *Vitis apiifolia laciniata* has beautifully cut leaves; *V. labrusca foliis purpureis* has leaves of a purple tint; and *V. heterophylla variegata*, leaves green, marbled with white.

Wistaria sinensis.—This is the Queen of climbing plants; the growth is often slow for the first two or three years, but when the plant becomes established the growth is very rapid, often covering enormous spaces. The flowers are pale blue, produced in clusters in the way of the Laburnum.

NO. VIII.

[From "The Gardeners' Chronicle, October 19th 1867, p. 1072.]

BERRY-BEARING TREES, &C.

BERRY-BEARING trees are so beautiful in autumn and winter that one would expect to find them more extensively planted than is customary. The *Pyrus aucuparia* (Mountain Ash) is perhaps one of the most attractive of these, but there are many others equally interesting to the close observer.

First, of the evergreen kinds—

Arbutus unedo (the common Arbutus).—Height 15 feet. This fine evergreen thrives best on a light loamy or peaty soil, and requires a sheltered situation when planted north of London. Berries red.

Aucuba japonica.—Height, 4 to 6 feet. Perhaps the greatest acquisition that has been made to hardy evergreens of late years is the many new and beautiful varieties of *Aucuba*. Of berry-bearing kinds the best are—*A. japonica*, *A. j. foliis aureis*, *A. himalaica*, *A. macrophylla*, *A. picta*, *A. longifolia*, *A. viridis*, and *A. latimaculata*. Berries bright red, larger than those of the Hawthorn, produced in clusters, and remaining on the tree throughout winter and spring.

Berberis Aquifolium.—Height 5 feet. A first-class evergreen, growing anywhere, the yellow flowers, dark green leaves, and purple berries are alike beautiful.

Berberis Darwinii.—Height, 5 feet. A neat and handsome evergreen; leaves dark green, flowers deep orange, berries purple.

Cotoneaster microphylla.—Height, 4 feet. A beautiful dense dwarf evergreen, suitable for beds, edgings, and low walls, and thriving in common soil. *C. buxifolia* is a similar kind, but larger in all its parts. Berries red.

Crataegus pyracantha.—Height 8 feet. A beautiful wall plant, laden in winter with clusters of scarlet or orange-coloured berries.

Ilex Aquifolium (the common Holly). Height, 20 to 30 feet. The common Holly is too familiar to need description; among the numerous varieties there are, however, some which seldom produce berries. The best selection from the berry-bearing point of view are—*I. Aquifolium*, *Aquifolium pendula*, *fructu aurantiaco*, *fructu luteo*, *hybrida*, *platyphylla*, *nigrescens*, *scurtica*, *Hendersonii*, *Hodginsii*, *senescens*, *flammea angustifolia*, *bicolor*, *aureo-marginata*, *obscura*, *albo-picta*, *albo-marginata*, *balearica*, and *maderensis*. Berries red, yellow, and orange.

Gaultheria procumbens.—Height, 6 inches. A pretty dwarf shrub, requiring peat; flowers white, berries red.

Gaultheria Shallon.—Height, 2 feet. A handsome shrub, requiring peat; flowers white tinged with pink, berries purple.

Hedera (the Ivy).—There are among climbing and tree Ivies varieties which produce berries; of the climbing kinds the best are—*H. aureo-maculata*, *marginata argentea*, *marginata canescens*, *albo-lutescens*, *Helix foliis aureis*, and *canariensis*; of the tree kinds I recommend—*arborescens*, *baccata lutea*, *canariensis arborescens*, *Helix arborescens*, *H. a. foliis aureis*, and *Rægneriana arborescens*; berries yellow or purple.

Pernettya speciosa.—Height, 1½ foot. A beautiful dwarf evergreen, thriving best in light loam or peat; flowers white, berries red. There are also varieties bearing white and pink berries. *P. mucronata* and *P. angustifolia* are also desirable berry-bearing kinds of similar but somewhat larger growth.

Skimmia japonica.—Height, 1½ foot. A pretty dwarf evergreen; berries red. *S. oblata* is also a very handsome kind.

Vaccinium Vitis idæa.—Height, 1 foot. A pretty dwarf evergreen, thriving best in peat; flowers pale pink, berries red, the latter remaining on the plant throughout the winter.

Of deciduous berry-bearing trees the most remarkable are:—

Berberis vulgaris (the common Berberry).—Height, 10 to 15 feet. A useful shrub, growing freely in the commonest soils, equally valuable for its bright yellow flowers, and coral-like berries. *B. v. foliis purpureis* is also a very desirable kind; the flowers and berries similar to the last, the leaves of a rich purple in early spring and summer.

Cotoneaster frigida.—Height, 15 feet. In sheltered situations this shrub is often sub-evergreen, and is plentifully adorned with clusters of bright red berries throughout the autumn and winter.

Cratægus (the Hawthorn).—Height, 10 to 20 feet. There are many varieties of *Cratægus* which are interesting and valuable on account of their berries. *C. Oxyacantha aurea*, *C. aronia* (berries yellow), *C. coccinea maxima* and *C. Layii* (berries red), are perhaps four of the most desirable.

Ligustrum vulgare (the Privet).—Height, 10 feet. There are two varieties of this plant, one with black, and another with yellowish berries, both pretty in hedges, and in various situations where not too prominent. *L. semper-virens* (the evergreen Privet), is also a handsome variety.

Pyrus aucuparia (the Mountain Ash).—Height, 20 to 30 feet. Here, as with the Privet, there are two desirable kinds; the red and yellow-berried. Both are handsome, the former more particularly so. They are among the best of fast-growing medium-sized trees, and thrive well near London, and in large towns generally.

Pyrus Malus prunifolia (the Siberian Crab).—Height, 15 to 20 feet. This tree is equally beautiful in flower and in fruit. *P. M. astracanica* (or Transparent Crab) is also well worthy of cultivation for the beauty of its fruit. I have also received recently some varieties of Russian Apples, the fruit of which produces a fine effect on the trees.

Euonymus europæus (the Spindle Tree).—Height, 10 to 20 feet. This pretty shrub, which abounds in the hedge-rows in many parts of England, produces an abundance of bright orange, rose-margined fruit in autumn, at which season it is very beautiful. There is also a white-fruited variety, but this is not of great merit.

Symphoricarpos racemosus (the Snowberry).—Height, 5 to 6 feet. Of shrubs bearing white berries this is the most showy, and it is so free and hardy that, like the *Euonymus*, it thrives everywhere.

Nearly allied (from the pictorial point of view) to berry-bearing trees are trees with bark of various colours, and such are very interesting in winter when denuded of their leaves. Of white barked trees, *Acer striatum*, *Betula alba*, *Hippophae rhamnoides*, and *Populus argentea* are the best; *Cornus alba* has red; *Salix vitellina* and *Fraxinus excelsa aurea*, yellow; and *Salix purpurea*, purple bark.*

THE IVY.

[From "The Gardeners' Chronicle," November 30th 1867, p. 1215.]

NOW that winter is approaching, we naturally turn to the evergreen forms of trees and shrubs to aid us in tiding over the dull season with gardens and gardeners.

The summer flowers and the summer leaves are alike

* Since these lists were written a few good things have come under my notice which it seems desirable to add. They are as follows:—*Evergreens*: *Abies Alcoquiana*, *Abies pungens glauca*, *Cedrus atlantica glauca*, *Diplopappus chrysophylla*, *Ligustrum Ibotæ*, *Pernettyas*, with white, rose, and lilac berries, *Phillyrea decora*, *Juniperus chinensis aurea*, *Thuja occidentalis lutea*, *Taxus Dovastonii variegata*, *Taxus adpressa variegata*, *Taxus japonica variegata*, *Taxus gracilis pendula*. *Deciduous Trees and Shrubs*: *Acer Negundo aureum*, *Acer Prince Hendjery*, *Acer Schwedlerii*, *Acer Wierii laciniata*, *Betula pendula purpurea*, *Liriodendron tulipiferum aureum*, *Ptelia trifolia aurea*, *Populus canadensis aurea*, *Populus Bolleana*, *Prunus Pissardii*, *Pyrus prunifolia pendula*, *Tilia dasystyla*, *Cornus Spathi aurea*, *Sambucus serratifolia*.

gone, and desolate indeed is that garden which does not contain a goodly proportion of these winter gems. Let us hasten to fill the void, if void there be, for the garden in winter may be made as interesting and beautiful in its way as in spring or summer. Each season has its natural and distinctive features, the embodiment of which should be a pleasing task to the skilful gardener.

Having on former occasions arranged and described the principal varieties of the Yew (*Taxus*) and the Holly (*Ilex*), I now venture to deal with the Ivy—a plant alike remarkable for its antiquity, beauty, and pleasant associations. We have here no new favourite. The plant was known to and valued by both Greeks and Romans, was woven into crowns and chaplets on festive occasions, and was also used by them medicinally.

In "Seemann's Journal of Botany" (1864) is a very interesting paper on the Ivy, which every admirer of this plant should read. The writer brings all known varieties under three species:—

1. *Hedera Helix*, the *European Ivy*.
2. *H. Canariensis*, the *African Ivy*.
3. *H. Colchica* (*Rægneriana*), the *Asiatic Ivy*.

In our country *H. Helix* abounds both naturally and by the hand of the planter, and I conceive that there are few who cannot look back with pleasurable emotions on some old church, ruin, or "Ivy-mantled tower," the picturesque forms of which remain indelibly fixed on the memory. So plentiful is the plant in England that one can scarcely take a walk or drive without meeting with the various forms covering banks or park palings, and ascending trees to a great height, the topmost shoots often assuming a shrubby or tree form. In the words of one of our most popular authors, "a rare old plant is the Ivy green."

From the cultural point of view the Ivy is valuable as an evergreen climbing plant, on account of its free, rapid, and accommodating growth. It can scarcely be dispensed

with in suburban gardens ; and even in large towns it generally thrives well, suffering from the smoke less than most evergreens. For covering walls, fences, trees, and rockwork, for screens when supported by lattice, for pillars, edgings of beds, and arches, or arcades, in flower gardens it is alike suitable. My collection here, which consists of more than 40 sorts, is grown in three separate ways ; (1) as pillars ; (2) to cover old roots, laid on the ground to form a screen ; and (3) in pots. Pillars of Ivy form beautiful objects, especially in the winter season. Those who have seen the gardens at Elvaston in winter will no doubt remember the pleasing effect of the masses of golden Ivy which abound there. When planted and trained on rockwork or old trees, it is curious and interesting to watch the shoots creeping and clinging to the surface, now losing themselves in the recesses, then emerging and spreading to the light their broad masses of beautiful leaves of green, gold, or silver. A well-kept mass of Ivy, whether on wall, or tree, or rock, is in winter a beautiful sight. When grown in tubs or pots as low pyramids, the varieties of this plant are also extremely useful for garden decoration. In the collections of climbing plants shown at the International Exhibition in the spring of 1866, no plants were admired so much as the masses of Ivy. Associated with the water and the rock as they judiciously were, the shoots which formed the base of the pyramids drooped gracefully over the sides of the baskets, hiding the latter, and calling up a new feature of beauty by being reflected in the water below. Of the many variegated kinds it must be told that some only are completely happy as pillars, at least such is my experience ; but the most delicate are beautiful in pots, and even against walls, and are quite worthy of such positions. Further, the Ivy is not only valuable as a climbing and creeping plant, but also as an evergreen shrub. The tree or bush forms which it assumes, and of which there are several, are first-class front-row evergreens for beds and borders. A little prun-

ing keeps them as compact as Aucubas and Laurustines, and in the green, gold, and silver leaves, and the black and yellow berries, there is infinite variety and beauty. The sweetness of the flowers too must not be forgotten. The greater number of the varieties cultivated in English gardens belong to *H. Helix*, and these I shall first describe:—

I.—*HEDERA HELIX* (European Ivy).

GROUP I.—*Climbing varieties.*

1. *H. Helix*.—Leaves small, dark green. Growth rapid.
2. *H. h. marginata canescens*.—Leaves green, long and narrow, broadly edged with gold.
3. *H. h. marginata major*.—Leaves green, of medium size, broadly margined with yellowish white; berries freely. Growth rapid. One of the best.
4. *H. h. marginata elegans*.—Similar to the preceding in general appearance, but the leaves are larger and narrower at the base. Growth moderate.
5. *H. h. marginata pulchella*.—Leaves green, small, broadly margined with white. Growth moderate. Very beautiful.
6. *H. h. marginata robusta*.—Leaves green, large, margined with silver. Growth free and rapid, one of the best.
7. *H. h. marginata argentea*.—Leaves green, large, well margined with silver. Of free, rapid growth. One of the best.
8. *H. h. marginata elegantissima*.—Leaves green, broadly margined with white; very showy. Growth moderate.
9. *H. h. minor marmorata*.—Leaves green, beautifully marbled with white, small. Growth rapid. Exceedingly pretty.
10. *H. h. palmata*.—Leaves dark green, of medium size, very broad, deeply cleft; veins prominent. Growth very vigorous.

11. *H. h. palmata aurea*.—Similar to the preceding in general character; the leaves occasionally clouded with gold.

12. *H. h. pennsylvanica*.—Leaves wholly green, large, deeply cleft; veins prominent. Growth free.

13. *H. h. chrysocarpa*.—Leaves dark green, small. Growth rapid. Berries yellow.

14. *H. h. digitata*.—Leaves dark green, long and pointed, broad at the base, deeply cleft. Growth rapid, shoots less numerous than in most others.

15. *H. h. digitata nova*.—Leaves dark green, of medium size, deeply cut. Growth rapid.

16. *H. h. sagittifolia*.—Leaves dark green, of medium size, broad at the base, long, narrow, and pointed at the apex. Very distinct.

17. *H. h. Glymii*.—Leaves pale green, of medium size, almost entire; very glossy, looking as if varnished. Growth very rapid, forming dense masses of foliage.

18. *H. h. donerailensis minor*.—Leaves dark green, small, deeply cleft, growth rapid; shoots few and slender. Very distinct.

19. *H. h. crenata*.—Leaves green, broad, regularly cleft; the veins very conspicuous, similar to but larger than those of *H. h. palmata*. Growth free and rapid.

20. *H. h. taurica*.—Leaves dark green, of medium size. Growth rapid.

21. *H. h. walthamensis*.—Leaves dark green, very small, growth rapid, shoots very slender. The prettiest of all the small green-leaved kinds.

22. *H. h. foliis aureis*.—Leaves green and gold; some wholly of each colour, others finely blotched. Growth rapid. Very beautiful.

23. *H. h. foliis argenteis*.—Leaves green, broadly margined with white; small. Growth moderate. Very showy.

24. *H. h. Cavendishii*.—Leaves green, well margined with white; small. Growth moderate.

GROUP II.—*Tree or Bush varieties.*

25. *H. h. arborescens*.—Leaves dark green, long and narrow ; forms a close, round, evergreen shrub ; well set with dark purple berries in winter.

26. *H. h. arborescens baccata lutea*.—Leaves green, narrow pointed ; of the compact growth of the preceding, and well covered with yellow berries.

27. *H. h. arborescens alba lutea*.—Leaves green, well margined with gold and silver ; large. One of the most beautiful.

28. *H. h. arborescens foliis aureis*.—Leaves long, narrow, dark green, finely blotched with gold. Grows and bears berries freely. Very beautiful.

2.—*HEDERA CANARIENSIS* (African Ivy).GROUP III.—*Climbing varieties.*

29. *H. canariensis*.—Leaves dark green, large. Growth very rapid. Bears berries freely. This is generally known as the Irish Ivy.

30. *H. c. nova*.—Leaves much larger and of a paler green than the type, also of more rapid growth. This and *H. (Rœgneriana) colchica* are the best of the green-leaved kinds for covering large spaces quickly.

31. *H. c. aureo maculata*.—Leaves sometimes green, but usually green finely clouded with gold ; large. Growth free and rapid. One of the most beautiful.

32. *H. c. latifolia maculata*.—Leaves green, marbled with creamy white ; large. Growth rapid.

33. *H. c. foliis aureis*.—Leaves large, some entirely green, some entirely gold, others again green blotched with gold. Growth vigorous. Very handsome.

34. *Hedera algeriensis*.—Leaves pale green, large, entire. A very handsome sort, of rapid growth.

35. *H. a. variegata*.—Leaves green, broadly margined with white ; very large. Growth rapid. One of the handsomest.

GROUP IV.—*Tree or Bush variety.*

36. *H. c. arborescens*.—Leaves dark green, very large, broad, and almost entire; berries freely.

3.—*HEDERA COLCHICA* (Asiatic Ivy).GROUP V.—*Climbing varieties.*

37. *H. colchica* (*Rægnieriana*).—Leaves dark green, large, entire, thick, and leathery. One of the handsomest.

38. *H. rhombea variegata*.—Leaves dark green, slightly but regularly margined with silver, broad and smooth. Very distinct and elegant.

39. *H. japonica*.—Leaves green, clearly and regularly margined with white, small. Very pretty, producing dense masses of foliage.

GROUP VI.—*Tree or Bush variety.*

40. *H. colchica arborescens*.—Similar to No. 37 in general character of leaves, but instead of climbing, rapidly forms a stout round bush, well set with berries.

As a guide for those who may wish to select varieties for special purposes, I would recommend as suitable for covering large spaces quickly, Nos. 12, 19, 29, 30, 32, 34, 37, among green varieties; Nos. 3, 6, 7, 32, 35, 38, among silver varieties; and Nos. 11, 22, 31, 33, among gold varieties. Breadth or masses of any one of these three colours may be obtained by the use of the above varieties. For low walls or fences, basket handles and margins of beds, the best greens are Nos. 1, 17, 20, 21; the best silver, Nos. 4, 5, 8, 9, 38, 39; the best gold, Nos. 2, 22, and 31. All the tree or bush varieties are worthy of cultivation as front-row evergreens (*see* NOTE C, p. xii., beginning of volume).

ON TREES AND SHRUBS IN LARGE TOWNS

(Their Selection and Cultivation).

[From "*The Gardeners' Chronicle*," October 31st and November 7th 1891, pp. 513 and 556.]

THE desirability of planting trees, more or less, in and around our large towns is, I think, now universally admitted. The contention that the introduction of trees occupies space already overcrowded, impedes the circulation of the air, and minimises the light of heaven, will not bear the test of examination. No sane person would advocate the planting of every square yard of ground in a town or city, nor would he recommend planting so closely as to shut out the light or impede the circulation of the air. One great fact in favour of the practice is, I think, the influence of active tree life in purifying the air and rendering it healthier and more suitable for human consumption.

It would seem, then, that the practice can be upheld on the ground of utility alone, but the sum and substance of human life are not bounded even by that comprehensive word utility; within its just limits, too, there is the shade and shelter to enjoy, the eye to please, and the mind to exercise and soothe, and what is more likely to attain these ends than the introduction of beautiful trees with their varied leaves and flowers amid the dingy and monotonous masses of town buildings. It has always seemed to me that the introduction of trees to towns should be regarded by the inhabitants as a forecast of work in the interests of health and enjoyment, and they may be so managed as not to interfere with convenience or comfort either in the present or the future.

The subject seems fairly open to discussion under the following heads:—1, What to plant; 2, The selection of individual trees; and 3, How to plant and cultivate them.

1. With regard to "what to plant," we have but little to guide us beyond the knowledge derived from observation and experience. We know that certain trees flourish in certain towns—take the Plane tree in London as an example—whereas another tree similar in appearance to the ordinary observer languishes, and a third quickly dies. I have never yet met with a complete solution of this problem, nor am I prepared to offer one. I can only suggest probable causes. We know that some trees thrive best in a heavy soil, some in a light one; some in a dry soil, some in a moist or wet one; some like a warm climate, some a cold one. We know that trees derive their nourishment partly from the soil through their roots, and partly from the air through their leaves—trees breathe and perspire through their leaves. The leaves are furnished with numerous pores or openings on both their surfaces, through which the functions of breathing and perspiring are carried on. These openings vary in size and number in different species of trees and plants. This variation may probably account in some measure for certain trees sustaining better than others the effects of living and breathing in an impure atmosphere. Again, it may be that the digestive organs of some are stronger or less unfavourably influenced than others by bad air. And here I would remark that by bad air I do not mean simply fog and smoke, bad as those are, but air further polluted by the noxious gases constantly streaming into it from various chemical works which exist in most large towns. I witnessed lately a case which illustrates this remark. A row of Aucubas had flourished for years in a large town, despite of smoke and fog, but perished shortly after a manufactory of chemicals was raised near to them.

The Plane tree (*Platanus orientalis* var.) grows well in London and some other large cities and towns in England where the Chestnut, the Larch, and others are not quite satisfactory, and where the Coniferæ, with the exception of

the *Pinus austriaca* and the *Cupressus Lawsoniana*, will hardly grow. But the Plane tree does not do well everywhere, which, on generalising from a number of isolated facts, would seem to be due either to soil or climate. However this may be, we cannot, in the present state of our knowledge on this subject, do better than trust to observation and experience by planting in each district those trees and plants which we know do well there.

The least observing cannot fail to have remarked that in smoky districts deciduous trees thrive better than evergreens. This is probably due to the former dropping their leaves every autumn, and renewing them every spring, which the latter do not; their leaves remain on the trees, their pores becoming choked with sediment from the air, and healthy action consequently impeded. Deciduous trees and shrubs should, therefore, abound in all town plantations.

Guided principally by observation and experience over a somewhat extended surface of country and a lengthened period of time, I have ventured to compile the following list of trees and shrubs suitable for plantations in large towns. For the smaller towns with open surroundings this list may be considerably extended.

DECIDUOUS TREES EXCEEDING 12 FEET IN HEIGHT
WHEN FULL GROWN.

<i>Acer Pseudo-Platanus</i>	<i>Betula alba</i>
" " <i>purpurea</i>	<i>Catalpa syringæfolia</i>
" <i>dasycarpum</i>	<i>Carya</i> , of sorts
" <i>macrophyllum</i>	<i>Cratægus coccinea</i> , <i>corallina</i> ,
" <i>platanoides</i>	<i>grandiflora</i> , Paul's new
<i>Ailantus glandulosus</i>	double scarlet, fl. pleno
<i>Alnus</i> , of sorts	(the double pink), <i>stricta</i> ,
<i>Amelanchier Botryapium</i>	<i>pentagyna</i> , and almost any
<i>Amygdalus communis</i>	other free grower

<i>Cytisus Laburnum</i>	<i>Pyrus aucuparia</i> , and many others
<i>Fagus sylvatica</i>	<i>Rhus typhina</i>
" " <i>purpurea</i>	<i>Robinia Pseud-Acacia</i> , and any other (a good town tree in sheltered places, but very brittle and easily broken with the wind)
<i>Fraxinus excelsa</i>	<i>Salisburia adiantifolia</i>
" " <i>pendula</i>	<i>Salix vitellina</i> , <i>babylonica</i> , and many other Willows
<i>Gleditschia triacanthos</i>	<i>Sophora japonica</i>
<i>Juglans regia</i> and <i>nigra</i>	<i>Tilia europæa</i>
<i>Liquidambar styraciflua</i>	<i>Ulmus latifolia</i> , <i>stricta</i> , <i>mon-</i>
<i>Liriodendron tulipiferum</i>	<i>tana</i> and its vars., <i>glabra</i>
<i>Ornus europæa</i>	<i>pendula</i> , and <i>vegeta</i>
<i>Platanus occidentalis</i>	
" <i>pyramidalis</i>	
<i>Populus alba</i> , <i>canadensis</i>	
<i>nova</i> , <i>fastigiata</i> , <i>monilifera</i>	
(the black Italian), and almost any other	
<i>Pyrus Aria</i>	

DECIDUOUS FLOWERING SHRUBS UNDER 12 FEET
WHEN FULL GROWN.

<i>Azalea</i> , in variety	<i>Philadelphus coronarius</i> , and many other varieties
<i>Berberis vulgaris</i> , fol. <i>pur-</i> <i>pureis</i> , and many others	<i>Rhus Cotinus</i>
<i>Colutea arborescens</i>	<i>Ribes sanguineum</i> and <i>aureum</i> , and many others
<i>Cornus alba</i> , <i>mas.</i> and many other varieties	<i>Sambucus aurea nova</i> , and many others
<i>Cydonia japonica</i>	<i>Spiræa</i> , in variety
<i>Euonymus</i> , in variety	<i>Symphoricarpus racemosus</i> , <i>vulgaris foliis variegatis</i>
<i>Forsythia viridissima</i>	<i>Syringa</i> , the Lilac, in variety
<i>Fuchsia Riccartonii</i>	<i>Weigela rosea</i> , and many others
<i>Hibiscus syriacus</i> , in variety	<i>Viburnum Opulus sterilis</i> , and many others
<i>Hypericum Kalmianum</i>	
<i>Leycesteria formosa</i>	
<i>Ligustrum vulgare</i> , <i>variegatum</i> , and others	
<i>Lonicera Ledebourii</i>	

EVERGREENS.

Aucuba, in variety	Mahonia japonica and Aquifolium
Berberis dulcis and Darwinii	
Buxus handsworthiana, and one or two other broad-leaved varieties	Osmanthus ilicifolius, variegatus, rotundifolius (good town plants, but very brittle and liable to get broken by heavy snow)
Cotoneaster Simonsii, and others	
Daphne pontica	Olearia Haastii
Euonymus japonicus, radicans variegata	Phillyrea, of sorts
Hypericum calycinum	Rhamnus Alaternus
Ilex Aquifolium (common green, & any other smooth-leaved free growers)	Skimmia japonica and oblata
I. a. speciosa (Golden Queen), aurea pumila, and some few others	Viburnum Tinus
I. a. albo marginata, and some few others.	Vinca elegantissima, & others
Ligustrum ovalifolium, ovalifolium variegatum	Yucca, any variety
Ligustrum lucidum and japonicum	Veronica Traversii
	Kalmia, in variety
	Taxus baccata, Crowderii, elegantissima, fastigiata, and perhaps others
	Common Rhododendrons
	Cupressus Lawsoniana
	Pinus austriaca

CLIMBING PLANTS.

Ampelopsis hederacea	Lycium europæum
„ Veitchii	Menispermum canadense
Clematis flammula, and some others	Passiflora cœrulea
Hedera (the Ivy), all the free-growing sorts	Periploca græca
Jasminum officinale	Vitis riparia (sweet-scented Vine)

2. *The selection of individual trees, &c.* — Anyone visiting a nursery with a view of purchasing will often meet with two styles of trees—the one with clean, straight,

vigorous shoots; the other with shoots of more compact and moderate growth. The former have been planted at considerable distances apart when in a young state and left to grow undisturbed for years, hence their vigorous appearance. They are the most tempting to the eye, but not really so good as the latter, which assume the less vigorous form because they have been frequently transplanted from a young state. These latter are specially desirable for town planting. The conditions under which they have to live in the future are not over-favourable to growth and longevity, and it is always a harder task, even under the most favourable conditions, to transplant the former with success. The former will please the eye best when newly planted, but the latter will look and be the best at the end of the first year's growth and afterwards. And the cause of this is easily explained, even to those who have but a limited knowledge of tree-nature. A tree or shrub that has remained for a long time undisturbed in the same place pushes its main roots downwards to a great depth, and laterally to great distances, forming, as it does so, but few fibres. Now, in removing such a tree when sold, the roots are almost invariably shortened, and the chances of life and prosperous growth seriously diminished. But the frequently transplanted tree has shorter main roots and more abundant fibres, all of which may be dug out with the tree, and replanted with it in its next home.

The question of how often trees should be transplanted in the nurseries to be safe for removal is sometimes asked, but it is not easy to give a precise and definite answer. Some trees, as the *Wellingtonia*, are best removed once yearly; others, as *Willows* and *Poplars*, will stand very well for four years, and there are intermediate cases; but none should be left undisturbed for more than four years. Here, in choosing the style of tree, a practical knowledge of gardening is almost indispensable, for it is not always easy for the uninitiated to feel sure of his ground. Anyone who has followed these remarks must see, on reflection,

that the present mode of obtaining trees for new plantations is almost as bad as it can be. A list is prepared, names and heights given, and sent round to a certain number of nurserymen for prices. On their return the prices are compared, and the lowest tender is usually accepted. This is the way to obtain the desired things for the least expenditure of money in the first instance. The articles are there by name, of the specified height, and of fair appearance. But the chances are—the process of cultivation for safe removal when sold being a costly one—that the trees offered at the lowest price are of the least value, having been cultivated to sell rather than to prosper in the future. I have known many cases where plantations have been filled on this principle, and the owners have had the mortification of seeing numbers of subjects die off at once, and others drag on a miserable but short existence, which would not have been the case had they been frequently transplanted from their infancy upwards. It is a costly experiment to plant badly prepared trees, however good-looking they may be, as the sum total of good ones is of small consideration in comparison with the total expenditure of what may be called cultural and collateral expenses. And then, what a loss of time and enjoyment are incurred in waiting for the bad trees to die before clearing them out and replacing them with good ones. I would here go so far as to say that a large tree may be removed with the same chances of success as a small one, provided it has been properly prepared for removal beforehand. The only qualifications of this remark are, the contingencies of a bad soil, an unfavourable season, or careless planting.

3. It now remains to speak of the planting and after-management of the trees :—

First, of Soils.—Soils are so various that it is impossible to particularise every one of them. If, however, we speak of loam, peat, chalk, clay, sand and gravel, we shall embrace the greater part.

Loam, in all its varieties, is a soil in which most trees and shrubs thrive well. It requires nothing more than loosening to the depth of 2 feet 6 inches, and enriching by the addition of manure, much or little, according to its natural poverty or richness. There may, however, be extreme cases in which the loam is so light that it can be improved by the addition of clay or marl, or so heavy that a portion of sand would be valuable.

Peat, if not wet or too sandy, will suffice for the prosperity of many trees and shrubs, and here manure and clay are valuable improvers. Many kinds of peat are precisely the thing for Rhododendrons and Azaleas, but we have found them thrive equally well in light fibrous loam. Wet peat bogs are a bad soil for most trees, because they are at once poor and sour, and are best improved by draining and exposure to the air for some months previous to the introduction of the trees, at which time manure may be added.

Clay should also be exposed to the air for some months before planting in it; if wet, it should be drained and enriched and ameliorated by manure and sand or old mortar, the *débris* of old brick buildings.

Chalk is not a bad subsoil, as it is cool, though poor; and if it comes within 2 feet 6 inches of the surface, it should be removed to that depth, and replaced with loam and manure. Rhododendrons abhor chalk, and should be kept from the influence of water containing its properties in solution.

Sand and Gravel are bad soils for trees, because poor and dry, and they should be removed to the depth of 2 feet 6 inches at the least, and replaced with loam and manure.

All soils that are wet should be drained, for few trees will thrive long if their roots are placed in stagnant water.

When preparing beds or borders for trees, the whole of the soil should be loosened by trenching to the depth

of 2 feet 6 inches, and converted or improved where necessary on the above principles.

In planting single trees, it is a good plan to make what gardeners call "stations," to give them a good start in life. By a "station" is understood a piece of ground, say 3 feet square, the soil of which is loosened to the same depth, and improved by the withdrawal or addition of materials if necessary, according to the suggestions already given.

If a good practical gardener is employed in planting, he wants no instructions from me or anyone else ; but as this is not always the case, I will venture on a few remarks.

When planting trees, the roots should be carefully spread out, and fine mould settled between them before filling up the ground, which should afterwards be firmly trodden down above them. The careless and foolish practice of allowing the roots of trees, when planting, to be huddled together with their ends often turned upwards instead of downwards, is often the cause of indifferent aftergrowth and premature decay. Trees should not be planted when the ground is sodden with water, lumpy, or sticky.

Large trees require staking, that the wind may not sway them to and fro, and hinder the formation of fresh rootlets. The tree-guard too, is often a necessary adjunct as a protection against mischief or accidents.

For the first year after planting, trees and shrubs should be watered copiously, heads and roots, in dry weather, driving the water with moderate force upon the leaves, with the object of removing the impurities that will have settled on them. As time goes on the pruning-knife will be called into requisition, to preserve the symmetry of the trees, and prevent an overgrowth that would interfere with the free circulation of air, or prove an inconvenient obstruction of light. Nothing that I could say on this subject would be strictly applicable to the

numerous individual cases which would continually arise. They must be weighed and decided on by the individual knowledge and good sense of an experienced practical gardener.

It may be thought that before concluding this paper I should say something about the humbler denizens of the garden—the bulbs and flowering plants which add so much to the beauty of our parks and recreation grounds. But this opens up a wide field, which can hardly be satisfactorily traversed within the limits of space at my disposal. I can only say that many bulbs and herbaceous plants are available here. By bulbs I do not mean merely Hyacinths and Tulips, to which we have been long accustomed, but to many things, as Scillas, Narcissus, Iris, Gladioli, Crocuses, and Snowdrops, which would do well if planted in rich sandy soil.

One strong reason for the use of bulbs is, that they can be brought to their work in a prepared and efficient state, and can be renewed yearly where necessary. Perhaps there are but few instances in which they would prove satisfactory if allowed to remain to flower a second year, when the previous year's growth had been made under the trying influences of a town atmosphere. The same may be said of some bedding and herbaceous plants—they should be renewed annually.

AN HOUR WITH THE HOLLYHOCK.

[This was originally published as a pamphlet, the second edition, in 1855. As it is nearly out of print, and will not be republished, I have ventured to introduce it here.]

THE Hollyhock (*Althæa rosea*) belongs to the natural order Malvaceæ, and in the Linnæan classification of plants we find it in the class and order Monadelphica polyandria. In the botanical catalogues it is described as a hardy biennial with red flowers, blooming in August

indigenous to China, first known in England in 1573. Dr Turner, however, in a work published in 1564 (nine years earlier!) speaks of it as a well-known plant. According to these authorities, then, whichever may be correct, it is no new candidate for popular favour. But we think it may lay claim to a still higher antiquity. Pliny, in the fourth chapter of his twenty-first book, writes of a Rose with the stalks of a mallow and the leaves of a pot herb. What can this be, if not the flower now under discussion?

The old English writers spelt the word *Hollihocke*, *Holyoak*, and *Holyock*, whence it is supposed to have been derived from the Saxon "*Holihec*." Linnæus considered it a distinct genus, and named it *Alcea*, from the Greek word *Ἀλχη*, in allusion to its medical properties, on account of which it was formerly much valued.

In a work translated from the German,* and published in London nearly three centuries ago, we have the following particulars :

"There be divers sorts of Mallowes, whereof some be of the garden and some be wild, the which also be of divers kinds. The garden mallow (*Hollyhock*), called the winter or beyond-sea Rose, is of divers sortes, not onely in leaves, stalkes, and growing, but in proposition, colour, and flowers; for some be single, some double, some white, some carnation, some of a cleere or light red, some of a darke red, some gray and speckled." Then follows a description, in which it is called "the Great Tame Mallow, with great round rough leaves, larger, whiter, and unevener than the leaves of the other hockes or mallowes. The stalke is rounde, and groweth sixe or seaven foote high or more. . . . The root is great and long, and continueth a long time, putting forth yeerely newe leaves and stalks." It is there called *Malva sativa* and *Rosa ultramarina*.

It is evident that at the close of the sixteenth century

* A new Herbal, or Historie of Plants, translated from the German of Rembert Dodoens by Henry Lyte, Esq., London, 1586.

the Hollyhock was much prized and generally cultivated ; for Gerard, writing at that time, states that it was then sown in gardens almost everywhere. In Gerard's Herbal (edition 1636) are three plates of Hollyhocks—"the Single Garden Hollihocks," which we assume to be the type of the garden varieties of our day ; "the Jagged Strange Hollihock," whence apparently have descended *Sulphurea palmata* and others of that strain ; and "the Double Purple Hollihock." The writer also speaks of another, "which bringeth forth a great stalke, of the height of ten or twelve feet, growing to the form of a small tree. The flowers are very great and double, as the greatest Rose or Double Peiony, of a deepe red color, tending to blackness."*

In Miller's "Gardeners and Florists' Dictionary" (London, 1724) we find the Hollyhock described as "a plant of considerable variety, bearing red, white, purple, black, and other coloured flowers. They neither want beauty nor stature, seldom bearing their flower-stems less than six foot from the ground, and are commonly garnished with their rose-like blossoms above half their height." . . . "Mr Bradley directs to plant them out into a rich ground, in either September or March, and then they will begin to flower in July or August ; and that in order to make their flowers large they should be frequently watered in the summer time ; though they die to the ground every winter, they spring again, and will stand several years ; and for their largeness and lastingness may very well be planted among the flowering kinds in wilderness works, or in lines in avenues of trees." Miller informs us that he received seeds from Istria, gathered from plants growing spontaneously in the fields : the plants raised from them bore single red flowers ; but other seeds received from Madras produced double flowers of various colours

* This last description applies with remarkable accuracy to some of our finest modern varieties.

Plants bearing single flowers might have been expected from seeds gathered in the fields; whereas the latter were probably selected from long-cultivated plants, whence the issue would, as a consequence, be more varied, and more highly organised.

It is scarcely necessary to say that the Hollyhock is not indigenous to Britain. Linnæus assigns it to Siberia; but China is generally given as its native place. In the south of China it is found only in a cultivated state; the northern parts and Chinese Tartary are more correctly the districts it naturally adorns. It does not appear to extend to Japan; for in Thunberg's "Flora Japonica" it is spoken of thus: "*Crescit ubique culta. Floret Iunio Iulio. Variat floribus, albis, rubris, plenis et simplicibus.*" The French ascribe it to Syria, and plants bearing yellow flowers have been found wild among the rocks around Kurreechane.

We think, from the evidence afforded, we shall not exceed the bounds of truth in claiming for our flower a three-hundred years' naturalisation on British soil. We can imagine how much it would be cherished on its first introduction, though the flowers were but single and probably dingy in colour. It was a stately plant, tall, majestic, and not without a share of rude massive grandeur, which would well adapt it for the decoration of early British gardens. As with most flowers of long standing, we have no sources whence to draw the materials for a history of its early development. Such events were not chronicled in the olden times; and hence, for want of facts, we must be content to suggest probabilities, and drop the early links in the chain of History. Starting from the period of its introduction, and allowing a few generations to be raised successively from seed in an improved soil, it is reasonable to suppose it would become varied in colour, and increase in size and fulness as the natural result of cultivation. This would likely obtain for it an enlarged circle of admirers, which would give fresh

impulses to the cultivator, and thus hasten on its civilisation. This state of gradual improvement probably went on for a space of 250 years, and might have continued to this moment, had not one cultivator stepped out of the beaten track, and, working free from professional trammels, followed a course of culture dictated by his own observation and experience. This man was Mr Charles Baron, a man unversed in garden literature, unused to move among the skilled in the hidden and mysterious art, and probably knowing little of the vegetable kingdom beyond what existed within the boundary of his own small garden plot. The Hollyhock was his favourite flower; to attend to it was his recreation; his labour was a labour of love. And thus a shoemaker of Walden, by concentrating his attention on a single species of plant, soon distanced all competitors, and originated those flowers which form one of the most striking and gorgeous features of modern flower gardens. To rightly appreciate his labours, we must not compare his seedlings, known as *Magnum Bonum*, *Rosea grandiflora*, &c., with those figured in Gerard's *Herbal*, in which the flowers, sparsedly scattered along the stem, nod and droop at the bidding of every breeze—for they had long been numbered with the things that were—but with those of other cultivators of the same date. The distinguishing characters of the kinds he originated are their more perfect form, greater substance, closer arrangement of petals, and greater proximity of the flowers on the spike. Hence, they would appear an advance in every important point. But we must not suppose this improvement to have been the offspring of a single effort. From month to month, and from year to year, did this indefatigable cultivator toil, and the result is a monument of *perseverance* as well as skill. As we look upon this flower in its improved condition, we cease to wonder at the rapid increase in the number of amateurs, for what other surpasses it in warmth of colouring, symmetry, and general magnificence? We

do not know that we could do better than quote here the remarks of a contemporary writer—"The Hollyhock for several years past has had much to complain of from the undue neglect with which it has been treated. Here and there it has found a discerning patron, but, generally speaking, the floral world has been influenced by a Dahlia excitement, from which it is now subsiding in sober disposition to judge all flowers by their respective merits. The Rose is again the queen, and the Hollyhock is again at court."* It is true the Dahlia, the Pelargonium, and others, have each their peculiar beauties, and their absence would create an immeasurable void in Flora's throng; the only pity is that they are robbed of their gay attire by the first breath of frost, while the hardy nature of the Rose and the Hollyhock carries them forward fresh and beautiful throughout the chilly months of autumn. When others languish and decay, they fearlessly confront the blast, their many-coloured blossoms often enlivening for a long period the desolation caused by a single frosty night.

It has been said that fine Hollyhocks are originated in Scotland and France. In the autumn of 1850 I saw the most celebrated collections in both countries, as well growing as on the exhibition tables. There are two distinct strains in Scotland. The varieties of the one strain, although superior to the common English kinds, are inferior to those of Mr Baron; those of the other have sprung from Mr Baron's stock. Some of them, while bearing different names, appear identical with the English kinds, which appearance is supported by the fact that certain kinds are reproduced true from seed. But if not identical—a point difficult to pronounce upon when we consider the variation of soil and climate—they certainly bear a close resemblance. It is not my wish to depreciate the varieties of Scotch origin. I have seen large and

* The "Botanic Garden," by B. Maund, F.L.S., No. 977.

handsome flowers in Scotland, remarkable for smoothness and brilliancy; but it must be told that northern and southern florists do not altogether coincide in their ideas of a perfect flower, and each judges according to his own standard. Moreover, the Scotch flowers do not improve in an English climate, and our flowers are probably better here than there.

Much has been said of the beauty of the French Hollyhocks (*Rose tremières*). We have taken considerable pains to visit the principal collections, to ascertain whether they were worthy of introduction to British gardens. Those of MM. Pélé and Bacot, both in the neighbourhood of Paris, are the best. They are superior to the old English varieties, but inferior to the modern ones. In conversing with the French growers, it was evident that the Hollyhock had not yet taken a very high standing in their country; they had not learned to view it critically; it had not, so to speak, become a Florist's flower; and hence any variety the *tout ensemble* of which produced a pleasing effect was cherished, without much regard to the individual points of form, colour, substance, &c. Some of the mottled or variegated kinds were pretty and distinct; but we could not discover any that would stand the test to which they would be submitted by the English florist.

It may be some gratification to the lover of this flower, in a utilitarian age like this, to be able to assert a claim for his favourite on the ground of utility. In the "*Flora Historica*"* we find the following: "The Hollyhock is likely to hold a higher rank in rural economy than that of feeding bees. For some years past it has been known that a good strong cloth may be made from the fibrous bark of the flower-stalks of this plant; and in the year 1821 about 280 acres of land near Flint, in Wales, were planted with the common Hollyhock, with the view of converting the fibres of this plant into thread, similar to that of hemp or

* Phillip's *Flora Historica*. London, 1824.

flax. In the process of manufacture it was discovered that the plant yields a fine blue dye, equal in beauty and permanence to the best indigo."

This historical notice will, perhaps, be thought sufficiently extended, and we proceed to lay before our readers a brief account of the culture of this flower. In passing, we may, perhaps, be allowed to state our views of the purposes to which the Hollyhock may be applied in garden-decorating, and the positions it is best suited to occupy.

We do not remember that we were ever more struck with the value of this flower for producing effect in garden scenery than by the sight of a round clump planted among groups of trees, shrubs, and dwarf-flowering plants, at Haddo House, Aberdeenshire, a seat of the Earl of Aberdeen. It was in October, and the foliage of the trees was surpassingly beautiful, the leaves had assumed the tints peculiar to that season, and, "touched by autumn, seemed as they were blossoming hues of fire and gold." The flower-beds beneath were in dazzling glow, scattered like so many separate pictures over the lawn, whose verdant and smoothly-shaven surface grouped them in a neat but agreeable frame. Beautiful as were these features, viewed individually, we felt a want of continuity, a sense of incompleteness, until the eye fell upon a group of Hollyhocks, which, towering aloft, blended harmoniously with trees and flowers, producing a perfect whole. In this instance various colours were placed in the same bed, which was in good taste; but we can conceive of circumstances in which several small clumps slightly dispersed, each filled with a single colour, would be more striking and equally effective.

The Hollyhock is a capital plant for the borders of plantations or shrubby walks; it forms a finer distant object in such situations than the Dahlia, is less lumpish, and continues blooming to a later period of the year. Again, it may be planted to advantage in the background

of an herbaceous border, so that the lower part of the stem is hid from view by the plants in front. In both these situations it may be planted singly, in irregular lines, or in groups of three or five. And here, perhaps, the less choice kinds are more in character than the finest, as a high state of culture is neither convenient nor expected. To be effective *en masse* is all that is looked for, and the showiest should be chosen, the hardy kinds of brilliant colours, and left to assume their natural form of growth.

It is sometimes said that it is not a suitable plant for small gardens. We think, however, it may be agreeably disposed there in avenues, or in groups of three or five near the boundary, filling up in front with dwarf shrubs, herbaceous, or summer-flowering plants. *It appears to us anything but difficult to effect such an arrangement with this plant as shall relieve the flatness often so tiresome in small gardens.*

The amateur, who cultivates with the view of producing the flowers or spikes in the highest state of perfection, will probably prefer planting in square beds or rows. This is convenient for shading, and places the whole under the eye at one time. If planted in beds, set them three feet apart ; if in rows, three feet from plant to plant, and four feet from row to row, that one may walk conveniently between them.

In regard to the soil suitable for the Hollyhock, it happily is not over fastidious in this respect. It is a gross feeder, as its fleshy porous roots and large soft leaves, with high perspiratory powers, abundantly testify. It is found to thrive well in common garden soil, although, if a choice is at hand, a rich moist loam may be preferred. We need, perhaps, scarcely say that a situation airy and freely exposed to the sun is indispensable if we wish to carry culture to the highest pitch of success.

As our remarks are intended for the guidance of the beginner, we will suppose him to have obtained a supply of plants in October or March, and from that period we

will trace their culture. First, let us ask, "Have these plants been raised from grafts, cuttings, or from seed?" Cuttings or seedlings we think preferable, where the correctness of the latter can be guaranteed by *the raiser having previously bloomed them*; but as some kinds only are reproduced true from seed, it is likely the stock will consist partly of plants raised from cuttings or grafts. One thing is certain, the stock should be renewed every year, either by purchasing or propagating. However abundantly old plants may bloom, they will not produce such large handsome spikes of flowers as young ones. Whether obtained in autumn or spring, they should be at once transferred from the small pots, in which they have been kept for convenience in removal, to larger ones, using a compost of turfy loam, sand, and decomposed manure, placing them in a cold pit until they may be safely planted in the open ground in May.

In preparing the ground for planting, it should be dug two-spit deep. Where spring planting is intended, throw up the earth in ridges in autumn, that it may become mellowed by the winter's frost. In all cases this practice is beneficial, but it is especially so where the soil is of close texture or retentive of moisture. A good dressing of manure, not too far decomposed, may be strewed over the soil previous to ridging, and mixed in during the operation. One advantage of this is, the manure will keep the clods light, and give the sun and air a free entry; and, further, the soil will become more evenly impregnated with the nutritious properties of the manure as they are washed down by the rain. One point, when planting, of too great importance to be overlooked, *is the state of the ground*. To use a common gardening phrase, the earth should "move like an ash-heap" at the time this work is done: rather would we wait a fortnight beyond the most advantageous season, than plant when the ground is wet or clammy. The plants should be set firmly in the ground three feet apart, not too low, pressing the soil well

round the neck with the hands or by a gentle stroke of the foot. This done, watering must be attended to if the season be dry, using weak liquid manure, breaking the surface of the ground with a hoe the day after the water is given. Frequent loosening of the surface of the soil is indeed an important part of culture, and should be attended to throughout the whole of the growing season.

Autumn planting is very good for the hardy free-growing sorts, provided the plants are sufficiently strong to be planted out early in October; otherwise we should advise their being kept in pots under glass during winter, and transferred to their permanent places early in May. Vigorous healthy plants of hardy sorts, when well established, seldom suffer much from the frost of winter when growing in the open air, provided the soil be well drained; but where the sorts are delicate, the plants feeble, or not well rooted, it is far otherwise. We know an instance of an amateur losing nearly one-half of his stock during winter, the plants being in the condition last described. In all cases it is a wise precaution to earth up the plants remaining in the ground at the close of autumn, that the rain may not settle around them; and if a few small hand-glasses can be spared to shelter any rare or delicate kinds, so much the better. *Bloomed* seedlings are almost invariably strong, and may be transferred to a permanent situation in the garden immediately that the flowering is over; other seedlings, whether raised in autumn or spring, should never be planted out until the end of April or early in May.

When transplanting is done in autumn, the plants should be guarded during the first winter against the injurious effects that may arise from changes of the weather. When a sudden thaw succeeds frost it is no uncommon thing to find the plants upheaved, and their roots partially exposed. It may sometimes be advisable to replant them; but in most cases the necessary end may

be attained by drawing the soil around them when dry, and pressing them gently back with the foot.

It is worthy of remark that the season of flowering may be greatly prolonged by striking and transplanting at different seasons. There is a great difference in the period of flowering between plants removed early in autumn and late in spring; and of this we may avail ourselves to lengthen the succession or to obtain a full bloom early or late, as particular circumstances may require. Early-rooted cuttings and old plants may be induced to bloom in July, and late-rooted cuttings and spring-sown seedlings in November. Hence there will be no difficulty in obtaining a supply of flowers for four successive months. This is a feature in the Hollyhock well worth noticing.

As is well known, many of our noble mansions are little visited by their proprietors except in the autumn and winter months, and every effort is required to make the garden as attractive as possible at those seasons. In such cases the Hollyhock is an indispensable flower, and should be planted in masses of colour, especially in those situations where seen from the principal walks or windows of the mansion.

Every flower has its enemies. The Dahlia has to battle with the thrip and earwig; the Pink and Carnation require protection from the wire-worm; the enemies of the Rose are "legion;" and the Hollyhock suffers from the slug. It is in winter and early spring that these creatures feast on the leaves with most relish; and as a preference is shown to the youngest the loss is all the greater, for they are most actively engaged in administering to the wants of the plants. Happily for us our enemy is not remarkable for agility. Slug-traps are numerous and well known to all who possess a garden. A pair of keen-eyes, aided by a bright light in the morning or evening during moist weather, proves a most effective method of checking their ravages. A less troublesome one is perhaps to strew a few cabbage leaves around the plants, beneath these the

little creatures take refuge, and may be easily caught and destroyed. Some are exceedingly minute, and to guard against them it is well to strew lime, wood-ashes, or soot around the plants.

Fogging of the leaves in winter is very prevalent among Hollyhocks. The plant is then in a state of comparative rest; the leaves are very apt to decay, and if they are not speedily removed the contagion spreads. As a preventive of this evil the frame should be set in a sunny place, and too much air can scarcely be given, provided moisture and severe frost be excluded.

As frost is not unusual in the months of April and May—the time we recommend for spring planting—the plants which have been brought from a frame will still require some protection. For this purpose an inverted flower pot answers admirably. It may be placed over the plant in the evening, and removed again with the rising of the sun. It should be borne in mind at this stage of culture that the Hollyhock is a lover of moisture, and water should be given abundantly, especially during dry weather.

But while paying proper attention to young plants from which we expect the finest blooms, we must not forget to administer to the wants of those which have gladdened us with their blossoms during the preceding year. The ground, especially if there have been many visitors, will be trodden firm, and should be well broken up with a fork early in March. A good dressing of manure should be worked in during this operation. The Hollyhock is not a flower that will long lie dormant beneath the influence of the sunny days of spring. Soon the flower stems begin to rise, and often so numerous that it is desirable to remove some. This should be done so soon as they are sufficiently formed to enable one to judge which will be the strongest. Allow no plant to develop more than three spikes, some two only, and a weak plant one. In all cases where growing for exhibition a single spike is sufficient, the object then is

to obtain as fine a development as possible ; but when growing to produce effect in the garden, the object is more thoroughly obtained by the dwarfer growth and greater body of colour produced by three or more spikes. To those lovers of flowers who object to the Hollyhock on account of the height to which the flower stems rise we would suggest a remedy. Instead of one, two, or three spikes, encourage four, five, or even six to rise, and when they have reached an approved height cut their tops off, and the habit of the plant will be entirely altered. If one spike is fixed in the centre and left taller than those which surround it the effect is highly pleasing. Beyond this there are many varieties naturally of a dwarf and bushy habit. The most of the leading modern kinds commence the formation of flower buds at about two feet from the ground. If the situation be at all exposed the spikes must be tied to stakes at an early period, the first tie may be advantageously made at the height of about fifteen inches. At this period of growth the wood of the stem is soft, and the tie should be made with a broad band of bast not twisted, and so made that it will slip up the stake as the stem rises. As the stem cannot be drawn close to the stake without injuring the flowers, two stakes will be necessary where one stem only rises from the plant. The stakes should be placed opposite, and the stem brought between them, so that the three objects form a straight line ; pass the bast round the stem of the plant, drawing it to the one stake, and perform the same operation a few inches higher up, tying in the opposite direction, and so on, tying to each stake alternately as the stem rises. When two or three stems rise from one plant three stakes will be necessary, and they should be placed triangularly, tying as before.

It is a peculiarity of the modern kinds to produce the flowers so close together on the stem that some must be removed or the whole become crowded, and press each other out of shape. It is therefore a good plan to remove

a portion as early as possible after the formation of the flower-buds; the nourishment which the supernumerary ones would have absorbed is then directed to the development of those which remain, and they grow to a larger size. A pair of long narrow-pointed scissors is an excellent instrument for this purpose, cutting the buds away close to the stem. Once looking over is scarcely sufficient; this branch of culture will require close and repeated attention during the rising of the flower-stem. In some instances, one-half of the buds require to be removed.

It is customary with some, and necessary where cultivating for exhibition, to shorten the spike by cutting off the top when it arrives at a certain height. This, again, increases the size of the flowers, but shortens the duration of the blooming season. Hence, we should recommend this practice only when large flowers is the chief aim of the cultivator, when from the habit of the variety or the richness of the soil there are signs of a too gigantic growth, or when, as before stated, the natural habit is considered objectionable.

Thus have we briefly passed under review the various practices of culture from the period of placing the cutting or seedling in the ground to the commencement of flowering. Hitherto all has been labour; not dull, uniform, or uninteresting, it is true, but cheerful, health-giving, varied, and amusing. Our operations have not been carried on in the unhealthy atmosphere of the laboratory, nor amid the discordant sounds of the mechanics' workshop. We have breathed unintermittingly the free fresh air, the blue vault of heaven above our canopy, our accompaniments the chirp of insects and the song of birds. Already, then have we reaped some reward; and such are the charms encircling floricultural pursuits that even our manual labour, decoyed by hope, is ever pleasantly and insensibly impelled. The winter season is, perhaps, the least interesting; there is then little to do, although that little is not unimportant; our joys are those of anticipation, and

reflection tells us that rest is necessary to ensure a vigorous growth and perfect development of flowers. In spring all is activity; our hopes rise with the growth of the plant, and by its blossoming are our expectations realised. And hope clingeth even around decay. We know that the flowers must fade ere the harvest can be secured, and to that end are we looking for the continuation of our stock and the rearing of flowers more distinguished for beauty. And this is one of a class of recreations that is obtaining so great a hold on the affections of our countrymen—a recreation which is made to fill agreeably the hours of relaxation, and to adorn the dwellings which they love. Other countries may surpass us in *the mere love of flowers*, but gardening, considered as an art, is essentially an English recreation. It accords thoroughly with the quiet contemplative character, domestic habits, and religious nature of an Englishman. And surely it is a source of gratulation to find the love of gardening, with its moralising and refining tendencies, spreading in every conceivable direction.

A few years since gardening was confined to the opulent, the man of leisure, or the curious. Now, few men of business are without their pet flowers—their Hollyhocks, Roses, and the like. Even our husbandmen, whose gardens are, as they should be, chiefly devoted to the useful, can yet find spare nooks in which to place the flowers they love. And whether they be the wild flowers of their native valley, gathered in their course to or from the scenes of their labour, or a few exotics, the gift of some kindly neighbour, they become alike tokens of industry and sweet memorials of home. Modern changes have made gardening comparatively inexpensive, and one of its greatest recommendations is its freedom from selfishness—its accessibility to all. Yes, indeed, the cultivation of flowers is one of the least selfish of human pleasures; it has a special tendency to subdue this dominant principle of the human breast. How few of the gardens of the wealthy

in this land are altogether closed to the public; and the number of visitors to them testifies at once their sense of the boon conferred and their appreciation of the beautiful objects they contain. And while the tendency of these visits is to improve and refine the less wealthy who may thus enjoy what their means does not enable them to possess, they promote a kindly feeling, and help to bind together the various classes of the community.

The flowering season, then, is at length arrived, and with what pleasure do we hail the first flowers as they break upon the sight. With their expansion we feel rewarded for the year's toil. What symmetry of form marks our choicest productions! What variation, what brilliancy, and what delicacy of hue, pervade the assembled mass! Well may we exclaim as we admire—

“Who can paint
Like Nature? Can imagination boast
Amid its gay creation hues like hers?
Or can it mix them with that matchless skill,
And lose them in each other, as appears
In every bud that blows?”

The interest increases day by day; every visit, however oft-repeated, discloses some new candidate for admiration—“something to please and something to instruct”—till from the solitary flower blushing at the base of the spike the flower-stalk rises a column of beauty. The spike, at the time of the expansion of the blossoms, is probably five or six feet high; and as we count the rows of embryo flowers which stud its length, and know that they will still expand, we wonder where and when our joys will end. The arrival of winter alone is likely to stay their unfolding, and that is too far in the distance to mar our present enjoyment.

It should be our aim to preserve the column as long as possible. If any flowers expand irregularly, of bad colour or form, they should be immediately cut out, when the

space created by their removal will be filled up by the fuller expansion of the surrounding flowers.

There is now an additional demand on our activity if the flowers are required for exhibition. One of the most urgent of the requirements of our favourites is a shade, to protect them from sun, rain, and wind. Where the plants are so disposed as to admit of it, a canvas awning is perhaps the best contrivance. Let it be so constructed that it may be drawn up and down at pleasure, and used only as a protection against rain and strong sunlight. But there are circumstances under which each plant may require a separate shade, and how shall we accomplish this? Four pieces of deal quartering, about an inch or an inch and a quarter square, may be nailed together in the form of a pyramid, and of a given height, according to the height of the variety. This placed over the plant, the lower ends are fixed firmly in the ground, and the part where the flowers are is covered with cheap calico dressed to stand the weather.* The bottom and top of this shade being entirely open, it is particularly cool; and being much narrower at the top than at the bottom, the flowers are well shielded from the sun and rain.

Now, for a time at least, we have little to do but to enjoy their beauty. If the weather be dry, frequent and copious waterings must be made; for the Hollyhock is a great consumer of moisture, and the water should be given in such quantity that it may sink into the soil to a considerable depth.

If the cultivator have the leisure, or be fond of employing himself among his flowers, he will find an

* The following glaze for calico is recommended by "The Gardeners' Chronicle."—"Three pints of old pale linseed oil, one ounce of sugar of lead, and four ounces of white resin. The sugar of lead must be ground with a small quantity of the oil, and added to the remainder, incorporated with the resin by means of gentle heat. Lay it on the calico with a brush. One coat annually is sufficient."

ample field for amusement in the crossing of the various kinds with the view of obtaining novelties and improvements. If this end be contemplated, we should advise a separate plot to be set apart, however small, that he may carry on his plans unmolested. Other advantages likewise accrue from this arrangement. First, no shading is necessary when growing for seed; it would, indeed, be injurious. Then the finest varieties may be set together beyond the fertilising influence of the inferior ones. Again, the best situation for obtaining seeds is a warm sunny border with a rather dry soil, but such is not the most suitable for the production of large handsome flowers. Perhaps we could not raise the question, "What constitutes a good Hollyhock?" more opportunely than at the present juncture; for without a distinct conception on this point much labour in hybridising will, to say the least of it, be but ill-directed.

Before discussing this point, I would offer, for the consideration of my readers, the "Suggestions for the Guidance of Exhibitors," printed by the Committee of the Grand Hollyhock Show held at the Surrey Zoological Gardens in August last:—

"Quality, rather than the size of individual flowers or length of spike, should be the first point of consideration.

"The petals of the flowers should be of a thick substance, the edges smooth and even.

"The florets forming the centre or ball should be compact, closely set, rising in the middle to the form of a half globe, with a stiff guard petal extending about half an inch around the base, or in proportion to the size of the centre ball, so that the different parts of the flower may have a uniform appearance.

"The arrangement of the flowers on the spike should be regular, not crowded together in a confused mass, nor loosely hanging with open spaces between them, but so disposed that the shape of each may be distinctly seen.

“When the spike is fully blown, the uppermost flower should crown or cover the top.

“A few small green leaves projecting between the flowers increases the beauty of the spike.

As a last point, it is highly important that the colours be bright, strong, and distinct.”

Here we have the collective opinion of the principal growers of the Hollyhock in England, both florists and amateurs. It will be observed, the first aim is to enforce the doctrine of quality before quantity ; and in this effort we believe all true lovers of the beautiful will sympathise ; for if an object is to be pronounced beautiful or perfect in proportion to its size, then should we prefer the unwieldy bulk of the hippopotamus to the delicate, graceful, and symmetrical organism of the Italian greyhound. Without objecting to any of the opinions given above, we may perhaps be allowed to qualify and more clearly define certain of them. The ball forming the centre of the flower should in no case exceed half a globe, and the smallest flower admissible should be five inches in diameter. Open spaces in the flower termed pockets are highly objectionable. We would not limit the length of the spike, and the longer the footstalks, provided they be strong and hold the flower well up to view, the better. In striped, edged, mottled, and shaded flowers, the ground and overlaying colour should be distinct, well defined, and free from all confusion. The guard petals should be flat, of great substance, neither ridgy, serrated, nor curled.

We think it will be tolerably evident to all who have a just view of the flower under discussion, that the distance of the ideal standard from the existing forms is sufficiently great to offer encouragement to the seedling raiser, and at the same time not so far removed as to be unattainable. The florist requires a stimulus beyond that presented by ordinary forms ; and why should not he be permitted to body forth an ideal beauty, as well as the sculptor, the painter, or the poet ? And who shall say his object shall

not be realised, drawn from the inexhaustible stores of nature? None, I ween. The florist is no mere dreamer. He may be an ardent thinker, but he is an ardent worker too; and he has a right to expect a rare though not unattainable success. Yes; reasoning from analogy, he has a right to expect this *as the result of labour*. Look at what has been accomplished in other walks of floriculture. Compare with the original species the Roses, the Dahlias, the Pansies, which decorate our parterres, and behold there the results of patient perseverance and unremitting skill. If the improvements in these flowers have been less rapid during the last few years, we must remember that they have long lain under the hand of the improver, and, as a consequence, much of the work is done. But with the Hollyhock almost a new field for speculation and experiment lies open before us; certainly this is no bare trodden ground; the grass is scarcely bent beneath our feet; the few alone have trampled on it. Why should we not unite in one flower the desired qualities now scattered over half-a-dozen? If we are seeking form and fulness, we shall find them in Beauty of Cheshunt and Honourable Mrs Ashley. By bringing these in contact with such flowers as Aurantia superba, Black Prince, and Napoleon, may we not possibly raise varieties which shall combine the shape and fulness of the former with the colours or habit of the latter? If we wish to obtain flowers of any particular colour, of increased size or substance, the most probable means of so doing is to unite that colour with a flower conspicuous for those qualities. Why should we not have the colour of Scarlet King in combination with the shape, size, and habit of Beauty of Cheshunt? or a Black Prince like Pourpre de Tyre? We have yet no flower of a golden yellow; none even an approach to orange! And although we do not aspire to the prevision of the prophet or seer, we venture to foretell the speedy acquirement of striped and laced flowers equal in beauty to the finest pink or carnation. Then as to substance, there is room for

improvement. Indeed, so many points crowd upon the mind that we fear we may become chargeable with partiality in thus particularising. But as we cannot pursue this argument further, we may just briefly say, that we certainly must not consider our work done until we realise *in every colour* the form of our ideal standard.

Let us suppose, then, that we are about to plant a seminary, and have decided that it shall contain twelve varieties: how shall we select them? The following have been chosen with the view to embrace every important feature of the flower in the greatest perfection:

1. Beauty of Cheshunt.*	7. Metropolitan.
2. Black Prince, improved.	8. Pourpre de Tyre.
3. Fireball, superb.	9. Professor Dick.
4. Glory of Cheshunt.	10. Walden Rival.
5. Honourable Mrs Ashley.	11. White Globe.
6. Lizzy.	12. Sidonia.

With these materials and a camel-hair pencil we are prepared for crossing. The best time for carrying on this work is the morning, so soon as the dew passes from the flowers. There are, perhaps, no varieties, however double, which will not yield stamens or styles to a close inspection. It is only necessary to collect the pollen from the stamens by passing the brush lightly over them, and to convey it to the flower required to produce seed, drawing a muslin bag over the flower after the operation. Such kinds as are not very double and seed freely, may be grown in a rich soil, and the spikes may be shortened, leaving, after thinning, about twelve flowers on each. Never allow a bad or imperfect flower to remain for seed; invariably pull off such immediately that it appears. The very double kinds may be grown in a poor soil. The spikes should not be shortened, but the flowers of all will require a plentiful thinning. As the flowers at the lower

* For the characters of these varieties see Descriptive Lists.

end of the stem die off, the petals should be drawn from the calyx, to prevent moisture from gathering round the seed-vessels, which would injure, if not destroy, the seed. Hand-picking is, perhaps, the best way of accomplishing this; and if the petals are ready to be separated, they will yield to a slight pull with the finger and thumb. Crossing may be repeated day by day, as the flowers expand, until we reach the top of the stem. The plants should be watered freely during the formation of the seeds; and as the latter ripen (the shrivelling of the calyx is a tolerably correct test of fitness) they may be gathered and tied in coarse muslin bags, separately or not as the cultivator may please, and placed in a dry, airy, sunny situation. With such as flower late the spikes may be cut from the plants and placed upright in a greenhouse, or under a south wall, where the seeds will ripen better than if detached from the stem. The seeds first gathered may be sown immediately, as there will be time for them to germinate and become strong before the commencement of winter. The bulk of the seed, however, cannot be sown to advantage before the spring; and early in February is perhaps the best time if flowers are required the same season. In both cases we would sow thinly in pots, placing them in a pit or house where they would command a gentle bottom heat; and so soon as four or six leaves are formed the seedlings should be transplanted, four round a 4-inch pot. Those raised in autumn may remain in a cold frame during winter, or if in a greenhouse, they should be placed close to the glass, exposed to air and light. Watch closely for slugs, and remove any leaves that may decay. In April they may be transferred to the spot where intended to flower; and to do them justice they should not be planted closer than two feet from row to row, and one foot from plant to plant. They should be watered and hoed frequently during the summer, and tying up can scarcely be dispensed with. They will flower in September and October of the same year; and

as any show themselves of inferior merit they should be destroyed, which will give the remaining ones more room for development. Some varieties come true from seed, or so nearly so that it would require the most practised eye to distinguish them; others come true in colour, but vary much in degree of fulness and general quality; while others again vary both in colour and quality—maroon flowers producing white, yellow, red and the like. The seed may also be sown out of doors during any of the summer months, but the flowering will not then take place until the summer and autumn of the following year.

We now proceed to offer a few remarks on propagation.

We know of but four modes of propagating the Hollyhock—(1) By seed; (2) By cuttings; (3) By dividing the roots; and (4) By grafting. The first mode has been already discussed: it remains for us to consider the others. Propagation by cuttings is the best mode of obtaining good plants, and the practice may be carried on from March to October. Most of the old plants give an abundance of young shoots early in spring; and so soon as these become a little hard they may be cut off close to the stem, leaving about three of the best shoots for flower-spikes. Place three or four cuttings around a 5-inch pot, in a rather light sandy soil. Plunge them in a close frame, where in a few weeks they will have formed new leaves and roots, and may be potted off, each in a separate 4-inch pot. As fresh shoots form on the old plants they may be treated similarly, up to Midsummer, after which period we would prefer leaving the wood to become quite hard before making the cuttings. In the latter case a single eye is sufficient to make a plant; but the wood-shoots, and not the flower shoots, should be chosen. It sometimes happens that the eyes developed at the base of a main spike produce wood-shoots, but they more usually produce flower-shoots. The latter take root and form plants, but are not of the best description. Cuttings made from single eyes may be cut

obliquely at the lower end, and completely buried beneath the soil, leaving the foot-stalk only protruding above; they should then be placed in a close frame, and the eyes quickly push through the soil, and form stout healthy plants. These when rooted may also be transferred to single pots, there to await transplantation in autumn or spring, as before recommended.

Propagation by division is best carried out in autumn, immediately that the flowering is over. A large well-ordered plant may sometimes be divided into several, but in general three or four is a more advantageous number. Nothing certainly is gained by breaking the old plants into too many pieces: every separate part should carry with it a good share of roots. Seedlings and others that may bloom late cannot be divided till the spring. March is perhaps the best time, and the fragments, if not broken too fine, will flower well during the first autumn.

Propagation by grafting may be performed to greatest advantage in spring. Dig up any old plants not valued for blooming, and cut off the fleshy roots about the thickness of the little finger into inch or two-inch lengths. On these graft the young shoots, inserting the place of junction beneath the soil, giving to each a separate pot, and placing them in a close cold frame. This mode of propagation we describe, but do not recommend. Plants raised from cuttings or seeds are certainly preferable.

It is but the few who grow for exhibition, but they are often the most ardent cultivators; and we must say a few words on this subject ere we conclude.

There are two modes of exhibiting Hollyhocks—by single flowers, and spikes. Some cultivators have advocated the withdrawal of prizes for single flowers, and depending on spikes alone. It is freely admitted that the exhibition of spikes creates a greater display, and affords a truer idea of the nature and properties of the flower. On this ground, then, we admit the desirableness of encouraging this mode of exhibiting, but doubt whether

the entire exclusion of single flowers will not prevent many amateurs from entering the list as competitors. To exhibit single flowers does little damage to the garden at home, and they are easily conveyed to the place of exhibition. To exhibit spikes requires too great a sacrifice where a few plants only are grown; and moreover, they form, however closely stowed away, a somewhat cumbrous package. We know that many amateurs derive as much pleasure from the gratification they afford others by their pursuit, as in marking the brilliancy of colour and symmetry of form, or inhaling the sweets of their favourite flowers. The most emulous of such would pause ere he cut seven spikes of his finest kinds from a limited collection. He could not reconcile himself to behold tarnished in a day what would have given pleasure for a lengthened period had the spikes been allowed to remain on the plants. We think, then, there should be two classes, one for spikes and one for single flowers. Make the former the more valuable prize, as it deserves to be, but do not exclude the latter.

The spikes exhibited usually vary in height from two to four feet. The flowers near the base of the stem are generally the finest (although this depends in some measure on the state of the weather in which they are formed and expanded), and consequently the aim should be to preserve such. To this end all lateral flower-spikes should be destroyed, and the top cut off the main about four feet from the lowest bud, *at the time this expands*, that the flowers may close over the top and the spike look complete. This, which is called "crowning" the spikes, is most essential when cultivating for exhibition. It is an operation of some nicety; not that it is difficult to crown the spikes, but difficult so to manage them that they are in perfection on a given day. Practice is the best guide; indeed the end can only be attained with certainty by the best considered practice. By shading, the greater part of the spike may be kept in a showable condition for

ten days or a fortnight. In choosing for exhibition, whether spikes or single flowers, we should be guided by the standard previously laid down ; the nearer the flowers approached to that the more perfect should we consider our stand. It may not be necessary for the mere cultivator for amusement to dive so deep into the science of floriculture ; this of course is a matter of choice ; but the *exhibitor* should certainly obtain a clear conception of what constitutes a good flower before he enters the field of competition.

The Hollyhock had, perhaps, scarcely been exhibited in its grandest state until recently, owing to the Dahlia shows at which it had usually figured falling behind the period of its greatest beauty. To those, however, who witnessed the exhibition at the Surrey Zoological Gardens on the 22nd of August last year, nothing need be said in its praise as a stage-flower. The beautiful columns of brilliant and well contrasted colours, relieved by the quiet protrusion of numberless small green leaves, formed a picture which a Baptiste or a Lance might have rejoiced to look upon and longed to copy. And while listening to the opinions of various amateur and professional cultivators as to the result of this first attempt at a "Hollyhock Show," one pronouncing this flower to equal the Tulip in brilliancy and beauty, another extolling the richness, variety, and quantity of colour presented to the eye, all agreed that the attempt was decidedly successful, and that the Hollyhock would henceforth rank as a first-class exhibition plant.

Let us now consider what is the best description of box for conveying the flowers in. As it will not be required to show them in, but merely to protect them during transition, the more economically this can be contrived the better. It may be made of three-quarter inch deal, the boards closely fitted to exclude dust, rain, &c. The length should not be less than four feet, and a box to hold seven spikes should be three feet wide and fourteen inches

deep ; a common lid, with shifting hinges, lock in front, and handles at ends, complete the shell. The interior fittings are trifling. About three inches from one end a second end must be made with holes bored thus

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large enough to receive the lower end of the spike, which, when placed there, must be tightly wedged, filling the space between the two ends with wet moss. Now, at the other end of the box a false end is necessary, formed of three pieces, the lowermost fixed, the others moveable at will, and made to slide up and down in a groove, with holes corresponding to those in the opposite direction. These holes should be bored on the exact line where two pieces meet, so that when the centre piece is removed, the half of each hole is withdrawn with it. In these holes drop the small end of the spikes, surrounding the part in contact with the wood with wadding before sliding down the corresponding piece. Flowers thus packed have travelled from London to Edinburgh without receiving the slightest injury.

The best contrivance for showing the spikes is perhaps in large pots filled with wet sand and nicely covered with green moss. When single flowers are shown, a common box, such as is used for Dahlias, Roses, and the like, is all that is required.

THE HOLLYHOCK.

[From "*The Gardeners' Annual*," 1863, p. 56.]

CAN we dispense with the Hollyhock? The Rose is a more general favourite, and in its varied states of standard, climber, and bush, a more available plant ; the Dahlia is still the "Queen of Autumn," but for the odd nooks and corners in small gardens, and for planting in

masses for distant effect in large gardens, there is no flower so suitable as the Hollyhock. As to the height to which it grows, this cannot be fairly urged to its disadvantage; there are positions in almost every garden for which this feature renders it peculiarly adaptable. The best of our "bedding plants" are of lowly growth; we must look down upon them to appreciate their beauty. But we cannot always be looking down, be the prospect ever so charming. And there is a new feature of beauty in that garden where on raising the bent head and down-cast eye we meet with spikes of Hollyhocks breaking the flatness of the general surface by streaks or lines of rich and varied colours rising high among the leafy trees. In many beautiful gardens that we have visited we have been more than disconcerted by the abrupt transition from "bedding plants" to trees, moderated as this has sometimes been by raised baskets and pillars of summer climbers. Beautiful as are these latter they are not sufficiently massive. The Hollyhock, and, as far as we know, the Hollyhock alone, effectively fills the vacuity. We know that it has been the fashion with some to decry this plant, calling it coarse, formal, and weedy. Admitting that there is some truth in this, may we be permitted to ask, is it not also bold, striking, and effective, and are not these elements worth combining, at some sacrifice, with the rich, the bright, the beautiful?

Thus far of its value in garden scenery. But it has lately come to be considered as a florist's flower. The busy brain and hand of the cultivator have been engaged in its improvement, and those who remember the Hollyhock of twenty years ago cannot fail to remark how complete has been the success. Not only has it become even more useful and effective for garden decoration, but it has received a degree of elegance and symmetry from the hands of the cultivator that has fitted it to take a position in company with the most distinguished of Flora's subjects.

The Hollyhock flowers naturally in August, but by a little management the bloom may be prolonged, and continued from July to November. Old plants that have bloomed the year before will bloom the second year in July and August. Cuttings taken and rooted, or seed sown out of doors the previous summer, will bloom in August and September. Seed sown in pans as soon as ripe, and wintered under glass, will bloom in October of the following year. By using these three sorts of plants a succession of flowers may be kept up. If an early bloom only is required, old plants must be planted; if a late bloom, young plants and seedlings.

In planting for effect we would always recommend planting three or more of the same sort close together in a group, choosing the clearest and most distinct colours, and those which produce the densest and broadest spikes. When growing for exhibition the form of the flower is of course the primary point for consideration, and here it is usual to plant in lines 3 or 4 feet apart, that the culture of the plants may be more carefully and more conveniently attended to. There are some sorts which are alike suitable for exhibition and garden decoration, but both objects can scarcely be attained conjointly. But as to culture, the Hollyhock is not particular in regard to soil; it will grow and flourish almost anywhere. The finest spikes we have yet seen were grown on a strong moist loam that had been deeply trenched, richly manured, watered in dry weather, and well cultivated by frequent and deep hoeing.

Cuttings of Hollyhock, single eyes taken in July and August, and placed round pots in a cold frame, will root in a month, and may be placed in single pots and stored in a cold frame through the winter, repotting into larger pots in February, and planting out in April. Seed should be saved from the best formed, the smoothest, and the most double varieties only, and to insure a fair crop of seed it is necessary to pull the flowers from their stalks so soon as the former begin to decay.

There are two seasons at which the seed may be sown; first, in July, in the open ground, the seedlings to be transplanted or not according to the convenience of the cultivator; and secondly, in October, in pans, to be potted into single pots in November, and kept under glass till planted out in April. If the seedlings sown in the open ground are to be transplanted before flowering, October is the best time, and next to that April.

In planting out, whether from the ground or pots, a showery day should be chosen, and after planting, the stems should be surrounded with a little stable manure. If the weather or soil be dry, water copiously till the flowering declines. The Hollyhock, with its large surface of leaves and great perspiratory powers, consumes a great quantity of water, especially at that period of its growth, in June and July, when the leaves so rapidly increase in size. So soon as the spikes rise from the crown of the plants, stakes should be driven in at least 2 feet deep, and allowed to remain the same height above the ground, which is sufficient to hold any spike, and will not interfere with the flowers. One, two, or three spikes may be left to each plant, remembering, however, that the fewer the spikes the larger will be both spikes and flowers. Sometimes the flowers are so thick on the spike as to interfere with the expansion of the guard petals. In such cases thin out the flower-buds when about the size of a nut. Tie up with strong bast from time to time as the spikes rise. Top the spikes at any given height; in sheltered situations they may be allowed to rise to 9 feet, but where much exposed to wind, 7 feet should be the maximum. Shading is necessary if growing for exhibition, especially with the delicate-coloured varieties, which quickly soil if exposed to sun, wind, and rain. Fortunately this soiling is not sufficiently great to interfere with the effect of the spike in the garden, and as shading is troublesome and unsightly, it may well be dispensed with except where growing for exhibition.

Some few years ago the Hollyhock suffered great depreciation from being attacked by a disease which baffled the skill of our best cultivators. Thousands of plants, both young unbloomed seedlings and named sorts, suddenly decayed, often just as the first flowers were expanding, when it was impossible to refill their places. This, we believe, was attributable to the unwholesome plan, too generally adopted, of forcing the plant, causing it to grow out of season, and in a close unnatural atmosphere, in order to obtain a more rapid and extensive increase by root-grafting. If we have rightly studied the vegetable kingdom, there are few plants will bear this strain put upon them without suffering a diminution of vital power, not always quickly recovered, but often conveyed downwards to the offspring, alike through cuttings and seeds. Certain it is that by the discontinuance of this practice the disease gradually disappeared, as far as we know, and is now almost extinct.

THE HYACINTH.

[From "*Proceedings of the Royal Horticultural Society*,"
1862, *Vol. II.*, p. 611].

OF the many candidates for popular support in the present extended list of garden favourites there are few receiving more attention at the present time than the Hyacinth. Its beauty, fragrance, and variety are so many separate points of attraction, and the season at which it blooms is worthy of especial consideration. By the appearance of the Hyacinth winter is driven from its last strongholds, and the garden suddenly rejoices in all the brilliancy of a summer parterre.

Then the plant is of such easy culture, that while the highest attainments in the art may be reserved for the

patient exercise of skill and industry, the "prentice hand" in gardening may reasonably expect to attain to fair and satisfactory results. In a word, the plant is more manageable than many of its compeers, and hence there is less fear of failure from the oversight of any of those little kindnesses and attentions which the skilled horticulturist knows so well when and how to apply.

In treating of the culture of Hyacinths, three separate points occur to me:—(1) The possession of good bulbs; (2) the season of planting; (3) after culture; and these I shall proceed to discuss separately.

I.—GOOD BULBS.

The best Hyacinths are imported from Holland. A more beautiful sight could scarcely be conceived than the gardens in and around Haarlem in the spring and early summer months, with their acres of ground radiant with millions of Crocuses, Tulips, and Hyacinths; blue, white, red, and yellow, of the richest and most varied hues, the more grateful to the eye, and the more impressive, because following so closely on the footsteps of winter. As is well known, the culture of the Hyacinth and its allies is a specialty in Holland. I do not see why it should not be the same here, as the differences in some localities, climates, and soils of England, appear to me insufficient to account for it not being so.

Perhaps our horticulturists are too much occupied with other matters, and certainly it would be *commercially* unwise to enter the field against such skilful and indefatigable contemporaries without first acquiring a thorough knowledge of so distinct a branch of the art of gardening. We may, and I believe do, grow and bloom them as well here as there. But the question remains, can we bring bulbs *of our own growth* into the market of the same quality and at the same price? The answer is, not at present. We can, in the present state of our knowledge and practice, buy and sell cheaper than we can produce.

The Hyacinth being a bulbous plant, the sources of supply, at least during the early stages of growth, depend on the nutriment stored up in the bulb the year before. Thus it will be inferred that it is as important to obtain good bulbs as to grow them well when obtained. And I would here caution the cultivator against placing too much confidence in large bulbs. True, if a bulb is sound, solid, weighty, and well stored with eliminated food, the larger the better; but there are many large, showy, *frothy* bulbs sold every year in Holland and in England which fail before these tests, and which it requires a practised eye and hand to apply. Then again there are some beautiful sorts of Hyacinths—of which Grootvorst is a familiar example—which seldom produce large handsome bulbs. On the other hand, there are some indifferent kinds which generally produce bulbs of great size and beauty. But further, bulbs of the same kind differ in value in the hands of different cultivators. In proof of it we need only adduce one fact—and whether it be attributed to the greater skill of the cultivator or to the superiority of his soil, the fact remains—that there is a difference of 20 per cent. in the prices of the different growers, and the highest priced stock always commands the readiest market.

Having laid the foundation of a successful culture by the acquisition of good bulbs, let us pass to the next point.

II.—THE SEASON OF PLANTING.

The natural period of rest for the Hyacinth is from June to October. If planted before the latter month, the shortening of the natural period of rest diminishes the vigour of growth and the beauty of the flowers. So if the planting be delayed far beyond that period, however well the bulbs may be kept, growth commences, the bulb feeds on the deposit of the previous year contained within itself without the means of recruiting the supply, and a loss of power is the consequence. Plant then in the month of October, applying a greater or less degree of heat, according

to the season or seasons at which the flowers are wanted. If a very early, a very late, or a long succession of bloom be required, some should be planted earlier and some later, but the month recommended above is the best if the finest possible bloom is required, without regard to any definite period.

III.—AFTER CULTURE.

The culture of Hyacinths falls naturally under three heads—1. in pots ; 2. in glasses ; 3. in the open ground.

1. *Hyacinths in Pots*.—It is a matter of no small importance to secure a suitable soil, for although the plant in the first instance feeds on itself, the roots, once in action, draw largely from the soil in order to replace the nourishment withdrawn from the bulb. A sandy loam should form the bulk of the soil, but such being usually poor, it must be enriched by a plentiful addition of manure. Cow-dung is the best of manures for the Hyacinth, and it is a good plan to obtain it in a fresh state, mixing it with the loam six months before required for use, turning the whole over two or three times in the interval that the different substances may be well mixed together. When planting, place the bulb in the middle of the pot, setting it quite upright on a small bed of sand, and so that the apex of the bulb may be half an inch above the level of the soil. Soak the soil with water and when well drained place the pots, in the first instance, out of doors on solid ground that worms may not enter.

Surround the sides of the pots with cinder ashes, and cover the top with about six inches of the same material. In about two months remove the pots to a cold frame, covering with a mat for five or six days to avoid a sudden transition from darkness to light. When the mats are withdrawn give more or less air, according to the season at which the bulbs are wanted to flower, bearing in mind that the more air given the better, provided the frost be completely excluded.

The long drooping leaves which we see with some cultivators is due to a too warm or too close atmosphere. So soon as the flower-spike rises, a stiff wire should be passed between the bells the whole length of the spike, the lower end bent outwards till it reaches the circumference of the pot, winding it round the outside of the pot beneath the rim to keep the spike upright and steady. Plenty of water should be given from the time the leaves begin to grow till the flower shows symptoms of decay, when a gradual diminution should take place.

When the leaves turn yellow, water should be entirely withheld, and the bulb should be taken from the pot at the end of July, and stowed away in a dry place for planting in beds the following year. The same bulbs can scarcely be recommended for planting in pots or glasses a second year, but are very good for planting out of doors. Masses of Hyacinths may be planted in ornamental pots or baskets, forming the whole mass of one colour, or the centre and circumference of different colours; and thus ordered, they are at once elegant and effective.

2. *Hyacinths in Glasses*.—Under this form of culture we have in the Hyacinth the most beautiful of house plants in winter and early spring, arriving at the same degree of perfection in town and country. The single kinds, to my eye always the most beautiful, are especially preferable for glasses on account of their greater earliness and hardihood. Soundness of bulb, at all times important, is more than commonly important here. Set the bulb in the glass so that the lower end, whence the roots are emitted, is almost, but not quite, in contact with the water. Use rain or pond water. Keep the glasses filled up as the water sinks by the feeding of the roots and evaporation. It is a general practice to place Hyacinths in glasses in a dark cupboard or some other place where the light is excluded, and a very good practice it is, for the roots feed more freely in the dark, and thus the system of the plant becomes better stored with food. They may remain in

this situation for one or two months, according to the temperature in which they are placed, and should not be too suddenly transferred to the light. Here, as with Hyacinths in pots, when the flowering is over the bulbs may be brought gradually into a state of rest by a diminution of the supply of water. This done, dry them, store them away, and in due season plant them in beds out of doors to bloom there the following year.

3. *Hyacinths in the Open Ground.*—I have never yet seen so much done with the Hyacinth as an out-of-door plant as I conceive might be done on principles similar to those which have been so admirably carried out in regard to “bedding plants.” We have here red, white, and blue—to say nothing of the so-called yellow—of innumerable shades. Surely there is ample material for a more extended application of those principles, especially if the aid of the Tulip be called in. The Tulip gives an abundance of yellow, a colour deficient in the Hyacinth. By the combination of these two flowers, a gorgeous and complete flower-garden may be had in spring as well as in summer, and neither a repetition of the other, but each a change.

The Hyacinth is an admirable spring flower. It suffers less from wind and snow, from sleet and hail, than many hardy spring flowers; indeed, almost less than any other. To-day the snow falls and the plant is hidden and frozen; to-morrow the sun shines, and it is as erect and bright as ever.

Hyacinths out of doors should also be planted in the autumn (November). Let the apex of the bulb be placed four inches beneath the surface of the soil, and after the soil is put on add two inches of decomposed manure as a security against severe frost. In February, when all fear of severe frost is gone, the manure may be removed. The same soil as that recommended for pot culture is suitable for Hyacinths out of doors. But it may not be generally convenient to remove and replace soil in the

flower garden. Well, this is by no means a *sine qua non* of success. We recommend it, but do not insist on it. The convenience of the cultivator must determine the matter. But if a soil be unusually light and poor it should be enriched and watered abundantly; if close and heavy it should still be enriched, and will usually be improved by mixing with it a good proportion of clean road or river sand.

ZONAL PELARGONIUMS IN WINTER.

[From "*The Gardeners' Chronicle*," December 8th 1866, p. 1163.]

THE rain of a gloomy December day has driven me into my house of Zonal Pelargoniums, now in full bloom. I am temporarily a prisoner, but cannot be idle. How beautiful these Pelargoniums are! how gorgeous the colours! and what a contrast they present to the leafless trees and sombre evergreens which I have just quitted. Scarlet and other warm coloured flowers which abound here, seem to me particularly cheering in winter. I know of no flower, not even the varied and gorgeous Chrysanthemum, more lovely; and there is none so useful for bouquets at this season of the year. Conspicuous among them for freedom of flowering, and variety and novelty of tint, are Beaton's Hybrids and their successors, which are literally covered with trusses, and seem as if they would go on blooming throughout the winter. Judging from present appearances, I think I am right in assuming that these hybrids bear the same relation to the ordinary Zonals that the Perpetual Carnations and Perpetual Roses do to the common kinds of those flowers. On analysing them and arranging them as to colour, what a charming variety they afford! Of pure whites, Madame Vaucher and Virgo Maria are perhaps the best; Bride is white with a crimson eye, and Madame Werle is creamy-white laced with crim-

son ; Peach Nosegay, dark lilac, is particularly lovely, and Village Maid, which is of a clear deep pink with a large well-defined white spot on each upper petal, is a very decided advance on Helen Lindsay and Mrs Whitty ; Mrs Wm. Paul, for size and form, is conspicuous among the light pinks. Alexandra and Dr Hogg are the best among the bluish purples. Perhaps the greatest gain among Beaton's hybrids and their descendants, is the multiplicity of rose colours of various shades—colours previously unknown among Zonals ; Monte Rosa, Naiad, Zephyr, Dryad, Amy Hogg, Celestial (very lovely), Wood Nymph, and Tiara are beautiful in this class. Indian Yellow is still alone as a yellowish orange, and Salmon Nosegay is a distinct and pleasing colour, prolific and showy. Among the various shades of carmine and cherry-colour, Duchess, Banneret, Minstrel, Rebecca, and Waltham Nosegay are pre-eminent. Of orange, Nimrod, Sir Joseph Paxton, Prince of Orange, and Orange Nosegay are the best. Of scarlets, we select Cardinal, Waltham Pet, and Dr Lindley. And lastly, of blood-crimsons, remarkable for depth and solidity of colour, there are Ossian, Crimson Queen, and St George. Here are 34 varieties selected for perpetuity of flowering, and described as they now are, which it will be readily conceived is not exactly as they appear out of doors in summer. But though different they are equally beautiful, many of them even more beautiful. The rain having ceased, I end my sojourn in this Pelargonium house by gathering a bouquet of the flowers, adding thereto a few leaves of the plain green, the black zone, the red zone, the gold, and the silver, which the above or others in company with them furnish. While doing so I have been brushing against Shrubland Pet (Beaton's again), and the house is filled with odour. I add a few leaves of this, and walk off with a bouquet fit for a princess. Meeting a great amateur gardener in my way, he supplies me with a practical deduction from the principles revolving in my mind by

saying—"Well, well, this is beautiful; I must add these flowers to my future 'winter list.'"—"Yes, my kind friend, indeed you must; at least, if I mistake not, you are not likely to reject a new idea that will add so much to the beauty of your garden in winter."

But something remains to be said as to the culture and management of those plants, which fortunately involves no new study or complicated arrangement. Buy or strike young plants in May or June. Continue to repot them into larger pots as the roots fill the pots they occupy, till the end of July. Pick off the trusses of flowers before expansion during June, July, and August, encouraging a free growth, till by the end of September the plants are covered with new trusses beginning to expand. Now, wherever the plants may have been grown, whether out of doors or in-doors, remove them to a light airy house, continuing to water freely, and using just so much artificial heat as may be necessary to dry up the moisture of the house, which if in excess damages the flowers. Do not water the leaves nor spill water about the house. Give plenty of air in fine weather. By following this plan certain Pelargoniums may be had under glass at mid-winter, as gay and beautiful as in our parterres in summer.

LECTURE ON SPRING FLOWERS.

[Delivered by the request of the Council of the Royal Horticultural Society at South Kensington, March 21st 1865.]

THE subject which has been proposed for my Lecture, and which I readily accept, is the CULTIVATION OF SPRING FLOWERS. There is so much poetry in those words—Spring Flowers—that I find it difficult to refrain from indulging a sentimental mood. The first flowers of the garden and the first warblings of the grove are inspiring themes to the dullest fancy, and to those least sensible of

the stirring of the poetic muse. I am bold to confess this, undaunted by the recollection of the sensations of Hamlet and Horatio in their midnight watch on the platform before the Castle at Elsinore—

HAMLET. The air bites shrewdly—it is very cold.

HORATIO. It is a nipping and an eager air—

undaunted too by what our great humourist, Hood, has said in his poem on Spring :—

“Come, gentle Spring ; ethereal mildness, come ;’
Oh ! *Thomson*, void of rhyme as well as reason,
How could’st thou thus poor human nature hum—
There’s *no* such *season*.

Let others eulogise her floral shows,
From me they cannot win a single stanza ;
I know her blooms are in full blow,—and so’s
The Influenza.

Her Cowslips, Stocks, and Lilies of the Vale,
Her honey-blossoms that you hear the bees at,
Her Pansies, Daffodils, and Primrose pale—
Are things to sneeze at.

In short, whatever panegyrics lie
In fulsome odes, too many to be cited,
The tenderness of Spring is all my eye,
And *that* is *blighted*.”

Now, I am not disposed to quarrel with the poet for drawing so desolate a picture of an English spring ; on the contrary, in his facts and fancies I think I find powerful reasons for the extensive cultivation of spring flowers. Our gardens *may be* decorated and enlivened, our hearths and halls perfumed and adorned by the grateful odours and brilliant tints of early flowers.

Spring flowers are not cultivated so extensively as they should be in English gardens. There is no reason why our gardens should be so bare and desolate as they generally are in spring. Every country mansion which is

tenanted in the early months of the year might have a garden of gay spring flowers exclusively, or one in which they were largely combined with evergreens—green, variegated, and berry-bearing. Such a garden should partake of the romantic and picturesque—wood and water, rock and dell—rather than of the trim and formal. I would gather the Primroses, Violets, and other hedge and wayside flowers, and intermix them with such exotics as flower in spring, and are found suitable to our climate out of doors. There may be reasons, however, why it is not desirable to give up a portion of the garden for the exclusive use of spring flowers. Be it so. There is still no reason why spring flowers should not be abundantly cultivated. They may be planted in the ordinary beds of the flower garden, and removed when the season arrives at which it is customary to plant out Pelargoniums, Verbenas, and other summer and autumn-flowering plants. Or they may be planted in front of the evergreen beds or borders which exist in most flower gardens, and thus the general garden will be made gay and interesting in spring as well as during the other seasons of the year.

For the sake of convenience in the discussion of this subject, as well as to assist the memory in the recollection of details, I propose to arrange "Spring Flowers" under two heads:—first, *Hardy Spring Flowers*, or such as bloom naturally out of doors in the months of February, March, April, and May; and secondly, *Greenhouse and Hothouse Spring Flowers*, or such as bloom naturally at the same season, but require the protection of glass.

Of flowers which bloom naturally out of doors in spring, bulbous plants form a very important class. Of these, the Crocus, Snowdrop, Snowflake, Scilla, Hyacinth, Tulip, and Narcissus take the highest rank. Their culture is simple. They may be planted in beds or borders in the garden out of doors late in autumn, and prefer a rich loamy soil. They should be set so far beneath the ground, say from 4 to 6 inches, as to be beyond the reach of the winter's frost,

and if the weather prove more than commonly severe, an additional covering of loose straw is no bad contrivance to secure efficient protection. Bulbs or bulbous plants thrive best under this peculiarity of culture ; they should be taken from the ground in summer so soon as the flowers and leaves are completely decayed, dried in the sun, laid up in a dried room or storehouse, and replanted again in the course of the autumn months.

The Hyacinth has already been made the subject of a lecture. I need not therefore refer again to that.

Crocuses and early single Tulips have been greatly improved of late. Those who are not acquainted with the modern kinds will be surprised and delighted with their increase in size, and the colours are now exceedingly varied, rich, and splendid. The *Narcissus* known as *Gloriosa* is also a valuable addition to spring flowers on account of the large handsome heads of white and yellow blossoms which it produces, and the *Narcissus* minor and *N. Bulbocodium* are also beautiful plants of lowly growth.

Another important variety of spring flowers exists among what are commonly termed "perennials or herbaceous plants." The Alpine *Auricula*, *Polyanthus*, *Alysum*, *Saxifraga granulata*, *Cheiranthus Marshallii*, *Iberis*, *Primrose*, *Hepatica*, *Pansy*, *Daisy*, *Violet*, *Forget-me-Not*, *Anemone*, and others too numerous to mention, are of this class. These plants are not generally particular as to soil, provided it be not too moist. They are usually allowed to remain permanently in the ground unless it is wished to increase their number, when the roots are taken up and divided shortly after the flowering season ; some may also be propagated by cuttings, others by seeds. The single *Anemone*, which, judiciously treated, becomes one of the most beautiful spring flowers, thrives wonderfully from seed. If sown in spring on a bed of light earth, the seeds barely covered with sandy peat, a gorgeous crop of flowers of rich, brilliant, and varied hues will adorn the garden in

the following spring. The Alpine Auricula, the Polyanthus, the Primrose, and the Pansy may be treated in the same way, the last-mentioned succeeding admirably from cuttings also.

There are some beautiful varieties of Pansy in use at the gardens at Cliveden, the seat of the Duchess of Sutherland, of various clear and decided colours, which are invaluable as spring flowers on account of their hardy nature and profusion of bloom. Nowhere has spring gardening been carried out with so much spirit, perseverance, and success as in the extensive and beautiful gardens just alluded to, where, under the able management of Mr Fleming, the usual gay scenes of summer, with their odorous accompaniments, are realised in early spring. Mr Fleming's admirable little book, "Spring and Winter Gardening," in which his practice is clearly and pleasingly detailed, and of which I am informed a new and enlarged edition will shortly appear, is well worthy of study by those who may wish to enrich their gardens with fresh stores of spring flowers.

Again, hardy annuals, which are usually sown in spring to flower in summer, may be sown in autumn to flower in spring. A host of valuable spring flowers is derivable from this source at a small cost of money and labour. Candytuft, Catchfly, Erysimum, Gilia, Nemophila, Saponaria, and Virginian Stock are amongst the hardiest and best for this purpose, but the number and variety may be considerably increased and extended. These may be sown in August where intended to flower, or if the soil is loose or the situation damp, such conditions being unfavourable to their preservation during winter, it were better to sow on solid soil in a moderately dry place, and transplant the seedlings early in spring. Wallflowers and other *biennials* should be sown in July.

The plants we have spoken of hitherto are of lowly growth, but the most effective of spring flowers are found among hardy ornamental trees and shrubs. We have

to search the garden for the tiny Violet and Lily of the Valley, the Snowdrop, the Primrose, and the Hepatica; these are lost to the heedless many, who know not how much modest beauty waits to be wooed in its retirement. But the larger forms of vegetable life cannot be so passed by. They rise before us, confront us at every step, and prefer their claims with an eloquence and power that few can resist.

The most conspicuous of spring-flowering trees and shrubs are the different varieties of Almond, Mespilus, Laburnum, Cherry, Peach, Pear, Plum, Thorn, Horse Chestnut, Magnolia, Tree Pæony, Flowering Currant, Lilac, Cydonia, Mahonia, and double-flowered Furze. And this enumeration, large as it is, by no means exhausts the catalogue of spring-flowering trees and shrubs; it merely gives examples of what I consider to be the most desirable. The Almond is one of the most beautiful of spring-flowering trees; it blooms so early and profusely. It is free, hardy, and accommodating withal. Even London, with its limited list of "acclimatised" trees, may justly reckon the Almond among the number. The Laburnum, with its long racemes of golden blossoms, is equally hardy and beautiful. The Horse Chestnuts, both scarlet and white, are noble trees. But the most important of spring-flowering trees are the varieties of Thorn and double-blossomed Peach, and if these were more generally known I have no doubt they would be more extensively planted. Not only our gardens but our shrubberies and parks are open to great improvement by the free introduction of trees like these, and but few soils are of such a nature as to preclude their cultivation. In a general way, these trees should be allowed to take their natural growth, or at most be but balanced in growth by encouraging or checking a weak or rampant shoot occasionally. In special instances where artificial forms may be desirable, Cydonias, Ribes, Lilacs, and the like may be trained with round heads on stems or as pyramids.

I must pass on to the second part of my subject, to speak of those plants which bloom naturally under glass in spring. We find here an entirely different assemblage, a gayer and more brilliant order of beauty. For the most part they are natives of warmer climates, and the flowers are of larger size, and endowed with richer tones of colour.

Glass structures intended for spring-flowering plants should be built as light and airy as possible. The colours of flowers depend so much on light, that the lighter the structures in which they are grown, the brighter and stronger will be the colours; and it is scarcely less important that the structures be well ventilated. There is much moisture in the air in spring, the damaging effects of which in excess is best counteracted by securing a free circulation of air.

The Cyclamen is one of the chastest and sweetest of spring-flowering plants. Some of the species are hardy, but I prefer to treat the whole as greenhouse plants. The best mode of increasing them is by seeds, which should be sown in June or as soon as the seed is ripe, in soil composed of about equal parts of loam and sandy peat. Place them in a cold pit. In September the seedlings may be transplanted into single pots. They should retain their leaves through the first winter, and be gradually brought to rest when about twelve months old. The greater part will flower during their second spring.

The Camellia, of which there are endless varieties, stands forth prominently among spring flowers. The Rose is universally acknowledged the Queen of Summer, and I think we may justly call the Camellia the Queen of Winter. Whether we consider the symmetry of its rich and delicate blossoms, or the deep massive green of its expansive leaves, from either point of view it is a lovely plant. In the climate of Angers, in the west of France, the Camellia is treated as an out-of-door plant. There, in the nurseries of M. Leroy, thousands are planted in the

open ground, receiving as protection in winter nothing but a slight thatch of reeds. I have seen it in this country thriving well trained against a wall, but it is more satisfactory to grow it under glass in the temperature of a cool greenhouse. It may be planted out there or grown in pots. The soil should be composed of equal portions of rich loam and sandy peat. Weak liquid manure is an excellent stimulus during the season of growth and flowering, enriching the colour of the leaves, and increasing the size and beauty of the flowers. Whether planted out or grown in pots, a little warmth, a moist atmosphere, and plenty of moisture at the root are desirable during the season of growth. This period over, abundance of air should be given, or better, the plants if in pots should be re-potted and placed out-of-doors on the north side of a hedge or wall where the morning sun only can reach them. On the approach of autumn (September) the plants should be reconveyed to the greenhouse. The most vigorous and healthful Camellias I ever saw were in the gardens of Oulton Park, when under the care of the late Mr Errington, who informed me that he watered the plants half the year with guano water. The flowers and leaves were of prodigious size and substance, and the latter as dark in colour as those of the Portugal Laurel.

I shall never forget the impressions I received from a visit to the Messrs Loddiges' Camellias at Hackney some twenty years ago. I am almost afraid to say what I believe, that some of the plants were 30 or 40 feet high, the branches thickly interwoven and bending beneath the weight of thousands of gorgeous blossoms. The ground beneath was thickly strewn with the fallen flowers, producing a complete carpet of richly variegated colours. Blackbirds, thrushes, and other song birds built their nests among the branches, flitting hither and thither, delighting the ear with their varied melodies, the scene reminding one of the grandeur and beauty of a tropical forest.

The Indian Azalea is another spring-flowering plant of

rare beauty, which, like the Camellia in one respect, merely requires protection from frost in winter. At Digswell Rectory, near Welwyn, a plant of the white variety lived in the open air through several winters. No one who has attended the flower shows of this metropolis—for which our country still stands unrivalled and alone—can fail to have remarked the rich and varied masses of colour which the Azalea presents to the eye. Azaleas are of easy culture. Grafted plants are best. The soil they prefer is sandy peat, which should be firmly pressed in well-drained pots. A moderately close, warm, moist atmosphere during the season of growth assists in the formation and setting of the flower-buds. Azaleas are best placed out of doors and slightly shaded from the sun during the summer months. A minute insect, the thrip, is a great pest to this plant, and requires checking by the frequent use of tobacco smoke.

In addition to these we have Heaths and Epacrises, which delight in a peaty soil, and require careful watering and little heat; Acacias, Correas, Cytisuses, Veronicas, and sundry stove and greenhouse plants, and last though not least, many rare and beautiful Orchids. The latter are usually made the object of special culture, and their high prices have hitherto kept them in comparatively few hands. Their culture is not, as is supposed by some, difficult, and as they become more plentiful they will doubtless enter largely into the purposes of in-door spring gardening. There remain under this head certain Annuals not sufficiently hardy to endure the winter out of doors, but which if sown in May, June, and July, and grown under glass, will bloom freely and beautifully during the spring months. Such are the Chinese Primula, the Cineraria, the Petunia, Schizanthus, Stock, Mignonette, and the like.

In conclusion, I would venture a few remarks on the art of forcing. Although all forced flowers are not *naturally* spring flowers, they are made so by the art of the cultivator, and enter so largely into the decoration of our

conservatories and halls at that season that we cannot possibly overlook them.

The art of "forcing" consists in accelerating the period of perfection of fruits and flowers. The practice is simple, but nevertheless requires an amount of knowledge, care, and watchfulness which thoroughly test the capabilities of the cultivator. By forcing, the fruits which ripen naturally in autumn are brought to perfection in spring and summer; the flowers of summer are induced to bloom in winter and in spring. Here, as with spring flowers, the glass structures should be as light as possible. A low night temperature should also be insisted on. Plants unduly excited or overworked by a high temperature during the day, require the restorative of periodical rest, and this is best provided for by a low night temperature. A difference of 15° or 20° between the maximum of day and night temperature is seldom too much. The syringe must be used freely every morning and evening when forcing, in order to prevent the exhaustive effects of hot dry air; and the quantity of water sprinkled over the plants and house must be greater during sunny than cloudy days, and in proportion to the increase of temperature. It is well to lower the temperature of the forcing house when the plants have arrived at that stage of development at which the flower buds begin to colour. The period of expansion is of course retarded by this practice, but then the flowers are much better developed, and the colours are stronger.

A great deal might be said on the preparation of plants for forcing. Those of us who are accustomed to deal with plants in this way know well that we may change the flowering season of almost any plant. For instance, the Rose, which naturally *blooms* in summer and *rests* in winter, may be made to *rest* in summer and *bloom* in winter. By a long-continued course of systematic treatment the seasons may be completely reversed. Cold and drought are the agencies by which we effect this; and in the absence of the one we may accomplish the end in view

by the use of the other. Plants have two periods of rest, night and day, and summer and winter; and a plant that is made to rest in summer will surely work out its course by blooming in winter. It is worthy of further remark that a plant if removed from the open ground and forced one year, and then returned to its former position, will bloom at an earlier period than its fellows which may have been left undisturbed, so great is the force of habit even among plants. On these grounds, then, is the practice of forcing based.

I have only to enumerate a few plants which experience has shown to be well suited for the purpose of forcing:—Amaryllises, Crocuses, Hyacinths, Tulips, Lily of the Valley, Fuchsias, Pelargoniums, Azaleas, especially the Ghent varieties, Deutzias, Red and White Dwarf Almonds, Double White and Double Pink Japan Cherry, the Double-blossomed Cherry, Plum, Peach, and Thorn, in their kinds, Lilacs, Kalmias, *Prunus trilobata*, Rhododendrons, Roses, Syringas, and *Viburnum plicatum*.

Such of these plants as are grown in the ground out of doors should be transplanted from the ordinary nursery rows one year before they are required for forcing. This will induce the emission of fibrous roots below, and the formation of flower-buds above ground during the following summer. Late in October dig up the plants, pot them, and place them in the forcing-house early in December. Every successive year less heat will be required to bring them into full bloom at a given date, or if the same amount of heat be applied they will be brought into bloom at an earlier period.

I add a brief synopsis of the most interesting and attractive spring flowers, many of which have, however, been already alluded to in this paper:—

I. FOR OUT-OF-DOOR CULTURE.—*Bulbs*: Crocus, Crown Imperial, red and yellow; Cyclamen coum and vernum; Dog's-Tooth Violet, lilac and white; Fritillaria meleagris; Hyacinths, garden varieties; Muscari botry-

oides and pallida; Narcissus, Ranunculus, Scilla, Snow-drop, Snowflake, Tulip. *Perennial or Herbaceous Plants*: Alyssum saxatile and variegatum; Anemone, garden varieties, also A. nemorosa flore-pleno and Pulsatilla; Arabis, several sorts; Aubretia deltoidea and purpurea; Caltha palustris flore-pleno, Cardamine pratensis flore-pleno, Cerastium tomentosum and Biebersteinii, Cheiranthus Marshallii, Corydalis nobilis, Daisies, Dielytra spectabilis, Epimedium rubrum and others, Forget-me-Not, Gentians, Helonias bullata, Hepaticas, Iberis sempervirens, Lily of the Valley, Pæonia tenuifolia, single and double; P. albiflora in varieties; Pansies, Orobus varius and vernus, Omphalodes verna, Polyanthus, Primroses, Phloxes, Polemonium Richardsonii, Pulmonaria virginica, Saxifrages, Sanguinaria canadensis, Vinca elegantissima, Violets, and Winter Aconite. *Biennials*: Eschscholtzia crocea, Honesty, Wallflower. *Annuals*: Candytuft, Catch-fly, Collinsia bicolor, Erysimum, Forget-me-Not, Gilia, Limnanthes Douglasii, Lupins, Nemophila, Saponaria, Silene, and Virginian Stock. *Shrubs and Trees*: Almonds, Berberis Darwinii, Cherries, Cydonias, Deutzia gracilis, Ericas, Double Furze, Horse Chestnuts, Lilacs, Mahonia japonica, Magnolias, Mespilus, Mezereon, Peaches, Pears, Pernettyas, Plums, Rhododendrons, Ribes, Skimmia, and the Thorns.

II. FOR IN-DOOR CULTURE.—*Bulbs*: Those already mentioned, to bloom at an earlier date. *Plants requiring the protection of an ordinary Greenhouse*: Acacia, Azalea indica, Camellia, Daphne odora rubra, Epacris, Heath, Pæonia Moutan, Primula denticulata, Rhododendron, Richardia æthiopica, and Salvia gesneriflora. *Greenhouse Annuals*: Calceolaria, Cineraria, Petunia, Primula sinensis, Mignonette, Schizanthus; Intermediate, Brompton, and Queen Stock. *Stove Plants*: Allamanda cathartica, Begonia fuchsioides and incarnata, Clerodendron splendens, Dipladenia crassinoda, Franciscea confertiflora and eximia, Gardenia radicans, Gesnera cinnabarina and refulgens,

Ixora coccinea, and *Monochætum ensiferum*. *Orchids*: *Cœlogyne cristata*, *Cattleya Mossiæ*, *Skinneri*, and others; *Cypripedium caudatum*, *villosum*, and others; *Dendrobium densiflorum* and *D. nobile*, in variety; *Lycaste Skinneri*, *Odontoglossum Pescatorei*, *Phalænopsis grandiflora* and *Schilleriana*; and *Vanda insignis*.

LECTURE ON SPRING-FLOWERING PLANTS.

[Delivered by the request of the Council of the Royal Horticultural Society at South Kensington, 26th March 1867.]

THE task assigned to me to-day is to give you a popular account of this Exhibition. I shall purposely avoid all scientific details; my remarks will be chiefly cultural; working on the conception that some present would like to hear how these plants are produced—would like to see such in their own gardens—I shall content myself with showing in as concise a manner as possible how that object may be attained.

It is true there is a short road to the possession of these plants, namely, to buy them as at present exhibited. But by purchasing a plant when in the climax of its beauty one does not realise all the pleasure and satisfaction derivable from cultivating it from an early period of growth. It will, I think, be allowed that every stage of progress in a plant is perfect in its way, and there is a freshness, change, and beauty in its gradual development.

I shall commence my observations by bracketing together Hyacinths, Tulips, Narcissi, and Crocuses, which are usually spoken of collectively as Dutch Bulbs. Be it observed, these bulbs are among the least costly, most easily cultivated, and most effective of early flowers. Although called Dutch Bulbs, the original Hyacinths and Tulips are natives of the Levant, and have been known in this country for nearly 300 years. Now, however, their

descendants, much altered in size, form, and colour, are, or should be, annually imported from Holland, where their cultivation is carried out on so large a scale as to be an important branch of national industry.

I may, perhaps, be allowed to remark here that the best Dutch Bulbs usually find their way into the hands of the English dealers. The Hyacinths sent to this country are grown from offsets of the roots, and are usually four or five years old. In favourable seasons, with free-growing sorts, or in the event of a scarcity of any particular sort, three-year-old roots are sometimes sent, but such do not produce the finest spikes of flowers. Dutch Bulbs usually arrive in England in the month of August, packed in bags and boxes in what is termed a dry state, in which they somewhat resemble onions.

Now, with regard to the culture of these bulbs, I will assume that the cultivator has obtained possession of good bulbs—bulbs which have not been hastily forced into the market, but which have the stamp of age, and which have been skilfully handled throughout their previous stages of development. Without this there is little hope of reaching a high standard of excellence. If you start wrong no after skill or attention will set you altogether right. Let us then assume the possession of good bulbs. Now, they may be grown in pots or boxes in earth, or in glasses in water. I will first relate how they are managed when grown in earth. Sandy loam, enriched by a free addition of manure, is the best compost in which to plant them; plant in October, leaving the apex or crown of the bulb just protruding above the soil, and afterwards thoroughly soak the soil with water. When drained, place the boxes, pots, or vases in which they are planted on the level soil, covering them over with six inches of cocoa fibre, old tan, or cinder ashes. Now the length of time they should remain under this covering will depend on the period at which they are wanted to bloom. If removed in January, gradually inured to heat and light, well watered if dry, and

placed first in a cold frame and then in a greenhouse with gentle heat, they will bloom in great perfection early in March. If removed in December and a little more heat employed, they will flower early in February. If removed in November, they should, a fair amount of heat being employed, flower in January. It should be borne in mind that a plentiful supply of water is requisite at the period when the leaves and flower spikes are expanding, and during the whole period of flowering. The spikes of flowers should also be tied up almost day by day to preserve their symmetry.

This, then, is the way in which the Hyacinths before you are produced in pots. The rationale of cultivation in glasses in water is the same; but instead of pots glasses are used, instead of earth, water, instead of covering with fibre, we place the glasses if transparent in a dark cupboard, principally for the reason that the roots feed most freely in the dark. But we must not keep them in the dark too long. Gradually inure them to the light when the roots are fairly developed, and before the leaves are two inches long. The season of flowering, as with Hyacinths in pots, will depend on the temperature of the house or room in which they are grown. It was remarked to me to-day—"Your Hyacinths are unusually short and stout. I have some good spikes, but they are slender, attenuated, and disposed to droop. How is this?" My answer is, they have had at some period of their growth too much heat or too little light; either or a combination of both influences would produce the elongation complained of. Tulips, Narcissi, and Crocuses, which are of a kindred nature with Hyacinths, should be managed in the same way. All of them may likewise be planted in beds or borders out-of-doors, a few inches under the soil, in the month of November, when the Crocuses will flower in February, the Hyacinths, Tulips, and Narcissi in March and April.

The next plant for consideration is the Lily of the Valley. Although a native plant, abounding in the woods

of many parts of Britain, it must not be supposed that it could be suddenly drawn thence and produced in the beautiful state in which it is exhibited at our flower shows. This is a major variety, selected doubtless for its size at some former period, and planted in rich soil, where by gross feeding the plant has attained an unusual development. The contents of these pots are prepared for forcing in the following way :—Small pieces or crowns are planted in beds in rich ground, and allowed to remain there for three or four years till the whole bed becomes one mass of roots thickly studded with flowering crowns. They are cut out with the spade in small patches to suit the size of the pots in which they are grown, and placed in the pots in the autumn, when by subjecting them to different degrees of heat a succession of flowers may be obtained throughout the winter and spring. The plants are raised from seed, which should be sown in June in pots filled with equal parts of sand, loam, and peat. The seed should be quite fresh to ensure germination, and requires to be raised under glass. The plants will not usually flower until the second spring, after which they should continue to increase in size and beauty for many years. When the seedlings lose their leaves, which they should not do till they are about twelve months old, it is important that they be kept in a dry state. Moisture when in a state of rest will certainly injure and probably destroy them.

We come now to the Chinese Primula. This plant is a native of China, whence it was introduced in 1820. It is raised from seeds, which should be sown in the months of May, June, and July successively, in pots filled with light sandy soil, and kept under glass. When the seedlings have made their third or fourth leaf they should be transplanted into small pots, giving each plant a separate pot, and removing it at short intervals into pots of larger sizes. This plant does not dislike heat, but if much heat is employed plenty of air should also be given or the colours of the flowers will be washy and pale.

There is a curious and interesting fact in the history of plants which the Chinese Primula serves well to illustrate. There is a tendency in most plants to vary in form, size, and colour when transferred from their natural or wild state and subjected to cultivation. The type of the Chinese Primrose of to-day was pink or lilac, and not more than one-fourth of the present size. By culture, through the means of a rich soil and careful attendance, the size has increased, and by watching for even slight variations in form and colour, and selecting such as the parents of future races, the change went gradually on. A break, as it is termed, was at length obtained—that is, a departure from the normal form. A standard of excellence was set up, but it was found that such, although occasionally realised, could not be retained. It was found that seeds saved from the Red Primula would sometimes produce both red and white flowered plants, and seeds saved from White Primulas would do the same, while the seedlings varied greatly in size, colour, and form. The break was retained, but the result was uncertain. The next step was to fix the alteration. Year after year plants of the altered and more approved form, closely resembling each other, were selected and placed apart, and from these alone seeds were saved until the altered form was fixed again—that is, seed saved from Red Primulas produced, with almost unerring certainty, red-flowered varieties; seed saved from White Primulas white-flowered varieties, both preserving the increased size, altered forms, and clear decided colours of their immediate progenitors.

Take another instance. There are before you plants of the new Double Crimson Thorn. Strange as it may seem, this is descended from the common Whitethorn or May of our hedges. But this has not happened suddenly, but by a gradation of changes. Most observers will doubtless have noticed in our hedges that some of the plants produce flowers of a pink tinge, though still with single flowers.

This is the "break" previously explained, this was step one. Some of the seedlings raised from these would give flowers of a still deeper colour. This was step two which we recognise in the single rose-coloured Thorn, a variety found growing in a hedge at Geddington in Northamptonshire. Some of the offspring of this would be of a still deeper colour—step three, the new scarlet Thorn. A seedling or a sport from this or the original May of our hedgerows would produce double flowers, and here was step four, the double white or new double pink Thorn. Now, I am not asserting that all these steps are authentically recorded, but it is well known to those who are practically engaged in these matters that such is the rule of progress. But the origin of this new double crimson Thorn we do know. It is not a seedling, but what is called a sport from the Double Pink Thorn, that is, a branch of the double pink produced flowers of this deep and beautiful hue. The branch was budded and grafted, and the young plants so obtained produced flowers of the same vivid colour. In the same way have been produced the many varieties of the Common Hawthorn, one of the most notable, the Weeping Thorn, having been selected from a bed of seedlings by General Monkton; the upright growing variety was selected from a bed of seedlings by Mr Ronalds of Brentford. Now, it is the same with leaves as with flowers. Take the Pelargoniums before you. They are all originally produced from green-leaved varieties, either from sports of the branch, or later in their history from seeds of the sports so fixed. The first variegated Pelargonium originated by a branch of a green-leaved variety producing variegated leaves. This branch was cultivated till the habit became fixed. The seeds of these were saved and sown, and a brood of young plants was produced, retaining the variegation of the parent. The plants before you, which are seedlings, show this tendency; on some there are both green and variegated leaves. Now, to fix

either character is the problem. If we wish to retain the green character we nip off all the variegated leaves; if we wish to retain the variegated character we nip off all the green leaves from time to time as they appear, till the plant produces leaves of one character only. It is the same with the Aucubas. The green-leaved variety is the normal form; the variegated kinds are sports, either from branches or from seeds. This is, in brief, the process that has been worked out in all cultivated plants where leaves or flowers show a wide divergence from the normal form.

The Camellia is a native of China, a country which has supplied us with many of our richest horticultural treasures. The type of our modern Camellias is a plant with small single red flowers, in which the yellow stamens are pleasingly conspicuous. There are now many hundred double sorts, some few of which have been introduced at various times from China, but the majority have been raised from seed in Italy, France, Belgium, England, and America. Most of the double Camellias are grafted on the single red or type, which is found to strike easily from cuttings placed in a cold pit in sandy soil in the autumn. The grafting is usually performed late in summer, the stocks chosen being two years old. The soil in which Camellias appear to grow best is rough loamy peat with a plentiful admixture of sand. The process of re-potting should take place in summer, when the new growth is pretty well matured and the flower-buds about the size of a French Bean. When potting thorough drainage should be secured. Now, although the plant is nearly hardy, successfully resisting several degrees of frost, it is not well suited for the open air in our climate on account of the cold and uncertainty of the English spring. Spring is its season of growth, and it then requires a high temperature to induce a vigorous and well-matured growth. At this time, when blooming and growing, a plentiful supply of water should be given, but at all other times, especially in autumn and early winter, water should be given but sparingly. The

premature decay and dropping of the flower-buds so complained of in Camellias usually arises from too dry a state of the roots at the season of growth, or too wet a state of the roots when the growth is matured and the plant is in a state of comparative rest. So soon as the growth is matured it is well to remove the plants from under glass, and to place them on the north side of a wall or hedge where they are protected from the mid-day sun. Camellias may be planted out with advantage in the borders of conservatories, where they will attain the height of 20 or 30 feet, forming umbrageous trees of matchless beauty.

The chief points to look to in their cultivation, then, are these :—

1. To secure thorough drainage in the soil.
2. To give heat and moisture during the periods of flowering and growth.
3. To water sparingly from the time the growth is completed till the flower buds are about the size of a pea.
4. To secure the leaves from being blistered by the sun. Green glass or Hartley's rough plate glass is desirable for the Camellia house ; if ordinary glass is used it should be slightly white-washed in the month of March.

The subject will be continued next week.

[*2nd April 1867.*]

IN continuation of the remarks made last week, I shall to-day endeavour to show the grounds of procedure and the process of cultivation in the production of early flowers.

The art of forcing, whether applied to fruits or flowers, consists in changing their seasons, or in bringing them to maturity at an earlier period than that at which they blossom or ripen naturally out-of-doors. The art is by no

means new. It was known to the Romans. Pliny tells us that they used to obtain Roses at Rome before the natural season by watering the plants with warm water so soon as the buds were visible. The Romans in the reign of Domitian had undoubtedly abundance of Roses in winter. It is probable that the art of forcing was borrowed from the Egyptians, and first practised at Rome in the time of Martial, the famous epigrammatic poet, who ridicules the Egyptians for still sending them Roses when they had plenty of their own, and asks them to send corn instead. Dr Deslongchamps relates, on the authority of Seneca, that the Roman gardeners had at this time found out the means of constructing hot-houses, which they heated with tubes filled with hot water, and thus induced Roses and Lilies to flower in December. In dealing with this subject it seems desirable to show, in the first place, the principles on which success depends, and afterwards to describe the most important details of cultivation.

The cultivator should never forget that a plant is a living organism. There are the root, the stem and branches, the leaves, the flowers, the fruit. The sap which traverses all these parts is analogous to the blood in animals. While the plant feeds principally by the roots, and can receive food only in a fluid state, it feeds also by the leaves, which breathe, digest, and perspire. The leaves of plants perform functions analogous to those of the lungs, digestive organs, and skin of animals. The roots of a plant absorb moisture from the soil in which they grow. This moisture or water containing various matters in solution we call sap, which passes in a crude state through the stem and branches to the leaves, where it undergoes certain modifications. It is then returned into the general circulation in an altered and matured condition, suitable to the particular wants of the plant.

Further, plants have two periods of comparative rest, arising from the alternations of day and night, summer

and winter. The leaves decompose carbonic acid during the day, liberating the oxygen, which they re-acquire during the night. But winter is their longer and more complete period of rest, although the roots are supposed to be never wholly inactive except when frozen. Now this state of rest, which is of vital importance to plants, may be brought about equally by the agency of cold or drought. Deciduous trees lose their leaves by the frost on the approach of winter; bulbous plants fall into a dormant state by the drought of summer; and they equally attain, although by different and opposite agencies, the necessary state of rest. While it is possible to change the seasons—which we do in forcing—without injury to the plant, it is important not to annul or intrench too far on any one of them. Spring, summer, autumn, and winter, if changed as to date, must still be allowed to follow in due succession, or the health of the plant cannot be maintained.

I have judged these few remarks necessary in order to render clear what is about to follow. I shall not, however, enlarge on these physiological questions, because the lectures of Dr Masters, the first of which I was fortunate enough to hear last Saturday, will no doubt explain them with a skill and lucidity that I cannot hope to reach.

I shall now pass on to consider certain principles in the art of forcing, on the due observance and application of which success depends. To elucidate my views I shall take a single plant as an example, selecting for my purpose the Rose. If a Rose is taken from the ground in the autumn, before the natural period of rest has expired, and suddenly thrust into the forcing-house where a high temperature is maintained, growth will quickly recommence, and flowers follow in due course, but both leaves and flowers will be feeble, and of indifferent quality. On the contrary, had the plant been previously rested, both leaves and flowers would have been fully developed.

Hence it will be inferred that it is important to prepare the plants—to grow them in pots one season before required for forcing—because in such condition they are more under our control as regards the application of moisture and heat; we can rest them at pleasure, and ensure a more regular growth and plentiful setting of flower-buds.

In preparing Roses for forcing we draw them from the ground in November, and place them in pots of various sizes to suit the age and vigour of the plant.

We next plunge the pots in some sheltered spot in the garden till the beginning of January, by which time fresh rootlets will have formed, and the plants will be in a condition to feed and grow. We now prune closely, and place them in a pit or cool greenhouse, with the view of slightly changing the seasons this first year. The moisture and warmth of this house will induce an earlier development of leaves, branches, and flowers than would have taken place out of doors; the flowers will probably open in May.

Pruning is a very important branch of Rose culture. The principal ends sought are threefold—

1. To maintain the plants in health and vigour.
2. To induce them to assume a form at once agreeable to the eye and most suitable for the development and display of the flowers.
3. To secure an abundance of fine flowers.

The Greeks were alive to the advantages arising from the removal of some of the branches in Rose trees, although, in the absence of a knowledge of first principles, they took a curious method of accomplishing it. Theophrastus, who lived about 300 years before the Christian era, tells us they used to set fire to the Rose trees in Greece, without which they would never flower. We are elsewhere told that the extraordinary vigour and beauty of some plants on which goats had been browsing first gave the ancients the idea of pruning. We know by

experience that if we leave a Rose tree unpruned for one year it loses shape, and the flowers lose size, colour, and consistency. If we leave it unpruned for two or three years in succession, it rapidly degenerates. To this subject I shall recur by-and-by.

Disbudding, which may be considered an auxiliary to pruning, is a practice which I value highly, and have adopted for many years. A plant, if well fed, often pushes forth new branches in such close proximity that as the growth extends the branches crowd and stifle each other. To prevent this—and here it should be remarked that a few large vigorous leaves are more desirable than a greater number of small leaves—we rub out and destroy in an early stage of growth a portion of these incipient branches, leaving such as have an outward tendency of growth, and are placed at good distances from each other.

Now the flowering of these plants, if placed in a greenhouse, will, as we have already said, take place in May. So soon as the flowering is over they are gradually inured to the temperature out of doors, whither they are shortly conveyed. The second growth takes place out of doors, and is again regulated by disbudding and the stopping of any gross shoots. The plants being a month in advance of Roses out-of-doors as to flowering and growth, may be brought to rest a month earlier. Let us assume, then, that it is the end of September and the plant is in a state of rest. It should be our aim to keep it so for at least two months. The best means of effecting this is to place it in a house or shed where no heat is employed, keeping the roots rather dry.

A word or two with regard to the forcing-house. It should be constructed so as to secure as much light as possible. The artificial spring which we create for our plants does not secure for them the long and strong sunlight of their natural spring—it is the difference between December and March, so that it is important to secure all the light we can.

As to the climate of the forcing-house, this is deserving of attentive consideration. If too dry it creates a drain on the natural resources of the plants; if too wet they become gorged with moisture, and this probably is one cause of mildew. I know not how to convey any precise information as to the proper hygrometric state of the atmosphere; this is one of those points in gardening which the practical man judges of by the appearance of the leaves—tests by his own feelings when he enters the house. The leaves should look firm, solid, and dark green; the climate should be soft, genial, and slightly humid. The defect of climate, once ascertained, it is easy to provide a remedy for; if too dry, pour water on the floor of the house, if too wet, admit air.

A knowledge of these facts and principles, then, is the groundwork on which the intelligent cultivator proceeds in the production of early flowers. He knows that if he would accomplish any marked success before he forces a plant he must rest it, and that to retain it in health he must prune it, and approach as near as may be to those conditions of air, light, moisture, and heat to which it is subjected in its natural state.

I now proceed to the second part of my subject—to describe the most important details of cultivation. Let us assume that it is the month of December, and we have at our disposal Roses which have been prepared as just described, and which we wish to bring into full bloom in March. We have a forcing-house into which we convey them. The soil in the pots is saturated with water, and we prepare for pruning. The Hybrid Perpetual and Tea-Scented are the best Roses for forcing, but we must not exclude the Moss Rose, which forces tolerably well, and is of rare beauty. We prune the Hybrid Perpetual Roses closely, the Tea-Scented less, and the Moss least of all. There is little fear of pruning either of the former out of bloom, but the varieties of Moss Roses if pruned much will produce leaves and branches only—no flowers!

In illustration of these remarks, take the plants before you. Here is a plant which was drawn from the ground and potted last autumn. We are about to prune it. This, be it remembered, is a plant in course of preparation for forcing. Our first aim is to establish it in its new home; we therefore prune closely, not thinking so much of flowers in the present as looking for branches from which to obtain flowers next year. Let us go forward three months, and imagine that we see the same plant here in a more advanced stage. It is true we have flowers here, but that is due to a peculiarity in the variety. Most Roses pruned as this was would have produced wood-shoots rather than flower-shoots, as in this other example.

I must, in order to work out my illustration, ask of you a little further exercise of the imagination. Imagine the plants on the table to be twelve months older, and they will be in this state. Now, as to pruning: If a Moss Rose we should prune slightly, if a Tea-Scented Rose a little more, if a Hybrid Perpetual closer still.

(Illustrations were here given of short, medium, and long pruning by shortening the shoots of a pot Rose according to each method.)

Our plants are in the forcing-house. The pruning finished, we raise the temperature of the house to 50° by day and 40° by night, and keep it about this mark for the first fortnight. The plants should be syringed daily, in the morning, and watered at various intervals as the soil becomes dry. No fixed periods can be named for watering, because the drying of the earth in the pots will depend much on the amount of heat and sunlight. Usually once a week, and seldom more than twice a week, will water be required at this early period of growth. As the leaves expand, the amount of heat may be increased to 60° or 65° by day and 50° to 55° by night. We should now also water our Roses more freely, and syringe twice instead of once daily—morning and afternoon. It is January, and although winter out of doors it is spring with them, and

the nearer we can approach the climate of spring, minus the night frosts, the greater amount of success we shall attain. As we want a warm moist climate, we cannot afford to give much air unless the weather be mild, and then, even then, caution is necessary. When the leaves become hard, which they do by February, more air may be admitted, and towards the end of February, as the buds show colour, the amount of air given may be still increased. Throughout this period of growth (their spring) a low night temperature should be maintained.

The Rose has many enemies. The aphid or green-fly is one of the most formidable, and must be kept in check; the first aphid that is seen should be the signal for filling the house with tobacco-smoke, which must be repeated from time to time as they reappear.

Mildew is another annoyance to which Roses are commonly liable. To maintain a healthy state of the roots and leaves is the best preventive; to dust the leaves with sulphur the best remedy. I always keep in my Rose houses a little machine called a "Sulphurator." If any plant or branch is attacked by mildew, that plant or branch is immediately syringed, and the machine brought into use. The sulphur is driven against both the under and upper sides of the moist leaves—the plant is indeed enveloped in a cloud of sulphur—and the mildew is checked or destroyed.

It is March, spring out of doors, but summer with our Roses. The plants are free from mildew and aphid, the leaves are clean, broadly developed, intense in the colouring, and the gorgeous blossoms are ready to unfold. We are here in full summer tide, although the Roses out of doors are still in embryo. How shall we proceed to retain these flowers in full beauty for as long a period as possible, and yet develop the later and lingering buds. The temperature of the house may be slightly lowered, and the plants may be watered freely. Syringing may be discontinued, or more sparingly applied. A slight shading—

thin canvas is the best—should be drawn over the house, which will materially aid in preserving the freshness of the flowers.

By the end of May the plants may be removed from the house and plunged in the ground out of doors to complete their growth. If watered sparingly they will fall early into a state of rest. In September they should be re-potted, and will be ready for re-introduction to the forcing-house in November or December following.

This, then, is the round of management by which these Roses are produced, and so perfect has the art of forcing become that the out-of-door Roses of June rarely excel those which are produced in the forcing-house in early spring.

One word more. We have been speaking of plants growing in pots. But Roses may be planted out in the borders of a greenhouse or conservatory. To such the same principles of cultivation may be applied; indeed, the system of planting out has many advantages. I should recommend all who are fond of Roses to adopt that plan. By it they may have Roses during the whole of the winter and spring months.

SPRING GARDENING.

[*"Florist and Pomologist," October 1868, p. 225.*]

THE taste for spring gardening is rapidly spreading. The stone has been cast upon smooth water, circle succeeds circle, and will, doubtless, continue to do so, until the movement is felt on every side, at wide distances from the central motive power. Cliveden, Belvoir, and Hyde Park have demonstrated to those who would see and read and learn the perfect practicability of realising a beautiful garden ablaze with flowers of every hue in the cheerless months of March and April.

The managers of these gardens are rightfully entitled to be considered the pioneers of spring gardening ; by them the ground has been cleared ; by them the plain path indicated ; by others recognised and entered on. Henceforth every good garden, when the family resides in the country in spring time, must have its beds of evergreens and flowers at that season, instead of the present bare unmeaning plots of dull vapid earth. Flowers, at all times enjoyable, at all times exhilarating, are doubly so in spring, from their greater rarity, and from the bright contrast they present to the desolation that reigns around.

An extraordinary summer like that of 1868 opens to the active and observing mind many fresh avenues of thought. The summer just past has been more favourable to the March and April garden than to that of July and August, as many a worker on light dry soils especially knows to his cost. Such should not hesitate one moment in seizing on this new idea, and in substituting for the dull unsightly beds of earth, too prevalent alas! in spring, masses of bright and beautiful flowers.

Happily the task is neither difficult nor expensive ; the plants used are frost-proof and cheap ; the labour is the great item, and it would not be fair to represent that there is not an increase under this head, but except where carried out on a very extensive scale, spring gardening need not entail any heavy additional cost even here.

In all spring gardening, bulbs must form an important part of the material, and they indeed are not costly. Hyacinths (red, white, and blue) may be bought at 21s. the 100 ; Tulips (red, white, and yellow) at from 4s. to 12s. per 100 ; and Crocuses (white, yellow, purple, striped) at from 1s. 6d. to 3s. per 100. Then there are Jonquils (yellow), Snowdrops (white), Anemones (blue, white, scarlet, and variegated), none of them beyond the reach of moderate means, and numberless others calculated to secure diversity and to combine in forming a pleasing and harmonious whole.

Of annuals and biennials to be sown in summer and autumn, or purchased at a low price in the seedling state, there is a rich and varied store. Of these, *Lunaria* or *Honesty* (purple), *Wallflower* (three varieties, yellow, dark, and brown), *Silene* (three varieties, white, pink, and red), *Myosotis* (two varieties, blue and white), and *Saponaria calabrica* (red), are among the most effective. There are also *Candytufts*, *Clarkias*, *Calliopsis*, *Collinsias*, *Erysimums*, *Eschscholtzias*, *Gilias*, *Godetias*, *Leptosiphons*, *Limnanthes*, *Nemophilas*, *Venus' Looking-Glass*, *Virginian Stock*, &c., but these, according to my experience, do not succeed after transplantation with that certainty which is necessary to insure a complete and perfect garden. They are best sown on the spot where they are required to bloom.

Spring-flowering perennials are also numerous and good. *Alyssum* (yellow), *Anemone nemorosa plena* (white), *Anemone apennina* (blue), *Arabis alpina* (white and variegated), *Aubretias*, of sorts (lilac), *Bellis* or *Daisies* (white, red, and rose), *Hepaticas* (red, white, and blue), *Iberis* (white), *Pansies* (various), *Phloxes* (various), *Primroses* (crimson, lilac, white, and yellow), *Polyanthuses* (various), *Alpine Auriculas* (various), *Saxifraga granulata plena* (white), these are a few only of the most showy perennials, the number being almost without end.

In these brief remarks, intended to be merely suggestive, the endeavour has been to bring into prominent view a few of the best things only, but with these alone a rich, massive, and perfect display of flowers may be had at small cost in March and April. A more elaborate and beautiful garden may be built up with rarer and more costly things, not, however, to the exclusion of these, but in addition to them, if the taste of the proprietor should pronounce this to be desirable.

LECTURE ON THE CAMELLIA AND ITS CULTURE.

[*Delivered at the Royal Horticultural Society's Meeting on the
15th February 1871.*]

“GIVE a dog an ill name, and hang him,” is a proverb that is pretty generally known and understood in every phase of English life. Now, I have to deal to-day, so to speak, with a dog that has unfortunately and in my opinion undeservedly, acquired an ill name, and one object I have in view in taking up his case is to endeavour to set him right with the public.

Those of us who have any knowledge of dog-nature must be aware that if we keep a dog unduly shut up, or feed him on unsuitable or insufficient diet, unless he be of a very accommodating disposition he will most likely manifest some signs of uneasiness or displeasure. Now, animal nature and plant nature are much alike in this respect. In dealing with the one as with the other, diet and treatment are everything, and pet plants, like pet animals, are sometimes neglected, sometimes ill-nurtured by improper food, and sometimes fed or worried out of health.

To drop metaphor, the *Camellia japonica* is a native of China and Japan, and was introduced to this country by Lord Petre about 1739. It was named in honour of George Joseph Camellus, a Moravian Jesuit. Mr Fortune, who has travelled both in China and Japan, has obligingly given me the following account of the plant or tree in its native countries :—

“I have met with the *Camellia japonica* growing as a wild plant over a large tract of country in the central and southern provinces of China, but its principal habitat lies between the 20th and 30th degrees of north latitude.

“The early spring in the district alluded to is generally remarkably fine, and rather dry. From April to June the weather breaks, and becomes moist and showery.

In the end of June and throughout July heavy rains and frequent thunderstorms prevail. In August, September, and October the weather is usually dry and fine. The south-west monsoon, which prevails during the summer months, now changes to the north-east, and the weather becomes variable during the latter part of the autumn and winter. Those who know how to cultivate the Camellia in Europe will see at once how well such a climate is suited to its constitution. It has in its native home a winter cold enough and dry enough to check vegetation and to secure a period of rest; an early and fine spring, during which time the flowers bud forth into bloom; a moist atmosphere in the growing season; and a dry and warm summer and autumn to ripen the young shoots.

"I generally found the Camellia growing in woods, where it was partially shaded from the sun by other trees, and in these situations it often attained a height of from 30 to 40 feet. The wild plants have usually single or only semi-double flowers. The foliage of these trees is exceedingly handsome—a dark glossy green. The double-flowered kinds, which have been from time to time imported to Europe, are garden varieties, and are only met with in a cultivated state.

"There are several species of Camellia found in China, but with one exception—namely, *C. reticulata*—none are so handsome as *C. japonica* and its varieties, and of these we in Europe have a more extensive and finer assortment than the Chinese have themselves.

"In Japan the Camellia is also found in a wild state. I met with it frequently in shady woods like those in which I had seen it in China. In Japan Camellia *Sasanqua* is used for ornamental hedges round the gardens near Yeddo, the capital of the country. In November these hedges are very beautiful, when the white and rose-coloured varieties of the species are in full bloom."

The Camellias originally introduced by Lord Petre in 739 were killed by being kept in a hothouse—this was

keeping the dog unduly shut up—and some years must have elapsed before the plant was reintroduced, for it is not found in the seventh edition of Miller's "Gardeners' Dictionary," published in 1759. Abercrombie, however, includes it in his list of hothouse plants given in the "Garden Vade-Mecum," published in 1789. Several beautiful varieties were introduced from China towards the close of the last and at the beginning of the present century, among them the Double White, the Double Striped, Lady Hume's Blush, Fimbriata, and Imbricata; Reticulata, Cup of Beauty, and Princess Frederick William were of later introduction. Others have been raised by English, Continental, and American horticulturists. The nurseries of Messrs Chandler of Vauxhall and Messrs Loddiges of Hackney (both now abolished) produced early in this century many beautiful new varieties, and the late Mr Press of Hornsey and Mr Fielder of Enfield added to the store.

Mr Chandler tells me that about the year 1819, a season very favourable for seeding, he saved about half a peck of seeds from the variety known as Warratah, the flowers of which had been fertilised with the pollen of the Double Striped and other esteemed sorts. The seeds were sown as soon as ripe, and vegetated in a few weeks, producing several hundred plants. When two years old, and from 6 to 9 inches high, these seedlings were inarched on the Single Red, and in two or three years they flowered. From this crop were raised Chandlerii, Eximia, Elegans, Florida, Aitonii, Rosa-sinensis, Corallina, Althœflora, Woodsii, Insignis, Concinna, and others.

Mr Press appears to have been most successful with the Anemone-flowered varieties, that is, those kinds which have a cluster of small petals in the centre and a row of large petals at the base of the flower. Of these, Eclipse, Picturata, and Candidissima may be given as examples. Mr Fielder's seedlings are more of the florist's type, resembling the Old Double White in shape. Two of his

seedlings, Jubilee and Rubescens, raised some twenty-five years ago, still rank among the best. Miniata, Lowii, and Alexina were also raised by him. Mr Fielder tells me that Miniata was raised from Sasanqua and Lepida, and that he still considers Lepida, an old semi-double red kind with large smooth thick petals, one of the best to raise seedlings from. He further says that he has tried numerous experiments with the view of raising seedlings from Reticulata and Donckelarii, but has never succeeded in doing so.

Although other English and Scotch gardeners have been successful in introducing here and there a good variety, the number of English raised sorts has not recently been great. Judging by the names of the novelties which are now reaching us, we may, I think, reasonably assume that Italy is doing the best work in this field at the present time.

In 1826 Chandler and Buckingham of Vauxhall published "*Camellia Britannica*," a quarto volume with eight plates, and in 1831 appeared "*Illustrations and Descriptions of the Camelliæ*," by Chandler and Booth, in which some of the finest varieties then known were figured and described. Shortly afterwards was published a work on the same subject by the Messrs Baumann of Bolwyller, and more recently a beautiful work by Mr Ambroise Verschaffelt of Ghent appeared, the latter containing innumerable and beautifully executed plates.

The Camellia is by nature a first-class town plant. Some few years ago it was an object of special culture both at Loddiges', at Hackney, and Chandlers', at Vauxhall. It was a great treat to lovers of flowers to visit either of these establishments during the season of flowering. I have seen both collections when at their best. Chandlers' young plants always appeared to me the most comely, but Loddiges' large plants were gorgeous beyond description. They were planted out in a house some 30 or 40 feet high, and many of them were pressing

against the glass at the top of the house. As you walked beneath and gazed upon the broad, dark green massive leaves, plentifully sprinkled with various coloured flowers, blackbirds, thrushes, and smaller birds fluttered incessantly among the branches, where, with a keen sense to comfort, they had built their nests in this splendid grove of flowering trees. But all this, alas! has passed away, and I know of nothing now in existence that can in any way compare with it. We must turn our eyes in another direction—to the improvement and multiplication of varieties—if we would set up a claim to progress in this branch of horticulture. Some of those old varieties are, doubtless, surpassed by the recent introductions, if we judge them by the symmetry of the individual flowers, and where there were hundreds of Camellias in those days there are thousands now. With this brief historical sketch I shall proceed to the more practical part of my subject.

Everybody acknowledges the *Camellia japonica*, or Japan Rose, to be a beautiful plant, but many consider it a difficult one to grow and preserve in good condition. This impression derives support from the fact that we often meet with plants which are misshapen and have a meagre appearance, the flower buds sometimes dropping off prematurely. If, however, the plants and varieties be properly chosen, this need not be, except by default of the cultivator. The *Camellia* may be grown and kept in condition with as little trouble as the commonest of our hardy plants. True, it requires special treatment, and I shall proceed to lay before you the results of my experience in cultivation under the following heads:—

1. Of Soils.		3. Of Propagation.
2. Of Climate.		4. Of General Culture.

And 1st, *Of Soils*. Camellias will grow very well in either peat or loam, but it should not be poor peat or loam—the dog will not thrive on insufficient diet. Chandlers grew their plants in two parts loam and one part peat.

Loddiges grew them in peat alone, in loam alone, and in a mixture of both.

I have found Camellias grow more luxuriantly in loam than in peat, but they flower more freely in a mixture of both. Some people are accustomed to speak of loam and peat as if these words possessed a precise and definite signification, whereas, according to my experience, they possess a very vague and indefinite one. There is rich peat and hungry peat, sandy peat and fibrous peat, and *horribile dictu* ! sour peat, which is usually gathered in low wet places, and which every good gardener will studiously avoid. Loams vary in a similar manner. The physical or mechanical properties of the soil are of scarcely less importance here than its chemical properties. We want a soil that is open and porous, which it will certainly be if sand and fibre abound in it.

The soil I prefer for the Camellia is composed of three parts sandy loam and one part fibrous peat and leaf mould in equal quantities. If sandy loam is not readily obtainable, light loam may be used with the addition of drift sand. To this add a few small lumps of charcoal, and a few pieces of crushed bones. Manure, however, I prefer, given principally in a liquid state during the season of flowering and growth only. These different materials should be broken up and mixed together some months before they are required for use, and be turned over occasionally that the component parts may become thoroughly incorporated, and every part be subjected to the mellowing influences of sun and air.

Secondly, of *Climate*. We have seen that the plants first introduced were killed by being kept in hothouses ; it is therefore amusing to find old Abercrombie including the Camellia among hothouse plants fifty years later. The fact is, the plant is nearly hardy in the climate of Britain, and the less fire heat employed, except during the growing season, the better. In the flowering season the flowers do not expand kindly, and often fall speedily if placed in heat.

In Devonshire, in many sheltered parts of the country, and even in the neighbourhood of London, where the soil is tolerably dry, the Camellia has been planted out both in the open ground and against walls, where it has resisted the frost of several successive winters. It must be told, however, that some varieties are hardier in our climate than others. One of the most skilful of American horticulturists has assured me that some kinds which usually have a delicate and meagre appearance here are exceedingly healthful and vigorous in the climate of New York. We cannot count upon the Camellia as a *flowering* shrub, only as an *evergreen* shrub out of doors in this country, because the flowers produced under out-of-door culture expand in spring, when they are often quickly spoiled by the variable weather. In order to rejoice in all its beauties we must then use glass structures. In winter and spring it will suffer nothing, when under glass, from 10 or 15° of frost. Both Chandlers' and Loddiges' collections were frequently frozen but never hurt.

When the flowering is over and the new growth commences, say in March, a warmer climate than we usually experience out-of-doors is desirable. A temperature of 60 to 70° by day and 50° by night should be maintained throughout the growing season, which we will assume to be March, April, and May. The hygrometric state of the air is not less important than its temperature at this season. Mr Chandler attributes the dropping of the buds to dryness of atmosphere and too much fire heat. What gardeners call a moist air should be secured by syringing the plants once or twice daily, copiously or lightly, during the season of growth, according to the amount of sunshine experienced. Soot water may be used with advantage in syringing. A close dank atmosphere must be avoided by the admission of more or less air from without, as the state of the weather may permit. By the use of heat and moisture at this season we seek to realise and combine a vigorous growth with a full crop of flowers.

The health of the Camellia is much influenced by sunshine and shade. Some of the most remarkable specimens for foliage I ever met with were planted by myself against a west wall out of doors in my own neighbourhood, many years ago, in a spot where the sun scarcely ever reached them. Shade is necessary during the season of growth, for without it few or many of the leaves, according to the style of the house or the quality of the glass, will become burnt or blistered. The flowers should also be shaded when in bloom. When growth ceases, and the young shoots become partly hardened and the next year's bloom is set, the best climate is that out of doors. Remove the plants from the house, say in June, to a north border, where they get the morning sun only, leaving them there till the middle of September, when they should be carried back to the house before the soil becomes saturated with the autumnal rains. These latter remarks, of course, apply only to plants in pots. But where the plants are in the ground under glass, nearly the same effects of climate may be secured by shading and giving air. In a few words, I repeat the climate of England is very near to the best that the Camellia can have. The plant should be treated as a hardy evergreen with two slight exceptions—we should hold in our hands, by means of glass structures, the power of moderating a severe winter should it occur, and the power of giving a slightly higher temperature than that of our climate during the growing season in spring.

I have often been asked, "How is it that Camellias received from abroad, so vigorous and healthful in appearance when they arrive, almost invariably deteriorate in this country?" Some attribute it to climate, others to soil. In my judgment it is due to the forcing system they have previously been subjected to. These plants are grown for too long a period in a hot, moist, shady climate with the view of obtaining the largest possible plants in the shortest possible time. The hue which

captivates is not that of health but a hectic glow; the plants are really unsound, and it is no easy matter to restore them to a sound state.

Thirdly, of *Propagating*. The Camellia is propagated by cuttings, by grafting, by budding, and by inarching. Propagation by cuttings is principally applied to the species (the Single Red) on which the choicer varieties are grafted, budded, or inarched. Many of the double kinds root and grow well enough from cuttings, and are grown largely in this manner in America; but in this country they appear to grow faster and thrive better generally when grafted on the species. The young shoots of the species when not over ripe, say in August, are cut into pieces about two inches long and placed in pots of sand and set in a close house or frame under glass, where a gentle ground-heat is maintained until they are rooted in the April following. They may then be placed each in a separate pot and kept in the same house or frame until they become established in the pots (September), when they may be removed to pass the winter in a cold pit. If heat be given during the growing season of the second spring, these young plants, or stocks, as they are technically called, will be ready for grafting in the following autumn or spring.

Grafting is the method usually applied for increasing the finer kinds of Camellias. In autumn or spring pieces about $1\frac{1}{2}$ inches long, with two leaves on each, may be cut off the plant which it is the intention to reproduce, the lower end of these pieces should be pared flat on one side, and the stems of the stocks being pared in a similar manner, the two flat sides are then brought in contact and bound together with cotton or bast. The plants thus grafted should be kept in a close pit or house for a few weeks, after which period they may be gradually inured to open air. In spring the dormant buds of the scion or stranger plant may be allowed or encouraged to vegetate, but those of the stock should be kept in

check. When the adhesion is solidified the ligature may be withdrawn, the portion of the stock that has been left till then may be cut away, and the stock or species is to all intents converted into the variety we have laboured to reproduce. The cultivation of these young plants is henceforth the same as that of older plants.

Propagation by budding may be followed successfully, but as I do not consider that mode so eligible as grafting for the Camellia, I need not occupy your time by entering upon it.

Propagation by inarching was much resorted to in the olden times, and is a sure plan, and a capital one too, if a few large plants instead of a greater number of small ones are sought for. A good-sized branch of any favourite variety may be united to the stem of any less valuable kind in the same manner as in grafting, except that in inarching the branch is not wholly detached until the union is perfected. The two plants are set side by side, a branch of the one is pared, laid, and bound on a pared branch of the other, and when the union is complete (in a few months) the two are separated, and the inarched plant is treated subsequently as if it had been grafted.

Propagation by seed is principally used to obtain new varieties. Stocks for grafting on are also raised in this manner, but I prefer those raised from cuttings of the species which is of a known hardy constitution, whereas seedlings are apt to vary much in that respect. The seed should be sown as soon as ripe, for if stowed away and allowed to dry the shell or exterior coating becomes so hard that the process of germination is retarded and the chance of a crop lessened. Sow in pans in peat or light sandy loam, covering with the same soil to the depth of $1\frac{1}{2}$ inches where there is artificial ground heat. Keep the soil regularly moist. When the germ pushes through the soil, constant shade is indispensable. The seed is often long in vegetating—it has been known to lie dormant for two years—and the seedlings will not usually bloom until

four or five years old. I can see no reason why Camellias should not be raised from seed as extensively in England as elsewhere ; it is merely a question of cost, and there is certainly no finer field open to the experimentalist.

I now proceed to speak of *General Culture*. A good base to work upon in the cultivation of any particular plant is furnished by ascertaining the precise conditions under which it exists in its native habitats. We are not bound to follow these conditions slavishly in all the details of practice, but whatever the modifications we introduce we should never lose sight of the natural life of the plant. No doubt the best way to deal with the Camellia is to plant it in a span-roofed house 30 or 40 feet high in the highest part. The top lights of the house should be moveable, and removed during June, July, and August, and a light shading be made to take their place during the day. If the lights cannot be removed, in spring and summer a light shading of tiffany should be run under the glass. Shading is essential during the flowering season, and from the time the young leaves expand. The soil should be effectively drained when the beds are formed. A very slight heating power will suffice, but we cannot altogether exclude this from our calculations.

But however desirable ground culture may be, the Camellia must remain a pot plant for the many. The chief points demanding attention under this head are—re-potting, watering, and pruning.

Once a year at least, in August, every plant should be turned out of its pot and thoroughly examined. If the soil has worked into the rubble at the base of the pot or tub in such manner as to impede the free egress of water, remove the old rubble and substitute fresh. If any worms are seen pull them out. Examine the ball of earth closely to see that the water has in the past percolated every part of it. If it has not, pierce the ball in various parts with an iron pin in such a manner as not to injure the roots, and

set it in a tub of water, leaving it there until thoroughly soaked through. Plants that require larger pots or tubs, of which we must judge by the quantity and condition of the roots, may be at once transferred to such. The new soil required to fill the outer circle of the larger pots should be pressed down firmly with the fingers or a stick, so that the outer circle of earth may be at once almost as solid as the inner circle.

Watering is a point of the very first importance. It is here that the dog is often starved, and, perhaps, as often surfeited. The ill name he has acquired is, I believe, in nine cases out of ten due to too much or too little water. A copious supply should be given during the flowering and growing seasons when real work is going on, but at other times great caution is needed. I am favourable to the practice of watering freely at long intervals as the plant becomes dry, rather than to the common practice of giving small doses at shorter intervals. The starved appearance, the yellow sickly leaves often met with, if not due to too poor a soil, are due to injudicious watering. Rain or pond water should be used in preference to any other, and water containing lime should be studiously avoided. The practical hand can tell when a plant wants water by rapping or lifting the pot, thus testing the condition of the soil by sound and weight; but by others, whether water is required or not may be pretty accurately judged of by the look of the plant, and by stirring the surface of the soil.

Either too much or too little water during the season of rest will cause the dropping of the flower buds before expansion. These results, however, are not due to this cause alone, but to any fault of cultivation that induces debility. There are, too, some kinds which are naturally or constitutionally liable to this defect, and others the flowers of which expand with difficulty. The best advice I can give with regard to such is to have nothing to do with them, they are the surly dogs of the pack, and there

are plenty in the pack of equal beauty and more accommodating disposition.

Pruning is an important operation, and should be performed in spring just after the flowering season, but before the new growth commences. If the plants have been skilfully grown but little pruning is necessary, only just as much as will keep them in shape. It is not advisable to cut back into wood of more than one year's growth, as the dormant eyes on old wood do not readily push forth. They may, however, be stimulated to do so by the agency of ground heat; and under this head I would allude to and condemn the barbarous practice of cutting Camellia flowers with wood two years old adhering to the flowers for the sake of obtaining a long stalk. Scrubby, poverty-stricken, and misshapen plants are very apt to result from this practice. It is well known that the Camellia as a pot plant grows slowly, and like most evergreens from temperate and cold climates it requires a lengthened period of rest. The first six months of the year are in this climate the natural period of flowering and growth; and during the second six months the plants should be kept in a state of comparative rest. During the season of growth we *make* the foliage and *set* the flowers; during the season of comparative rest we *establish the quality* of the flowers.

What gardeners term "sporting" is a characteristic of the Camellia. The Pæoniflora will often produce red and white flowers on the same plant. Press's Eclipse usually produces striped flowers, but occasionally a red or creamy-white flower will appear. Many of the striped kinds will also produce at times self-coloured flowers.

When removing the plants from the open-air in September, the flower-buds, if too numerous, should in part be removed.

The green fly occasionally attacks the Camellia, but is easily disposed of by tobacco smoke. The scale is a more troublesome though less common enemy. It may

be removed by a brush. For the health as well as for the appearance of the plants they should be kept clean, and that useful domestic article known as soap is all that is required for the purpose. Syringing with soap suds occasionally is an excellent plan, and if the suds pass to the roots it will benefit rather than injure them.

With regard to the best varieties of the Camellia, opinions on this point will probably differ, according to whether the individual flower or the general decorative character of the plant is most valued. The Double White combines these qualities, but there are others which possess them singly. Many of the Anemone-flowered varieties are among the most valuable for decorative purposes, and they flower profusely and grow more rapidly, ultimately forming large umbrageous trees. The species known as *reticulata* is gorgeous as a conservatory plant, but the florist would likely pronounce the flowers loose and untidy in appearance.

In conclusion, permit me to reiterate the opinion that the Camellia, far from deserving the ill name it has acquired, far from being a difficult subject to deal with, is one of the least expensive in its habits, and one of the most tractable in its nature to be met with in the whole range of flowering plants. But before venturing to deal with it, it is only reasonable that we should ascertain its nature and requirements. What can we expect if we persist in keeping the dog unduly shut up or in feeding him on unsuitable or insufficient diet?

THE CAMELLIA.

[From "*The Gardeners' Chronicle*," April 12th et seq. 1879, pp. 461, 493, 524, 557, 593, 656, 687.]

THE Camellia derives its name from George Joseph Kamel, or Camellus, a Moravian Jesuit. In the *Vegetable Kingdom*, by Dr Lindley, the plant is placed in

the Natural Order Ternstroemiaceæ (Theads), between the genera *Pyrenaria*, *Blum*, and *Thea*, *Linn.* It is there remarked—"The different species and varieties of *Camellia japonica* are the glory of gardeners." In the Linnæan system it belongs to the class and order Monadelphia Polyandria. The genus is thus described in Don's *General System of Gardening and Botany*:—"Calyx imbricate, surrounded by accessory bractæas or sepals. Stamens monadelphous. Anthers elliptical, two-celled, bursting lengthwise. Capsule furrowed, with a dessepiment in the middle of each valve, separating from the free triquetrous axis when ripe; cells 1—two seeded. Elegant evergreen trees and shrubs, with coriaceous dark green shining leaves, and large flowers resembling the Rose, of various hues." In this work, published in 1831, the number of species given is eight; of varieties introduced from China, twenty-six; and of seedling varieties raised in the gardens of Britain, fourteen.

In Paxton's *Botanical Dictionary* (edition 1849) seven species only are enumerated and thus described:—

1. *C. eurypoides*.—A greenhouse evergreen shrub, native of China, producing white flowers in May. Introduced in 1824.

2. *C. hybrida*.—A greenhouse evergreen shrub, from Liège.

3. *C. japonica*.—A greenhouse evergreen shrub, native of China, producing red flowers in May. Introduced in 1739.

4. *C. Kissi*.—A greenhouse evergreen shrub, native of China, producing white flowers in May. Introduced in 1823.

5. *C. oleifera*.—A greenhouse evergreen shrub, native of China, producing white flowers in May. Introduced in 1819.

6. *C. reticulata*.—A greenhouse evergreen shrub, native of China, producing red flowers in April. Introduced in 1824.

7. *C. Sasanqua*.—A greenhouse evergreen shrub, native

of China, producing white flowers in February. Introduced in 1811.

There are also enumerated in the same work two hundred varieties of *C. japonica*, three varieties of *C. Sasanqua*—the *plena alba* (white), the *plena rubra* (red), and the *semi-plena* (red).

The species of most interest from the decorative point of view, *C. japonica*, is thus described—"Leaves ovate, acuminate, acutely serrated; flowers axillary, sessile, usually solitary; ovary smooth. Native of Japan and China."

The *C. Sasanqua*, although not introduced till 1811, is figured in *An Historical Account of the Embassy to China*, by Sir George Staunton, Bart., published in 1797. The writer says of it:—"The petals of this plant, called by the Chinese *cha-whaw*, or flower of tea, from their resemblance to each other, and likewise the flowers of the Arabian Jessamine, are sometimes mixed among the teas in order to increase their flavour. The *Camellia Sasanqua*, which grows upon the tops and sides of mountains, is assiduously cultivated. It bears a nut from which is expressed an edible oil equal to the best imported from Florence."

This species and its varieties, however interesting from a botanical point of view, is now but little cultivated, the varieties of *C. japonica* being more highly prized by English amateurs and gardeners.

THE HISTORY OF THE CAMELLIA.

The *Camellia japonica* or Japan Rose, the species from which nearly all of our more valued garden varieties are descended is, as we have already seen, said to have been introduced in 1739; but it is not mentioned in the 6th edition of Miller's *Gardeners' Dictionary*, published in 1771. Notwithstanding this, I find it thus described in *A History of Plants*, by John Hill, M.D., published in 1751:—"Camellia.—The calyx is imbricated, and composed of several leaves, the interior of which are the

larger. It is an oriental, described by Kämpfer in his *Japan*, 850."

In the *Garden Vade Mecum*, by John Abercrombie, published in 1789, "*Camellia japonica* or Japan Rose," is included in his list of both greenhouse and hothouse plants. In the *Practical Gardener*, published in 1817, and in the 21st edition of *Every Man his Own Gardener*, by the same author (1818), one species (*C. japonica*) and seven varieties only are enumerated. Loudon in the *Encyclopædia of Gardening* (1822) enumerates twenty-five varieties. In the *Greenhouse Companion* (1824) are coloured plates of two varieties, Waratah and Lady Hume's Blush, the former of which is now superseded, but the latter is still much sought after. It is there remarked, "New varieties are continually originating by the nurserymen and other growers from seeds. A number of hybrids are in an advanced state but have not yet flowered."

The Camellia is frequently adverted to and figured in the botanical and horticultural publications of this time, and in the *Transactions of the Horticultural Society*, in a paper read before the meeting December 5, 1809 (vol. i., p. 175), we find the following—"In October 1795, a *Camellia japonica* was planted here (the South Hams of Devonshire) among other shrubs in the open ground; it has stood every winter since without the smallest shelter, thrives well, and has never had a branch or leaf injured by the weather. It is now about 4 feet high, the size of a Gooseberry bush, but has not flowered." Similar experiments, which have been repeated frequently and in various soils and situations, seem to prove that the plant is nearly hardy in the climate of England, and may be safely planted out-of-doors among other evergreens in warm sheltered situations. But in thus treating it one loses the beauty of the flowers, as owing to their being produced in March and April, they are nearly always spoiled by the spring frosts. We remember planting out two varieties against a west wall in 1836, and these

passed through the winter of 1837-8 uninjured although there were 30° of frost, and the Bays, Arbutus, and Laurels standing in the open quarters only a few yards distant were killed to the ground. Mr Joseph Harrison (*Trans. Hort. Soc.*, vol. vii., p. 168) found the double white, the double red, and the double striped grow satisfactorily out-of-doors at Wortley Hall, Yorkshire, "planted in a brown loam on a rocky substratum." He covered the soil to the extent of 3 feet from the stem of each plant with 10 inches of decayed leaves on the approach of winter, removing the leaves in spring. In 1829 a paper on the Camellia, by William Beattie Booth, was printed in the *Transactions of the Horticultural Society* (vol. vii., p. 519). In this paper six species and twenty-three varieties are described, four of the latter being figured, and it is there stated—"Of these very ornamental plants the society has formed an extensive collection, such as I may safely say is not surpassed at the present time by any other in the kingdom." It appears that the double white and double striped were introduced in 1792, Lady Hume's Blush in 1806, fimbriata in 1816, imbricata and several other varieties in 1824.

Many of the varieties originally introduced are now but little cultivated. Hardy plants of them may be met with occasionally in the gardens of the nobility and old English families, but some of the modern varieties raised from them are more beautiful, and have been more generally cultivated within the last forty years. Many fine varieties have been raised in England, especially by Mr Chandler, of Vauxhall; Mr Press, of Hornsey; and Mr Fielder, of Enfield; and France, Belgium, Italy, and latterly America, have contributed largely to the improvement of the flowers by selecting and preserving variations by sports and by seed. In Loudon's *Encyclopædia of Plants* (1829) eighteen garden varieties are enumerated, and in Paxton's *Botanical Dictionary* (edition 1849), as we have already mentioned, no fewer than 200 varieties are given. At this date there were at least three establishments

near London where the Camellia was extensively cultivated, namely, those of Mr John Smith, Dalston; Messrs Chandler, Vauxhall; and Messrs Loddiges, of Hackney. It was one of our greatest treats of that day to see the Camellias at Hackney when in flower in the early spring. They were planted out in a large house, and many of the plants were 30 feet high, in splendid health and laden with blossoms. It was a perfect forest of Camellias, tenanted with blackbirds, thrushes, and other birds, which built their nests in the trees, passing in and out at pleasure through the open doors and windows. Probably there was never any floral display equal to this in England before, and it may be many years before we see the like again. Many of Messrs Loddiges' large plants were, we believe, sold to the Crystal Palace Company and removed to their palace at Sydenham.

The Camellias of Messrs Lucombe, Pince & Co., of Exeter, have obtained a world-wide celebrity, and are worth going many miles to see. In nearly all the principal gardens and nurseries few or many may be met with, but we believe that as far as regards quantity and variety our collection stands unrivalled at the present time.

THE FLORICULTURE OF THE CAMELLIA.

It is interesting to trace the progress of the Camellia. It is more than a century ago (1739) that the species *C. japonica*, or single red, was introduced, but it was not till early in the present century that the other species, with several improved varieties, were imported. The beauty of the plants naturally attracted the attention of the cultivator, and awakened in his mind the desire to increase the number and variety of sorts. Probably the first step was to sow the seeds indiscriminately, and to preserve such kinds only as were considered different or more beautiful than their prototypes. Artificial fertilisation was next resorted to, and as the seedlings increased in number and variety no doubt a standard of beauty was set up, to the

attainment of which artificial fertilisation was directed. In the *Transactions of the Royal Horticultural Society*, vol. vii., p. 545 (1829), four Camellias are figured, which appear to be all of the Anemone-flowered type. While not wishing to disparage these we should judge that they were selected from the botanist's rather than from the florist's point of view. At that date, indeed (1829), the florist had probably paid but little attention to this plant. Later on we find, by the new varieties introduced, that the "double white" was considered the more desirable type of flower; but even now it would be taking a very narrow view of the value of this plant to exclude the Anemone-flowered kinds.

In our judgment the floriculture of the Camellia admits of at least three types, which we shall describe, with the view of guiding the cultivator in the improvement of varieties :—

1. *The Imbricated Form of Flower*.—Example, Double White. The flowers here should be full, and the petals, whether pointed or round, regularly arranged, thick, smooth, and clear in colour.

2. *The Anemone-flowered*—Example, Press' Eclipse. The outer petals here should be large, thick, smooth, and well rounded; the centre being made up of a series of small thickly-set petals, leaving a broad margin of the outer petals.

3. *The Large-petalled kinds*.—Example, Conspicua. The petals here should be few, but large, thick, and smooth.

This is our idea of the three distinct types or strains of flower that are open to development at the hands of the florist. They all belong to *C. japonica*; but if he choose to extend the area for improvement he may set up separate ideals for the other species, especially *C. reticulata* and *C. Sasanqua*, but these do not at present seem to present so fair a field for the exercise of his ingenuity and skill, or to promise so remunerative a return for his labour.

There are also already in existence some single and semi-double varieties of *C. japonica* which are characterised by the prodigious quantity of flowers they produce, and there is room for improvement here by extending the range and introducing intermediate tints of colour. The cultivator who stands by hard and fast lines might probably look coldly on such kinds, but they have their admirers, and they certainly are gorgeous objects from the wonderful profusion of bloom they produce. The old *Corallina* with its blood-red flowers, and *Tricolor*, white flaked with crimson, are examples of these, and few of the more exact flowers produce anything like the effect of these, whether grown in pots or tubs, or planted out in the conservatory.

In writing on the improvement of the *Camellia* by raising seedlings from artificially-fertilised flowers, while paying first and due regard to the shape, substance, and colours of the flowers, it would be a great mistake to overlook the constitution and habit of the plant. This is unquestionably a point of vital importance, and the improver who does not pay due regard to it only half does his work. However beautiful a flower may be, if the habit of the plant is inelegant or the constitution feeble, the pleasure derived from its cultivation is considerably lessened.

When fertilising artificially with the object of raising improved varieties no flowers should be used except such as are the most perfect of their kind, and on one side or the other the habit should be comely, and the constitution sound.

Proceeding upon these grounds, there opens before us almost an unbounded field for the variation and amelioration of the *Camellia*. Former labourers have but broken up the ground, and the rich harvest they have obtained augurs well for the results of higher and more extended cultivation. To particularise, there is the variety known as *Mathotiana*, perhaps the finest in flower of all the crimsons,

but the habit is unquestionably bad. Lady Hume's Blush, although one of the oldest varieties, is still of unsurpassed loveliness, but is generally, although not always, met with in an unsatisfactory condition; and even the old Double White, which everybody grows, is open to improvement on this ground—it is a long way behind Elegans, for example, in constitution. Those who may engage in raising seedlings should seek to obtain a cross between such kinds and others of good habit and better constitution. In the present state of the Camellia we may conceive increase of size and substance, higher models of form, an extension of the range of colour, as well as improvement of habit and constitution, and work for the realisation of our conceptions. And in this labour Nature, though abounding in vagaries, is on the whole working with us, or, to put the matter more correctly, we are working with her, and she often encourages us with unlooked for results, which at once help forward our aims and surprise and delight us.

What florists call branch-sports are of frequent occurrence among Camellias, and this is a means of improvement which should not be overlooked. It is not yet made clear how these sports are produced, that is to say, it is not within the gardener's power to produce them at will. It would seem, however, that anything which leads the plant out of its natural course—especially an excessively vigorous growth—is favourable to their production. When sports occur they should be scrupulously preserved by inarching or grafting, a process which will be described by-and-by.

The exactness of form of many varieties of Camellias appeals strongly to the sympathies and taste of the educated florist, and those who take more delight in colour than in form will find here the most varying and delicate shades of white, rose, crimson, &c., and the great substance of the petals presents the eye with a charming solidity of colour scarcely met with in any other group of cultivated plants.

GENERAL REMARKS ON CULTIVATION.

There is an opinion abroad, too prevalent and deeply rooted we fear to be easily removed, that Camellias are difficult to preserve in a healthy and flourishing state. It must be admitted that they are often met with out of condition, the plants scrubby, mis-shapen, bearing feeble branches, yellow leaves, and flower-buds which expand indifferently or drop off before expansion. These facts we fear have done much to maintain the misconception, or perhaps they are the foundation of the opinion, that Camellias are difficult to grow. Having cultivated the Camellia for many years, and possessing no less than 250 varieties, we may perhaps be allowed to say, without laying ourselves open to a charge of presumption, that we believe that while on the one hand no plant is more easily managed, on the other hand no plant is so generally mismanaged, or we might say so systematically ill-treated.

Before proceeding further, let us propose half-a-dozen questions, to which we will reply, and then pursue the question of general cultivation.

1. Why are Camellias scrubby?—Answer, Because in cutting off the flowers they are usually cut with long stalks, and thus the eyes or wood-buds best stored with food are cut away and the new growth thrown on to eyes with a limited supply of food at their command. Or, as another and wholly distinct cause, insufficient heat or moisture is supplied during the period of growth.

2. Why are Camellias mis-shapen?—Answer, Because the trees are not pruned sufficiently, or are pruned at the wrong season.

3. Why are Camellias so often seen bearing feeble branches?—Answer, Because they are not sufficiently nourished. This may be that they are grown in an unsuitable soil; it may be that too little moisture and heat are given during the period of growth; or it may

be that the soil becomes soddened from insufficient drainage or too much water when the plants are not growing or flowering.

4. Why are the leaves of Camellias yellow?—Answer, Because grown in an unsuitable soil, or kept too dry when flowering and growing, or too wet when in a state of comparative rest.

5. Why do the flowers of Camellias expand indifferently?—Answer, It is with Camellias as with Roses, some kinds—Valtavaredo, for example—are so full, or the petals are so tightly folded, that the flowers will not expand fully in our climate without the aid of heat. However healthy and satisfactory the plants may otherwise be, such kinds require more heat and moisture than is good for others so soon as the buds show colour. But the same phenomenon is sometimes met with even in kinds not over double. The cause, then, is unsuitability of soil, or too much or too little water.

6. Why do the flowers drop off before expansion?—Answer, This is natural to some kinds, of which the Waratah is an example, and such kinds should be avoided. In other cases the causes are similar to those which bring about indifferent expansion, namely, bad soil and injudicious management of watering.

In framing the above answers we have not overlooked the fact that different phenomena may have their foundation in one and the same cause. But we have put the matter before our readers in this way in order that they may find a direct and simple answer to questions which are continually being put to us.

Before proceeding to discuss the cultivation of Camellias in pots and Camellias planted out—each of which systems will be followed under a separate heading—let us endeavour to give the reader a distinct conception of the nature of the plant with which he has to deal.

The Camellia is an evergreen shrub, a native of China and Japan, and the nearer we can approach the climate of

those countries in the respective seasons of growth and rest, the more successful is our practice likely to be. The plant is almost hardy in our climate. It loves the shade and dislikes heat, except during the seasons of flowering and growth, and even in the flowering season the flowers are larger and last longer when opening in a cool temperature. The young roots are fine, hair-like, and exceedingly numerous, requiring a light porous soil in which to work and expand freely. From a cultural point of view the Camellia may be associated with the Rhododendron, not only thriving best in a similar soil (light fibrous loam or peat), but requiring also in most points similar treatment, with the addition of a glass structure from which the frost is excluded to protect the flowers in winter and early spring, at which period they naturally expand.

ON PROPAGATION.

The Camellia may be propagated in various ways. It is grown from seed, principally with the view of obtaining new varieties. The seed should be gathered as soon as ripe, soaked in warm water for twenty-four hours, and sown immediately afterwards in light fibrous loam or peat. If sown in pans, covered with not less than an inch of soil, and placed in a warm part of the greenhouse, it will probably vegetate in a few weeks, but it not unfrequently lies in the ground for a year and a-half or even two years. Care should be taken to keep the soil in an equable state of moisture, and the cultivator here is more likely to err on the side of giving too little water rather than too much water; the outer covering of the seed is very hard, and heat and moisture are the agents by which we seek to soften it to facilitate vegetation. When the seedlings are rising they should be shaded constantly in sunny weather, and when they have formed their third leaf they should be carefully transferred into single pots with as much soil to the roots as possible, and kept in the same temperature and shaded as before.

In a few months, when the growth stops and hardens, they may be placed among other Camellias in pots, and share in common with them the treatment which will be advocated in our next paper. The blooming of seedlings is often long deferred; we have seen plants many years old that had not given a single bloom. If the cultivator wish for a speedy settlement of the value of his seedlings, it is well to graft them on matured stocks as soon as he can cut wood sufficiently strong for the purpose; but this process is expensive and unsatisfactory if applied extensively, as he will probably by this practice propagate many indifferent varieties.

The Camellia is also grown from cuttings. All kinds do not succeed equally well in this way, and there is no means of deciding this question except by actual experiment. Consequently, the named varieties are usually grafted on the species (*C. japonica*), or single red, which is found to grow freely from cuttings.

Take pieces of the almost ripened wood in August or September. Cut them into lengths of about 3 inches, leaving two leaves to each cutting, and insert the cuttings round the side of a 6-inch pot in a soil composed of sand and peat. Plunge the pots in a cold pit, give one good soaking in water, shade from the sun, and as winter approaches protect them from frost. By the end of February they should be removed to a close house and placed on bottom-heat, where they will form roots in a couple of months, when each rooted cutting may be transferred into a separate pot. These young plants should be kept in a close house, syringed pretty freely, and shaded until the new growth is finished and hardened, when they also may be sent to join the general stock and subjected to the general treatment.

Grafting is another means of propagating the Camellia, and the means most generally resorted to. Take a two-year-old plant of the species or single red which has been obtained from seed or from cuttings, as above described.

This is called the stock. Cut off the head to within an inch of the ground level. Pare one side of the remaining inch. Next seek a scion or graft—for these terms are synonymous—pare the lower end so that it will lie on the stock in such manner that the inner bark of the graft lies exactly upon the inner bark of the stock. Bind the two together with loosely-twisted cotton, and cover the point of junction with tallow, wax, or grafting composition to exclude air and moisture.

Grafting is usually performed in autumn, and that season is considered the best, but it may be done at any time between August and February. The stocks when grafted should be placed in a close house with gentle heat, or if a close house is not available, the desired conditions may be obtained by the use of handlights.

About six weeks after grafting the graft will be found united to the stock, not very firmly perhaps, but sufficiently to admit of the loosening of the ligature. If the ligature is wholly removed, it is, however, often necessary, and always the safer plan, to retie with bast at the top and bottom of the junction. Air may now be gradually admitted, and after a time, say two months, these grafted plants may be removed to join the general stock.

Inarching is an old-fashioned way of propagating the Camellia, but it is still occasionally practised. It is especially useful for converting large plants of indifferent varieties into the handsome modern kinds. It may indeed be considered as a species of grafting. The grafts instead of being wholly cut off from the tree are laid on sideways, while communication with the parent stem and root is still maintained. This was for many years the favourite method with nurserymen for propagating even small plants of the finer sorts of Camellias. It was a very safe plan, but both troublesome and tedious, and now that grafting is so thoroughly understood that with skilful propagators not one graft in a hundred fails, inarching is practised only in exceptional cases.

ON THE GROWTH OF CAMELLIAS IN POTS OR TUBS.

It is only in large greenhouses or conservatories that Camellias can be planted out with advantage; the system of growing them in pots and tubs is therefore more generally adopted. With this end in view the first thing to provide is a good stock of suitable soil. It is not easy to make plain in writing what that soil should be. The terms loam and peat are very indefinite when brought to the test of practical cultivation. We have found Camellias do well in some sorts of loam (light, porous, and sandy) with the addition of leaf-mould; and we have found them do well in peat alone that was sandy and rich in fibre and decayed vegetable matter. Our present practice is to grow them in a mixture of loam and peat, with the addition of small quantities of leaf-mould and sand:—Six-twelfths loam, three-twelfths peat, two-twelfths leaf-mould, and one-twelfth sand. These materials should be collected and mixed together twelve months before required for use. The loam and peat should be chopped fine, but not sifted, and after the whole is well mixed together the heap should be turned over three or four times during the year that it may be benefited both by the winter's frosts and the summer's sun.

Camellias should be turned out of their pots or tubs once a year to ascertain if the drainage is perfect, the roots in a satisfactory state, and to see if any of the pots or tubs are so full of roots that the plants require repotting with more space. If larger pots are not wanted it may be well to remove a portion of the bottom and top soil—so much as can be taken away without causing a serious deprivation of roots—replacing the old and washed soil with new; and here, as on all occasions when dealing with plants in pots or tubs, taking care that thorough drainage is secured by placing plenty of rubble in the bottom of the pots or tubs.

With regard to the season of repotting, some recommend the month of March, just before the new growth

commences, but we have found repotting at this season unfavourable to the setting of flower-buds, resulting in the formation of wood-shoots rather than flower-shoots. It is our practice to repot early in September, when the flower-buds are set and sufficiently hard not to be injuriously affected by the process. At that season the plants are or should be out-of-doors, under a north wall or fence, and here they may remain for a month (early in October), when they may be conveyed to their winter quarters under glass. It is important when repotting or transferring a plant from a small pot to a larger one to ram the new soil firmly around the old, in order that the new soil may approach the old in solidity, for if only loosely pressed the water at all subsequent periods will pass through the loose soil alone, leaving the old or central soil untouched. Although we have not given this in our answers to questions on the unsatisfactory state of Camellias as a cause, we are not sure that some of the annoyances cultivators are subject to may not be attributed to the looseness of the outer circle of the soil in plants which have been repotted.

Let us assume, then, that the plants have been examined as to the state of their roots and are placed in their winter quarters. Whether they have a house to themselves, which is desirable, or a house in common with other plants, we proceed to follow up the treatment favourable to their development. Throughout the autumn and winter months abundance of air should be given night and day except in frosty weather, only so much heat being maintained as shall exclude frost. The house should be kept scrupulously clean, and the plants should be looked over, with water-pot in hand, every second day, that they may not suffer from drought, but of course only such as are dry should be watered. A moderately moist state of the soil is desirable till the plants begin to flower, when an increased supply of water should be given in the shape of weak liquid manure. It is probable that without forcing

a few of the early flowering sorts and forward plants will begin to flower in December. From this time the flowers will increase in quantity up to the middle of March, and decrease henceforth till the beginning of April, when the flowering will be over and the plants begin to grow.

When growth commences, heat and moisture should be increased, but the increase should be by opening the house late and closing early, rather than by the use of strong fire-heat. Not only should an abundance of water be given to the roots during the period of growth, but the plants should be syringed freely both morning and evening. When growth ceases, more air may be gradually given to harden the newly formed shoots till all possible air is admitted night and day by the middle of June, when the plants may be removed to the north or shady side of a wall or hedge, there to spend the months of July, August, and September. When the plants are in flower, as also when growing, a slight shade is desirable, in the former case to protect and prolong the flowering, and in the latter to prevent the young leaves from being blistered by the sun. To this end tiffany or scrim fixed inside the house answers perfectly, and a good substitute for these may be found in painting the glass inside with milk.

The proper watering of the Camellia is a cardinal point in its successful cultivation, and here we meet with one of those points which the practical man knows well how to deal with, but which it is extremely difficult to convey to the uninitiated by writing. The most we can do is to say, water freely with weak liquid manure during the flowering and growing season, from January to May, and be careful not to give too much water during the season of comparative rest, from June to January. Still, during this latter period, the soil must not be allowed to become what gardeners term dry, or foliage and flowers will alike suffer.

When the plants are removed from the house to be placed out-of-doors, the smaller sizes may be tied out, and the branches of the larger ones drawn into such positions as may seem desirable, by drawing them downwards or side-ways, fastening the ligatures of bast to the strong side branches or the main stem. We do not advocate much tying for either small or large plants, but a stick here and there, and the occasional drawing aside of a branch may be done in such manner that the contour of the plant is improved, without introducing an objectionable formality.

PRUNING.

With regard to pruning, there is a diversity of opinion as to the season at which it may be performed with the greatest advantage. So long as the plants retain their health and symmetry it is unnecessary to prune them at all; but if they lose it, this is one means by which either may be restored. September is in our opinion the best month for pruning; if done at that season the dormant eyes to which we are looking for the formation of new growth become well stored with food by the time the new growth commences, and stronger and sounder shoots are the results. But then by pruning in September you may have to cut away the flower-buds and thus the season's bloom is sacrificed. If the flowers cannot be spared, prune in March immediately after the flowering is over, before the new growth commences. It is best, if possible, to restrict the pruning to wood of the previous year's growth, as it is often difficult to induce the eyes to push into shoots from old wood.

Camellias have their enemies in the shape of aphid, bug, and scale. Aphid may be kept under by the use of tobacco-smoke, and bug and scale may be destroyed by brushing the parts where they post themselves with paraffin. Cleanliness in all operations here is a preventive which pays well in the long run, and no serious injury is likely to occur when it is properly attended to.

ON THE PLANTING-OUT AND CULTIVATION OF
CAMELLIAS IN THE CONSERVATORY.

Perhaps we may say without fear of contradiction that the Camellia is the handsomest of conservatory plants. The finest examples in this county (Hertfordshire) with which we are acquainted are at High Leigh, near Broxbourne, the seat of R. Barclay, Esq. A short time ago we made a visit, in March, to see these Camellias. The trees are all planted-out in the conservatory, and although the time for catching them at their best was already gone we saw enough to form an opinion as to their appearance when at the height of their splendour, and the extreme vigour and healthy aspect of their foliage spoke volumes for the skill of Mr Dover, who has charge of them. Some of the best plants may be enumerated as follows:—Lady Hume's Blush, 15 feet high by 12 feet through, thought to be possibly the finest plant of this variety in the country; alba plena, 17 feet high by 12 feet through; elegans, 20 feet high by 10 feet through, the flowers were still lingering here in quantity, and combined with the naturally effective foliage of this variety, rendered especially so by good cultivation, presented a sight of grandeur seldom surpassed in the plant world; La Innocenza, 12 feet high by 12 feet through, a fine white Camellia, second only to alba plena.

The collection, which comprises, we think, eight plants, also includes two fine plants of the variety Variegata (one of them 18 feet by 10 feet), and alba plena 12 feet by 12 feet, which carried this year 3000 buds, two-thirds of which were thinned out before flowering time, leaving the tree to carry 1000 blooms. In the previous year 600 blooms were cut off this plant one morning. The plant of elegans above alluded to was estimated to have between 3000 and 4000 buds, of which about 1000 were left to be developed into flowers. Mr Dover appears to have no secrets in their cultivation; he considers soot and cow-

dung in solution to be the best of manures, and agrees thoroughly with the idea that watering Camellias is a most important and critical matter. Pruning he does about the end of March or early in April, before there is much young growth, and he does not scruple to cut back heavily when the symmetry of the plants or other causes require it. He has proved that Camellias, when operated upon at the proper season, will take the knife as freely almost as the common Laurel. One of these gigantic plants had been removed from one part of the conservatory to another about a fortnight before our visit, Mr Dover judging that as he did not care whether it flowered or not the next season it would remove then with greater safety and more favourably for a good growth than at any other time. It must be said, however, to be an experiment, and we trust one that will answer. These trees are all pyramidal in shape and most beautifully filled in and trained so that not a leaf is out of its place, the whole forming a dense even unbroken surface of the deepest green.

When planted out in the conservatory, whether for forming pyramids in the beds or borders, or for training against the walls, the Camellia is generally but one of a series of plants whose wants have to be studied and supplied. As, however, all the plants likely to be placed there flourish most in a well-drained soil, it is important to secure thorough drainage at the outset. In preparing for planting, the soil should be excavated from the beds and borders to the depth of 3 feet, and if the surrounding soil or subsoil be wet, pipes should be led from the bottom to communicate with the drains outside. Six inches at the bottom should be filled up with old bricks, rubble, or coarse gravel, over which a layer of turf should be neatly and firmly laid to prevent the fine particles of soil from working into the interstices of the drainage. Now it is almost certain that the different plants chosen for the conservatory will require different soils, and to meet this want is a point of practical importance. First mark out

the position of each plant, and then pack the soil in squares of about 3 feet of a suitable nature to each. We have already described the soil we consider best for Camellias when treating of pot plants, and the same materials may be used here, but in a coarser state. Plants of large size should be planted, and when transferring them from the pots or tubs into the ground it will be well to disentangle and spread the outside roots, working a portion of the finer soil amongst them. The soil should be trodden firmly around the old ball of earth, and when the plants are fairly set the earth should be thoroughly soaked with water from a fine rose watering-pot. September is perhaps the best month for planting, but it may be done at any time excepting when the new growth is in course of development. If planted in September and once well watered, little further watering will be required till the flowers begin to expand, although a daily syringing of the leaves for the first fortnight afterwards will be likely to prove serviceable. A slight shading here, as elsewhere, is desirable during the periods of flowering and growing, but as other plants in the house may not require this, the Camellia should be attended to individually. Warmth and syringing are also required from the time the new growth commences till it begins to harden, in order to secure a full crop of flowers the succeeding year. The buds once set an abundance of air should be given and partial shade still maintained. The season of flowering will depend much on the temperature of the house. As the conservatory is usually managed they will appear in gradual succession from December to March.

The Camellia is a capital wall-plant, thriving well planted out in shaded situations with little light, either in the greenhouse or conservatory.

ON FORCING.

Although the natural blooming season of the cultivated varieties of the Camellia is February, March, and April,

there is no reason why a good show of flowers should not be secured in the months of October, November, December, and January. This is brought to pass by forcing. If when housing the plants in September or October a given number be placed in the forcing-house, the flower-buds will gradually unfold and in succession throughout the late autumn and early winter months.

It is well not to apply too much heat in the first instance or the first year that the plants are forced. Let it also be borne in mind that here especially increased heat should be accompanied by increased moisture both at root and top.

A temperature commencing with 55° by day and 45° by night, which may be slightly and gradually increased as the flower-buds advance in growth, will be found to suit them very well. When the plants have been forced two or three years in succession 60° by day and 50° by night as a starting point will do no harm, and of course then the period of flowering will be accelerated.

But Camellias, like all other plants, should be prepared for forcing. By applying moisture and warmth in January and February an early growth will be induced, and this will be followed by an early ripening of the wood. Plants, like animals, must have their periods of rest if sound health and longevity are to be secured. If Camellias are made to grow in January and February they will set their flower-buds in April and May, rest in June, July, and August, and be ready to work out their flowering in autumn and winter.

Of course, forced Camellias must not be turned out-of-doors till all danger from spring frosts is over, as by forcing they become somewhat tender, and the young leaves, even if fairly ripened, are liable to be disfigured by frost. When the growth is finished and the buds set, it is well to keep them in a cool house till the month of June, when they may be conveyed to the north side of a wall or fence, as previously recommended.

From the above remarks it will be seen that Camellias, when systematic forcing is added to the usual routine of culture, may be had in bloom for seven months in the year at the seasons when flowers out-of-doors are rarest and can indeed hardly be reckoned on for the purposes of indoor decoration.

It may be well to remark here that Camellias, which are always disposed to vary much in colour under the varying systems of cultivation, are usually a trifle paler when forced to bloom in mid-winter than when flowering under the stronger and more abundant sunlight of March and April.

ON THE RENOVATION OF DEBILITATED AND UNSIGHTLY PLANTS.

How often we meet with Camellias, both large and small plants, in what a good cultivator would call a "deplorable state." Bare of branches at their base, the old wood barren, and the new growth weak—the leaves small in size and sickly in appearance—we look at them with aversion rather than with delight. They are embodiments of ugliness and weakness instead of personifications of health and beauty.

The cause of this we have already stated (p. 386)—we have now to seek the remedy.

A free use of the knife in pruning, heat, and moisture, are the means by which plants in this condition may be restored to health and beauty. Take them in hand in September. Turn them out of their pots or tubs, and make sure that the ball of earth is moist all through, and drainage satisfactory. It is no uncommon thing with Camellias that have been for many years in pots or tubs to find the centre of the ball of earth in which they grow so hard and dry as to be almost impervious to moisture. This is a most unsatisfactory state of things. Plants in pots and tubs have but a limited area of soil from which to draw the food supplied through the roots, and a great

part of this has become as sterile as the sand of Sahara. The practised hand will know by the weight of the ball of earth how far this state of things exists, but we know of no rule by which the inexperienced can arrive at correct conclusions. If any doubt exists, the safest way with him is to get an iron pin about the size of a crow-quill and pierce the balls through both perpendicularly and horizontally, then place them entirely under water, in tubs or in a pond, and leave them to soak for six hours. By this means the whole mass will be saturated and not likely to become dry again at the centre if watering be henceforth properly attended to. When the plants are put back in the pots or tubs see that perfect drainage is secured, and press the soil firmly at the top so that it may be equally solid from the centre outwards towards the circumference. Now thin out and cut back the branches freely, leaving the plants mere stumps in appearance, but taking care to leave a few shoots or leaves to keep up the action between roots and branches. Next place them in a house, and on the turn of Christmas apply heat and moisture, and if bottom-heat can be given it is a point in their favour, although this latter condition is not absolutely indispensable. A temperature of 60° by day and 50° by night may be maintained, and the syringe should be used freely morning and evening. About March the new growth will commence. Here and there a solitary eye will start into life, and in some places along the bare stems where no sign of life was previously seen clusters of eyes will rise into being. Now is the time to refashion the plants. Estimate the number of shoots required and mark out the positions they should occupy, rubbing out the surplusage. As growth proceeds and the leaves acquire some size weak liquid manure should be given. From this time forward these plants require the same treatment as that already described for Camellias established in pots. Debilitated and unsightly plants may sometimes be restored in a single year, but it sometimes requires two or three years,

much depending on the age and condition of the plant, and beyond this, certain varieties break more freely than others, and are consequently more easily renovated.

We believe that pruning both of healthy and unhealthy plants might be entirely dispensed with if the practice of rubbing out the supernumerary or ill-placed eyes (disbudding) was more freely resorted to in the earliest stages of the new growth.

DESCRIPTIVE LIST OF THE BEST VARIETIES FOR VARIOUS PURPOSES.

It always appears to us a most difficult matter to give lists of the best of anything unless one knows the circumstances under which they are to be grown, or the precise objects the cultivator has in view. With regard to Camellias, some value them for the symmetry and beauty of the flower where even the ideal of beauty is not always the same; some value more highly the habit of the plant; some, where the glass structures are small, ignore altogether plants of rampant growth; and others, where there are large conservatories, require such to furnish them. With the view of meeting all requirements, I shall arrange the varieties in three groups :—

1. Exact or symmetrical flowers, selected to meet the florist's taste.

2. Free-flowering varieties, which produce the finest effect viewed *en masse*.

3. Large-growing varieties, suited only for conservatories.

1. *Exact or Symmetrical Flowers, selected to meet the Florist's Taste.*

1. *Adelina Benvenuti*.—Flowers flesh-colour; flaked and dotted with crimson, large, full, flat, imbricated; petals pointed, even and regular; foliage and habit fine.

2. *Adriana*.—Flowers rosy-crimson, broadly striped

with white, medium size, full, reflexed; petals round; foliage and habit good.

3. *Alba Casoreti*.—Flowers pure white, large, pale, flat; petals round, imbricated, even and regularly arranged; foliage and habit good.

4. *Alba plena (the old Double White)*.—Flowers pure white, large, full; petals round, evenly and regularly arranged; form perfect.

5. *Amabilis*.—Flowers pink, shading through flesh-colour to white at the edges, sometimes veined with red, large, full, and imbricated.

6. *Auguste Delfosse*.—Flowers deep bright crimson striped with white, large, full; petals somewhat pointed, evenly and regularly arranged; foliage and habit good; very distinct.

7. *Augustina superba*.—Flowers bright pink, large, full, cupped; petals round, evenly and regularly arranged; habit good; a striking and fine variety.

8. *Baron de Vriere*.—Flowers pink or peach-colour, with a white band down the centre of each; petals of medium size, full, flat, and imbricated; foliage and habit fine.

9. *Beauty Supreme*.—Flowers rosy-pink, faintly dashed with white, of medium size, full, cupped; foliage and habit good.

10. *Bella d'Ardiglione*.—Flowers rose-colour changing to purple or slate, occasionally striped with white, large, full, imbricated, reflexed in the later stages of the flower.

11. *Belle Jeannette*.—Flowers crimson, tipped and striped with white, large, full, cupped; petals round; foliage very fine.

12. *Benneyii*.—Flowers rosy-red, slightly striped with white, of medium size, imbricated, full; petals round, even and regular; foliage and habit very fine.

13. *Bicolor de la Reine*.—Flowers clear blush-pink, large, full, imbricated; petals good and evenly arranged; foliage and habit good.

14. *Bonomiana*.—Flowers white, dotted and flaked with rosy-crimson, large, full, flattish ; petals slightly pointed, evenly and regularly arranged ; habit good, foliage small, very free.

15. *Centifolia carnea*.—Flowers blush-white, sometimes slightly dashed with rose, large, full, flat, imbricated ; petals pointed ; foliage and habit good.

16. *C. H. Hovey*.—Flowers dark velvety-crimson ; petals round and symmetrical, imbricated ; habit vigorous, foliage rich and ample.

17. *C. M. Hovey*.—Flowers scarlet crimson, large and regular in outline ; petals finely formed and of great substance ; growth vigorous, habit fine.

18. *Comte Boutourlin*.—Flowers rosy-crimson, bright, clear, large, and with finely rounded petals ; a noble flower ; foliage and habit fine.

19. *Comtesse d'Hainhaut*.—Flowers rosy-peach, shading off to white at the edges, large, full, flat.

20. *Comtesse Woronzoff*.—Flowers rosy-flesh, suffused and veined with delicate pink, colour very lovely, full, flat ; petals round, imbricated.

21. *Coradino*.—Flowers rosy-crimson, large, full, and flattish ; petals pointed, imbricated, very even and regular ; foliage and habit good ; a splendid flower.

22. *Countess of Orkney*.—Flowers white, often flaked with crimson, of medium size, full, cupped ; petals bilobate, even and regular ; foliage and habit good.

23. *Cup of Beauty*.—Flowers blush-white, slightly flaked with crimson, large, full, cupped ; petals slightly incurved in the early stages of the flower, round, even and regular ; foliage fine.

24. *Dante*.—Flowers white, occasionally faintly striped with pink, large, full, and of exquisite form.

25. *Duchesse d'Orleans*.—Flowers flesh-colour, nicely flaked with crimson, of medium size, full ; petals long and rounded ; foliage and habit good.

26. *Eugène Massena*.—Flowers rosy-blush, shading off

to white at the circumference of the flower, large, full ; petals round and regularly set ; foliage good.

27. *Eximia*.—Flowers deep transparent crimson, large, full, cupped ; petals often toothed, but even and regular ; foliage good.

28. *Fanny Sanchioli*.—Flowers milk-white, sometimes partly pink ; petals round, imbricated, even and regular ; foliage and habit good.

29. *Fatima*.—Flowers soft rosy - cerise, large, full, flattish ; petals round, even and regularly set ; colour pleasing, foliage good.

30. *Fimbriata*.—Flowers white, large, full, flattish ; the edges of the petals finely serrated, evenly and regularly arranged.

31. *Guillaume III*.—Flowers bright rosy-red ; petals round, even, and regular ; foliage and habit good.

32. *Halleyi*.—Flowers red, sometimes striped with white, large, full, flat ; petals pointed, imbricated, even, and regular ; foliage and habit good.

33. *Henri Favre*.—Flowers bright rosy-pink, of medium size, full, flattish ; petals rounded, even, and regular ; foliage and habit good ; a beautiful shade of colour.

34. *Il 22 Marzo*.—Flowers fine bright red, with a band of white running down the centre of each petal ; foliage and habit good.

35. *Innocenza*.—Flowers pure white, large, full, flat, imbricated ; petals pointed ; foliage and habit good.

36. *Jardin d'Hiver*.—Flowers blood-crimson, large, full, flattish ; petals somewhat pointed, even and regular ; growth very free, foliage and habit fine.

37. *Jeffersoni*.—Flowers fine red, with a band of white down the centre of each petal, large, full ; petals roundish, imbricated, and perfectly arranged ; foliage and habit good.

38. *Jenny Lind*.—Flowers white, sometimes slightly tinted with lake, of medium size, full, cupped ; petals round, even, and regular ; foliage and habit good.

39. *Jubilee*.—Flowers flesh-colour, strewed with fine rosy dots, and occasionally flaked with rose, large, full and flattish; petals somewhat pointed, even, and regular; foliage and habit good.

40. *La Reine*.—Flowers sometimes white, sometimes blush, edged with white; a most beautiful flower in either state.

41. *L'Avenir*.—Flowers delicate rosy-pink, slightly striped with white, large, full, flattish; petals pointed, imbricated, even, regular; colours very beautiful.

42. *Lady Hume's Blush*.—Flowers blush, lovely and distinct in colour, of medium size, full; petals pointed, imbricated, and perfectly arranged; form fine.

43. *Lavinia Maggi*.—Flowers pure white, flaked and spotted with carnation, large, full, cupped; petals pointed, even and regular; foliage and habit good; a striking and effective variety.

44. *L'Innaspettata*. — Flowers rosy-red, sometimes striped with white, of medium size, full; petals round; foliage and habit good.

45. *L'Insubria*.—Flowers deep clear red, faintly striped with white, large, full, flat, imbricated; petals rounded; foliage and habit good.

46. *Lucrezia Gazzarini*.—Flowers fine rose, banded with white, large, full, flat, imbricated; petals round; foliage and habit fine.

47. *Madame A. Verschaffelt*.—Flowers white, shaded with blush, flaked and spotted with red; petals very numerous, and closely and elegantly arranged; a beautiful variety.

48. *Madame Cachet*.—Flowers pure white, slightly striped with rose, imbricated, large and fine.

49. *Madame de Strekaloff*.—Flowers beautiful pale peach colour, sometimes striped with white, large, flat; petals round, imbricated, even and fairly regular; foliage and habit good.

50. *Madame Lebois*.—Flowers crimson, of medium size,

full, flattish ; petals somewhat pointed, very evenly and regularly arranged ; splendid form ; foliage and habit good.

51. *Madina*.—Flowers dark red, with band of white down the centre of each petal, of medium size, full, flat ; petals rounded.

52. *Magnificent*.—Flowers fine pale rose, sometimes dashed with white, large, full, cupped ; petals round, imbricated.

53. *Manara*.—Flowers dark blackish-crimson, with white stripe on the outer petals, medium size, full, cupped ; petals somewhat pointed, foliage and habit fine ; a grand variety.

54. *Marie Morren*.—Flowers delicate rose, distinctly blotched with white ; good.

55. *Mathotiana*.—Flowers dark lurid crimson, large, full, cupped ; petals pointed, very even and regular.

56. *Mathotiana alba*.—Flowers white, large, full, cupped, and fine.

57. *Montironi*. — Flowers white, sometimes slightly flaked with rose, or strongly suffused with rose, of medium size, full, cupped ; foliage and habit good ; distinct and beautiful.

58. *Monsieur d'Offoy*. — Flowers delicate rosy-pink, sometimes white, tinged and slightly striped with pink, of medium size, full, flat, even and regular, imbricated ; foliage and habit good.

59. *Mrs Anne Maria Hovey*.—Flowers usually salmon-pink, but sporting into white blush and carmine, these colours often variously and beautifully combined in one flower on the same plant ; a beautiful and most desirable variety.

60. *Mrs Cope*.—Flowers blush flaked and dashed with carmine, of medium size, full, cupped ; petals rounded, even and regular ; habit good.

61. *Mrs Abby Wilder*.—Flowers white, occasionally faintly shaded with flesh-colour and striped with lake, of

medium size, full, imbricated, perfect in form ; foliage and habit good.

62. *Ninfa Egeria*.—Flowers white, large, full, flat, imbricated ; petals round, foliage fine dark green ; habit compact ; free and good.

63. *Nymphæflora*.—Flowers dark blood-crimson, veined and shaded with purple, of medium size, full ; petals round, imbricated, evenly and regularly placed ; foliage and habit good ; very distinct.

64. *Pisani*.—Flowers pure white, large, full, cupped ; petals good and evenly arranged ; fine.

65. *Prima Donna*.—Flowers beautiful blush ; distinct and fine.

66. *Princess Bacchiochi*.—Flowers deep crimson, sometimes striped with white, medium size, full, flat, imbricated ; petals round.

67. *Princess Charlotte*.—Flowers white, sometimes splashed with pink, of medium size, full, cupped ; petals round, even and regular ; foliage and habit good.

68. *Princess Frederick William*.—Flowers blush, flaked with crimson, large, full, flat ; foliage and habit good.

69. *Principessa Aldobrandini*.—Flowers flesh-colour veined with pink, shading to white at the circumference, of medium size, full, cupped ; petals rounded ; foliage and habit good.

70. *Rafia*.—Flowers very dark rich crimson, sometimes faintly striped with white, of medium size, full, flat, imbricated ; petals somewhat pointed ; foliage and habit good.

71. *Reine des Beautés*.—Flowers pale flesh colour, occasionally tinged or striped with rose, of medium size, full, flattish ; petals round ; foliage and habit fine.

72. *Reine des Fleurs*.—Flowers fine dark red, large, full ; the petals thinly edged with white, pointed, perfectly arranged ; habit good and free.

73. *Rose la Reine*.—Flowers rosy-cerise, occasionally striped with white and veined with crimson, medium

size, full; petals round, imbricated, even and regular; foliage and habit good.

74. *Rubens*.—Flowers rosy-red, striped, and sometimes blotched with white, large, full, flattish; petals pointed, foliage and habit good; a splendid flower.

75. *Sarah Frost*.—Flowers deep rosy-pink, sometimes rayed with white, large, full, flattish; petals round, even, and regular; habit good.

76. *Souvenir d'Émile Defresne*.—Flowers rosy-scarlet, with broad white band running down the centre of each petal, large, full, flattish; petals pointed, evenly arranged; foliage good.

77. *Storyi*.—Flowers fine deep pink veined with rose, sometimes faintly striped with white; large, full, flat, imbricated; petals rounded; foliage and habit fine.

78. *Targioni*.—Flowers pale flesh-colour, occasionally flaked with rose, large, full, cupped; petals round; foliage and habit fine.

79. *Triomphe de Liège*.—Flowers deep bright rose, sometimes slightly striped with white, of medium size, full, cupped; petals somewhat pointed; foliage and habit good.

80. *Ubertina*.—Flowers dark fiery crimson, large, full; petals pointed, imbricated, and regularly placed.

81. *Ugo Foscolo*.—Flowers dull purplish-red, faintly striped with white, medium size, full, imbricated; habit good, distinct.

82. *Valtavaredo*.—Flowers clear light rose, of medium size, full, cupped; petals round; foliage and habit fine.

83. *Vicomte de Nieulant*.—Flowers rosy flesh-colour, dotted and flaked with rose, of medium size, full, cupped; petals round; foliage and habit good; colours delicate and pleasing.

84. *Vicomte de Nieuport*.—Flowers bright rose, large, full, imbricated; petals smooth and fine; habit and foliage good.

85. *Victor Haquin*.—Flowers deep fulgent rose, large, full, cupped; petals rounded; foliage and habit good.

2. *Free-flowering Varieties, which produce the finest effect when viewed "en masse."*

1. *Alba simplex* (the *Single White*).—Flowers white, single, with a group of large golden stamens in the centre ; petals large and thick ; foliage large and fine ; habit good.

2. *Aulica*.—Flowers flesh-colour, suffused and veined with pink, large, moderately full ; petals pointed, imbricated ; foliage and habit good.

3. *Bealii*.—Flowers scarlet-crimson, semi-double, large, cupped ; petals rounded ; foliage and habit good.

4. *Bealii rosea*.—Flowers rose-colour, semi-double, of medium size, cupped ; petals round, smooth, and regular.

5. *Chandlerii*.—Flowers dark blood-crimson, occasionally blotched with white ; Anemone-flowered ; foliage very dark and fine ; free, and of fine effect.

6. *Conspicua*.—Flowers bright rose, semi-double ; petals large, round, and thick ; foliage fine ; habit good ; one of the showiest.

7. *Corallina*.—Flowers deep lurid crimson, with tubular petals ; large and semi-double, foliage and habit fine ; free, and very effective.

8. *Elatior*.—Flowers purplish-rose, veined occasionally, dashed with white, large, full, flattish ; petals round ; habit good ; very free and showy.

9. *Elegans*.—Flowers rosy-pink, large, flat, rather loose ; Anemone-flowered ; foliage and habit fine ; very free, handsome, and showy.

10. *Donckelaarii*.—Flowers crimson, usually flaked with white, semi-double, of medium size ; tubular petals ; round foliage ; small, very showy.

11. *La Pace*.—Flowers rosy-pink, often dashed irregularly with white, large, semi-double ; petals large and pointed, somewhat crumpled and crowded in the centre of the flower ; foliage toothed ; pleasing, showy, and distinct.

12. *Tricolor*.—Flowers flesh-colour, shaded and flaked

with crimson and white, semi-double ; foliage and habit fine ; very showy and free.

3. *Large-growing Varieties, suited only for the Conservatory.*

1. *Countess of Derby*.—Flowers pale peach, sometimes white, broadly flaked with rose, large and full ; petals large and of great substance ; foliage fine ; habit straggling.

2. *Marchioness of Exeter*.—Flowers fulgent rose, very large and full, cupped ; petals round, even, and regular ; foliage and habit good ; a free and noble variety.

3. *Reticulata*.—Flowers rosy - red, semi-double, very large, and somewhat loose ; grand, and very showy ; habit straggling.

4. *Vandesia carnea*.—Flowers rose-colour, Anemone-flowered, large and full ; foliage and habit good ; distinct and pleasing.

VIEW FROM FRUIT WALK IN PAULS' NURSERIES, WALTHAM CROSS.

PART III.

FRUIT TREES
AND MISCELLANEA.

FRUIT GROWING.

To the Editor of the "Times," January 1889.

SIR,—Lord Fortescue has done an essential service to the public by his letter to "The Times" of December 27th, calling attention to and exposing the fallacies that have been recently uttered and written on the subject of fruit growing. The admirable letter of your correspondent "F.R.H.S.," published in your columns of the 29th inst., is a valuable sequel to it, and both should be read and digested by everyone who may think of engaging in this important branch of national industry. I do not write without experience, having been engaged for more than forty years in the study and cultivation of fruit trees on an extensive scale. As the outcome of this experience, I am satisfied in my own mind that there are thousands upon thousands of acres of land in Great Britain and Ireland which are at present yielding little or no profit to owner or cultivator which might be made to yield a handsome return to both if planted with fruit trees. It is not, however, the labourer, skilled or unskilled, who looks for a weekly return of his labour, but the capitalist, who can afford to employ skilled labour and wait for the returns, that must set the machinery in motion.

Of the larger hardy fruits, Apples and Plums stand

in the first rank, and are less particular as to climate and soil than Pears and Cherries. Of the smaller fruits, Strawberries, Raspberries, Gooseberries, and Currants are the most important. Of fruits requiring glass, Grapes and Peaches are likely to pay best. Supposing young trees to be planted, which, looking to the future, I should recommend, it will be five years at the least with the larger fruits, and two years with the smaller fruits before a profit on the undertaking can be looked for. If the labourer is induced to engage in this work, how is he to live during these five or even two years? He could not, I apprehend, borrow money from any existing institution on such an investment as this, although I can conceive it possible to found an institution that might safely occupy this new ground, and I commend the thought to the consideration of capitalists who may be willing to help the labourer in this way. But to make the enterprise a success, they ought also to choose his ground, choose his sorts, and instruct him in the details of cultivation, gathering, and marketing. Without this additional aid he would probably fail. There is no greater fallacy than to suppose that anyone could make a fruit farm pay; there are as good grounds for supposing that anyone could make an hotel or a place of amusement pay. Special knowledge is as necessary in the one case as in the other. It has always appeared to me that our landowners should be our fruit growers, as far at least as regards the making of fruit farms, which must be afterwards let on terms that would bring them a fair return for outlay of capital, &c., and find profitable occupation to both farmer and labourer.

I will not occupy your valuable space with further details, as the paper I recently read "On Fruit Growing for Profit" at the Fruit Conference of the Royal Horticultural Society was noticed in "The Times," and printed almost *verbatim* in "The Journal of Horticulture" and other gardening papers.

FRUIT CULTURE FOR PROFIT IN THE OPEN AIR IN ENGLAND.

[Read before the Society of Arts, London, April 3rd 1889.]

THE question of fruit culture in the open air in England is at the present time engrossing a large share of public attention, and in my opinion not more than the importance of the subject deserves. Anything that will add to the income derivable from the cultivation of the land by the employment of manual labour, and at the same time add to the supply of wholesome and nutritious food, should receive the amplest and most direct encouragement. Our gardening papers have been fully alive to this fact, and have ably discussed the question. But the matter has not been allowed to rest there. We have had fruit conferences, fruit leaflets, a controversy in the "Times," and articles on the subject in the "National Review" and the "Nineteenth Century."

Now, it may probably be a matter of surprise to some that this simple question should have given rise to such a diversity of opinion as to leave the outcome a matter of perplexity and doubt. To those who know, the issue is clear enough, but to those who do not know, the subject must, I think, appear to be left in a hopeless tangle. The task I have allotted myself to-night is the disentangling of this disorderly skein, and the attempt to lay the threads of it before the public in clear straight lines, so that the beginning, the middle, and the end of it may be distinctly seen. Much that has been said and written on this subject has about it the clear ring of truth, but statements have also been made which if accepted and acted on will surely lead to disappointment, vexation, and a wasteful expenditure of money. To be told on the one side that "the salvation of England depends on the future of its fruit culture"—to be advised to break up rich meadows already

giving a good return to owners and occupiers, to form them into orchards, even in questionable situations ; and, on the other side, that England cannot compete with foreigners in the open market on account of climate, facilities of transport, and unlimited competition, seem to me to be extreme views which will not bear the test of sober investigation.

For convenience in dealing with them, I will for the moment call these extreme and opposing views optimistic and pessimistic. The optimist is influenced in his opinions by the fruitful orchards he meets with occasionally—the result of skilful culture ; the pessimist by the unfruitful ones which unfortunately abound—the result of ignorance or neglect ; neither of them taking sufficient pains to investigate the causes of these different aspects. The “optimists” seem to think that fruit trees may be planted with advantage almost indiscriminately throughout the country ; the “pessimists” seem to think that it is of no use for England to try to compete in the English market with foreign countries. The “optimists,” although skilful dialecticians, seem to me to possess but a limited knowledge of the subject, so limited as not to know how much remains beyond their ken, which if known would, I feel sure, considerably modify their opinions. And further, their knowledge seems to be derived more from books than from the safer sources of observation and experience. They perhaps read the gardening papers, and even write for them occasionally, become members of some horticultural society, and on the face of this announce themselves as experts when they are only novices. It is true they offer some facts which have, at least in part, been derived from the writings of experienced cultivators ; but these facts are so skilfully incorporated with delusive statements that their teaching is both misleading and mischievous. Judging from the extraordinary gains which they hold out as probable in the future, they do not seem to know that there are already as keen, industrious, and

clever men engaged in fruit-growing as in any other business in this country, and although such make good profits, they do not make large fortunes. On the other hand, the pessimists, discouraged by the variation of climate, facilities of foreign transport, and what they consider unlimited competition, and the frequent disappointments arising from various causes—some of which they might have foreseen and controlled—throw up the game in despair. Unfortunately, the abuse of our climate is often favourably received by Englishmen; but for some sorts of fruit it is not, in my judgment, so bad as it seems. It is less favourable than some in certain points, but more favourable in others. Then foreign transport is costly, and competition in good fruit is by no means unlimited. With good cultivation there is no fear of over production; it is the indifferent fruit which gluts the market.

I have read not perhaps quite all but the greater part of the recent writings and utterances on this subject, and a great deal on the fruit culture of the past, but I do not depend on that solely for the statements I shall put before you, but to extensive reading combined with more than forty years' experience in the study and cultivation of fruit trees in this country. I may perhaps be excused for saying that when 16 years old I had charge of an orchard belonging to my father. That orchard was partly experimental—planted with all the best kinds, to prove which sorts were most suitable for the district, and the best flavoured—and partly a market orchard, consisting of sorts already proved. Although my allotted duties were simply to note the bearing qualities of the different sorts, and overlook the packing for market, my boyish activities were not bounded by these duties. There was not an apple, or a pear, a cherry, or a plum, a gooseberry, or a strawberry, that I did not test the flavour of over and over again, and note my judgment of, for future use. There were many visitors to that orchard, and I

could conduct the epicure to the sorts with richest flavour as well as the growers for market to the most abundant bearers. From that period to the present time I have always had in hand quantities of fruit trees, part of the produce of which has been sent to the market. I have planted scores and visited hundreds of orchards, and lived to see some of the former arrive at a productive and profitable state.

With these preliminary remarks, I proceed to consider the subject under the following heads:—(1) Climate and Situation; (2) Soils; (3) Sorts; (4) Cultivation; (5) Gathering, Storing, and Marketing; (6) Holdings; (7) Statistics.

1. *Climate and Situation*.—Above all things should be avoided a climate in which spring frosts are more than ordinarily frequent or severe. A mild equable climate, fairly dry, free from sudden changes of temperature, and storms of wind and rain, should be taken in preference. I do not believe in planting apples, pears, cherries, and plums in the bottom of valleys. This is often done on account of the quality of the soil. But it is of little benefit to the grower to realise a good growth, the natural results of a good soil, and abundant flowering, if his crop is destroyed in the flowering state by the spring frosts. Over the last few years there has been a wonderful show of blossom on the fruit trees in the valley of the Lea, but little fruit has followed, owing to the destruction of the embryo by the severity of the spring frosts in this low situation. This is the one point in climate that would seem to render such a situation unsuitable for fruit culture for profit, as it can be but partially amended by shelter or any other means. It seems to me that many important points desirable to secure success, which are well known to those who are thoroughly versed in these matters, have not yet taken hold of the general mind, and they cannot be too often repeated till they do this. Only a few years ago I was surprised to meet with an orchard, newly planted, at

the bottom of a moist valley, the climate of which in spring was trying in the extreme for early buds and blossoms. The sorts, too, were injudiciously chosen. Nevertheless, the planter persevered with their culture until he found that for three or four years in succession his trees produced plenty of blossom but little or no fruit. He then destroyed them, and cropped the ground with vegetables. But what a waste of time and money, and what a source of vexation and disappointment!

I believe in planting on slopes or uplands, where the spring frosts are less destructive, but even there distant shelter should be provided, if not already existing. If cheap quick-growing trees are planted for shelter, within a few yards of the boundaries of the plantations when the young fruit trees are planted, the former will afford the necessary shelter by the time the fruit trees come into bearing. I would emphasize to the utmost of my power the necessity of a favourable climate and shelter. On a farm of 200 acres there may be a difference of climate that would render fruit culture profitable or unprofitable according to the position in which the trees are planted.

In the valley of the Lea I find that in some years the crop is mainly or wholly on the bottom, and in others on the top of the trees. This I attribute to the spring frosts being more severe in the one case near the ground, and in the other at a greater elevation during the period of flowering. Or it may sometimes be that the heavy cropping of one part of the tree is the cause of a thin crop on the same part the succeeding year.

2. *Soils*.—A light or medium loam, of good depth and well drained is generally accepted as the most favourable for the production of an abundance of good fruit. It matters not if it be poor, provided manure can be obtained at an easy distance or at a cheap rate. A bad soil in a good climate often yields the grower more profitable results than a good soil in a bad climate. A wet soil is

always a bad soil. Thorough and deep drainage is necessary when dealing with wet land about to be planted with fruit trees, and this draining improves the climate as well as the soil.

Chalk or gravel would seem to be a better subsoil than clay, as the latter, especially if wet, favours the development of canker. As to soils for the different fruits, I would prefer for apples a medium loam; for plums, pears, and cherries, a light warm loam; for strawberries a light rich loam, cool and moist, with ready access to water; for raspberries a deep light loam, also cool and moist; for gooseberries and currants a deep strong loam. But I would not convey the impression that these soils are *necessary*; in well-drained soils cultivation may be safely extended even to strong or clayey loams.

3. *Selection of Sorts.*—In this part of the business there is perhaps no guide so safe as that of actual experience. Sorts that are known to grow well and bear well in any particular district may, provided the produce sells well, be safely planted there. But this experience is always limited. Valuable guides in the selection of sorts are also to be found in the period of flowering, and the frost-resisting powers of the blossoms.

As regards the period of flowering, some sorts flower early, others late. A difference of three or four days often makes the difference of a crop or no crop, as in those three or four days a frost happens that destroys the embryo of the early or expanded blossoms which leaves the unfolded buds unscathed; and this frost may not occur again in the same season. Then as to the frost-resisting power of the blossoms. This is not the same in all cases; some varieties appear naturally less susceptible of frost than others. Again, in some I have observed that the embryo is better protected by the size, form, and substance of the petals which surround it. In some cases the petals, when unfolding, fall into a hori-

zontal position, leaving the embryo fully exposed; in others they remain incurved, offering material protection. Then the *substance* of the petals differs considerably, practically almost to the extent of the difference in our own clothing between a summer and a winter coat.*

It has often been a matter of surprise to me that these important facts have not commanded more attention from our horticulturists. Here statistics would be of immense value to the cultivator, and those who have the leisure and inclination to provide them would be rendering a national service in doing so.

Again, in selecting sorts we must not overlook the fact that the same sorts of fruits do not flourish equally well in all soils and situations. This I think, is more a question of climate than of soil, and should be dealt with from that point of view. Once more, the season at which the fruit becomes marketable is an important point to the vendor. A day often makes a great difference in the price of strawberries, and apples should be early or late, with the exception of such favourite sorts as Blenheim Orange and Cox's Orange Pippin, to avoid clashing with the excess of foreign importations. In my judgment the best foreign apples do not equal good English fruit in quality, but they often look more tempting, and answer the same purposes, especially for cooking.

Of large fruits grown for profit, apples would seem to stand first, plums next, then pears, then cherries; of small fruits, strawberries, raspberries, gooseberries, and currants are the most important. Filberts may also be planted to give a profitable crop in odd sheltered spots where other fruits would not grow well. But these different fruits do not all require precisely the same climate and soil. The apple is, perhaps, the least particular in these respects,

* Flowers of Fruit Trees were here handed round in illustration and confirmation of these remarks.

some varieties of which will thrive and produce large crops of good fruit in almost any well-drained soil when grafted or budded on the crab or apple stock; the paradise stock, according to my experience, is not so good as the preceding for field culture. I admit that apples grown on the paradise stock, and pears grown on the quince stock, will if highly cultivated produce the finest fruit, and are often the most desirable for gardens; but in orchards would this high cultivation pay? The grower for profit wants quantity as well as quality, which apple and pear trees on these stocks do not generally give.

There are twenty-four sorts of Apples which I should plant in preference to others in my own county (Hertfordshire), having an eye to the disposal of the crop as well as to its production; they are—Blenheim Orange, Cox's Orange Pippin, Cox's Pomona, Devonshire Quarrenden, Ecklinville Seedling, Duchess of Oldenburgh, Irish Peach, Keswick Codlin, King of the Pippins, Lord Suffield, Small's Admirable, Stirling Castle, Sturmer Pippin, Warner's King, Wellington, New Hawthornden, Cellini, Dutch Mignon, Beauty of Kent, Lane's Prince Albert, Northern Greening, Worcester Pearmain, Early Julien, and Golden Spire.

I can speak favourably of the Ecklinville Seedling apple from experiments made both in Herts and Sussex. I planted in Sussex four years ago 200 dwarf Ecklinville apples; the soil, a quarter of an acre, was good, and had been subsoiled 18 inches deep two or three years previously. The trees grew well; the third year they produced 5 bushels, the fourth year 17 bushels, which sold on the ground at 5s. per bushel. They were planted about 6 ft. by 6 ft., but strong growers might be planted 9 ft. by 9 ft., and small fruits, such as gooseberries and currants, or vegetables, might be grown between the trees for a few years. I estimate the prime cost and expenses of planting and cultivating of the 200 Ecklinville

apple trees, on a quarter of an acre of ground, in 1884, as follows :—

Cost of trees, 200, 50s. per 100 . . .	£5	0	0
Planting and digging	0	15	0
Four years' cultivation at 15s. per year	3	0	0
Rent, rates, &c., at 10s. per year . . .	2	0	0

<i>Returns in 1887 and 1888—</i>	£10	15	0
22 bushels of apples sold on the ground			
at 5s. per bushel	5	10	0
Leaving a balance against the culti- vator of	£5	5	0

Next year I expect to get the outlay back, and look to the future for profits.

Now, I do not offer this statement of facts as statistics from which any valuable inferences as to the future can be drawn, but merely to show the probable result of the first four years' cultivation. Of so-called statistics I shall have something to say by-and-by.

In exposed situations pyramid, bush, or two years' untrimmed trees are preferable to standards, because the fruit is not so liable to be blown down, and in large orchards, if it should be decided to keep the surface under grass, and the trees have stems $2\frac{1}{2}$ ft. to 3 ft., sheep could run under them to feed, and thus help the returns.

Plums.—The Early Prolific and the Victoria are two good ones; other desirable sorts are Early Orleans, the Czar, Diamond, Pond's Seedling, Prince Englebert, and Belle de Septembre. Damsons also, of which the Shropshire and Farleigh are well to the front, are usually a profitable crop.

Pears want a better climate, and a warmer, richer, and deeper soil than apples, and are not usually so profitable a crop. They do well as a rule on a subsoil of chalk. Of pears, Aston Town, Eyewood, Hessle, Williams' Bon

Chretien, Beurré de Capiaumont, Beurré d'Amanlis, Madame Treyve, Marie Louise d'Uccle, Vicar of Winkfield, and Doyenné d'Été are the most profitable sorts to grow in Hertfordshire; Louise Bonne of Jersey, where it will grow well, and Marie Louise, where it will bear freely, are also desirable varieties on account of their superior flavour.

Cherries like a lighter and deeper soil than apples. The May Duke, Bigarreau Napoleon, Kentish, Bigarreau d'Esperen, Black Tartarian, Governor Wood, Frogmore, Early Bigarreau, and White Heart are good sorts.

Strawberries.—Vicomtesse Hericart de Thury, Sir J. Paxton, Elton Pine, President, Dr Hogg, James Veitch, Loxford Hall Seedling, Premier, Oscar, and Sir C. Napier are, according to my experience, the most desirable sorts to grow for profit.

Raspberries. — Carter's Prolific, Fastolf, Fillbasket, Yellow Antwerp, Semper Fidelis, Red Antwerp, and Baumforth's Seedling are the best.

Currants.—Of currants I should choose Black Naples, Red Dutch, Raby Castle, La Versaillaise, Cherry, and Lee's Prolific.

Gooseberries.—Whitesmith, Warrington, Crown Bob, Lion's Provider, Roaring Lion, Broom Girl, Dublin, Lancashire Lad, and Companion are good sorts.

In selecting all sorts of fruits it should not be forgotten that, as previously mentioned, some sorts flower later than others, and the blossoms of some sorts are more frost-proof than others, and thus the crop is often saved by late flowering or frost-resisting blossoms. If I were about to plant fruit trees for profit, I should look closely to these matters in the selection of sorts. I would also examine all the fruit trees, and talk to all the practical gardeners in the neighbourhood whom I could persuade to listen to me, to ascertain which sorts produced the best and most certain crops in the district.

4. *Cultivation*.—There is no greater mistake than to

suppose that the ordinary and uninstructed farm labourer can plant and manage an orchard properly. You might as well set him to make a coat or a pair of shoes. The results of the former task would not be so quickly visible, but they would be as unsatisfactory in the end. It would surely make some of the present writers on this subject blush to find how much wiser their forefathers were on this subject. Hear what Henry Dethicke says in "The Gardeners' Labyrinth," published more than 300 years ago:—"Not sufficient is it to a gardener that he knoweth, or would the furtherance of the garden, without any cost bestowed, which the works and labour of the same require. No. The will, again, of the workman, in doing and bestowing of charges, shall small avail without he have both art and skill in the same. For that cause it is the chiefest point in every faculty and business to understand and know what to begin and follow." This was the wisdom of our ancestors; and this view has been endorsed by every subsequent writer who knows his business, until a very recent period. But now, at the close of this nineteenth century, when everybody writes, it has become fashionable for those who do not know to undertake to instruct the public. Blind leaders of the blind! they substitute bold and reckless assertions for the thoughtful and painstaking deductions from experiments made and recorded by experts of the past.

If I were about to plant fruit trees I would dig or trench the ground two spits deep. A few light yielding soils might be efficiently prepared by the subsoil plough, but even in dealing with them the spade is a better instrument than the plough. Of course, the manuring and working of the soil is, or should be, more costly than in ordinary farm operations, and the cultivation of the trees by pruning, and keeping free from insects, is necessary, and is also an item of cost in labour which must not be lost sight of.

The practice of "sticking in" a few trees, by which is

often meant merely digging a hole large enough and deep enough to admit and cover the roots, in the way one would stick in a post, cannot be too loudly condemned. However good the soil, however careful the after culture, no satisfactory results can follow it. The soil should be well prepared, and the trees carefully planted and cultivated according to the recognised methods of our most intelligent and experienced horticulturists.

It is impossible in the brief space of time allotted for the reading of this paper to enter into the minute details of cultivation; I may say, however, that when planting, the top of the roots should not be more than four inches beneath the surface in heavy soils, and six inches in light soils. The roots, too, should not be huddled together in a dense mass, but be spread out and the soil worked in between them.

All cultivators, will, I think, agree with me that an annual manuring and *shallow* digging is desirable, and that the pruning-knife should be occasionally used; thinning of the fruit may also often be practised with advantage. The trees, if standards, should also be staked to preserve them from injury by the wind. Of course, the digging cannot take place in orchards that are laid down in grass, but while I would not condemn such, they cannot be spoken of as the highest examples of cultivation.

In some estimates of profits lately put forward it appears to me that these costs in connection with the cultivation of the trees and soil have not been sufficiently allowed for.

The improvement of races by selection and cross-breeding falls properly under the head of cultivation. Much has been done in this way by our skilled horticulturists during the last few years. Many of the fruits which now take a lead in the market were unknown there a generation ago. The cultivation of new fruits, although often very profitable, is, however, attended with considerable risk, and should be undertaken with due caution. It

is well to try them on a small scale until such time as their nature and qualities are fairly proved.

5. *Gathering, Storing, and Marketing.*—The gathering of fruit is a point of great importance, and requires a nice discriminative judgment on the part of the most experienced cultivator. To make the best of it, it must be ripe enough, but not too ripe. The colour of the skin is a good guide to those who know, though of little use to those who do not know. Then a second test is the readiness with which the fruit yields when gathered, but this again is a matter which requires experience and judgment. Some fruits are gathered and sent to market direct from the tree, others require storing for maturation. For the latter, a fruit room is necessary. A fruit room should be dry and cool. If built with hollow walls and a double roof, one of straw and one of tiles, heating may be dispensed with. No windows are necessary; fruit keeps best in the dark; but there should be shutters for giving air to dry the moisture which exudes through the skin of apples and pears for the first six weeks after they are stored. Fruit can hardly be kept too cool, provided it is not exposed to frost; a temperature of 40° is about the right thing. Stored fruit should be laid in thin layers—single layers if possible—on shelves; if laid in heaps it is subject to what gardeners call “sweating,” and the quality becomes deteriorated.

It must not be overlooked that some fruit—pears especially—require a higher temperature than that mentioned above to mature and acquire a full flavour. But this special management is perhaps more the business of the fruiterer than the cultivator.

The fact should be kept in view that the grower's work is only partly done when he gathers and stores his crops. He has to sell them. To this end he may have to sort them, and pack them so that they may sustain no injury in travelling; he must also market them at the right time. All this requires judgment and experience. A crop may

often be disposed of to advantage in the neighbourhood where grown, and when this is the case the costs of packing, carriage, and commission are saved. Like other men of business, the grower of fruit for market must be sufficiently intelligent, industrious, and energetic to find the best market for his wares, or he misses the reward of his skill and labour.

6. *Holdings*.—It is often said one should not plant fruit trees for profit except on his own land. But this would unnecessarily limit the number of growers. A long lease, however, is indispensable. According to calculations I have made, but with which I need not trouble you, 30 years is the shortest lease I should advise anyone to plant under, but this, of course, may be qualified in some measure by the rent. If the lease be for a shorter period, I think the tenant should expect from the landlord either a renewal at the same rent as before, or that his trees be taken at a valuation, or some equitable arrangement made for compensation if the lease is not renewed. It may be thought by some that this is asking too much from the owner of the soil, but I do not think it is more than it is his interest to concede. By such concession he may secure a good tenant and a good rent, and there is ample security for his rent in the value of the trees on the soil, which there is not always in the case of farm crops.

I will read a brief extract from a recent number of the *Sussex Advertiser*, in reference to land tenure in Kent :—
“One of the results of the unsatisfactory system of land tenure now prevailing in this country is to be seen at Knockholt, Kent. The lease held by Mr Edwin Bath, of Curry Farm, in that parish, expires at Michaelmas, and he is not allowed to renew his tenancy, nor can he recover compensation from his landlord for a valuable plantation of 30 acres of raspberries on the farm. Consequently the extraordinary spectacle may now be seen of a reaping-machine cutting down, and a steam plough following it, rooting up this plantation, which has cost a very large

expenditure of time and money to produce. When it is considered that the produce of the plantation in question realised in the present year upwards of £1690, and that the plantation was vigorous and in full bearing, some idea may be formed of the sacrifice of property involved."

Without offering any opinion on the course here taken by the tenant (as I know nothing of the case beyond what is here stated), I think you will agree with me that such a wasteful destruction as this is to be deplored.

Under this head, it has often struck me that the manner in which the charges on land planted with fruit trees are levied is not equitable, and is calculated to discourage rather than encourage planting for profit. A few words will, I think, make this plain. A man plants fruit trees, not looking for any quantity of fruit for four or five years. During that period he receives nothing, or next to nothing, in the shape of produce, although rent, charges on land, and expenses of cultivation are going on and have to be met. Then, when his crop brings him a larger return than ordinary farm produce would bring, there is probably a re-valuation of the holding and the charges on the land are raised! Now, it would seem only fair if the charges on land are calculated according to the value of the annual crop, the planter of fruit trees should pay nothing the first four years.

7. *Statistics.*—I should not be acting honestly in this matter if I were to withhold my opinion that most of the statistics lately put forward in favour of fruit growing in England are not worth the paper they are written on. They are ample enough on the score of returns, but meagre in the extreme when dealing with expenditure. But I would also distinctly say that I make no charge of wilful misrepresentation against the authors of them. I know from experience how carelessly such statistics are often made up, in answer to inquiries relating to the past, and how eagerly and inconsiderately they are received when they tend to strengthen the preconceived opinions of

the inquirer. And beyond this, some men delight in making themselves appear cleverer than their neighbours; and to this end will give forth the results of one profitable year. But as one swallow does not make a summer, by the same rules of argument, one year's crop cannot be taken as an estimate of the future yearly income. A heavy crop of one year is often succeeded by a light one in the next, and to place this estimate on a sound basis, the average of three, four, or five years should be taken. Statistics, to be of any value, should begin at the beginning. An account should be kept on both sides, from the first shilling spent up to the period when the trees give a marketable return. The sum total to this period may be treated as capital sunk. After this, the average of not less than four years should be taken as the probable yearly returns. Or the matter may be looked at in another way. The capital expended may be set down as money borrowed, on which a fixed interest is to be paid till it is returned.

An orchard of the larger fruits may be estimated to last in a good bearing condition from thirty to fifty years, according to the soil and management. Fruit trees come into bearing sooner, and die out sooner, when planted on sandy and light soils than on soils of a heavier or stronger nature.

In conclusion, permit me to say that what I have advanced should not discourage the planting of fruit trees. On the contrary, if I have been understood as I wish to be, fruit culture in England may be judiciously extended in a very considerable degree. But it should be guarded and guided by the appropriate selection of climate, soil, sorts, and above all a high system of cultivation directed by a knowledge of the business. With regard to the question of supply and demand, I believe that a much larger quantity of English fruit would meet with a ready sale if put before the public in a tempting state. I may also say that I am clearly and decidedly of the opinion that there

are thousands upon thousands of acres of land in Great Britain at present bringing little or no profit to owners or occupiers, which, if planted with fruit trees, might be made to return a good profit to both. Not that I think large fortunes are to be made by the enterprise, but that a fair remuneration will be secured for the outlay of capital and the application of knowledge, industry, and skill. Fruit-growing as a recreation, or for one's own use, is one of the most fascinating and diverting of occupations, and may be pursued with satisfaction by the uninitiated. But fruit-growing for profit is a different thing. Here knowledge is wanted. The possession of it, rightly applied, will be attended with success; the absence of it with failure. It is the height of folly to suppose that this, any more than any other business or profession, can be made profitable without preliminary instruction and training.

THE FRUIT QUESTION CONSIDERED.

[From "*The Gardeners' Chronicle*," October 19th 1889, p. 438,
republished in "*Public Opinion*."]

ONE of the great benefits conferred on the community by our rich public companies is that they can take up and promote objects of national importance which are often beyond the power of private enterprise. An instance of this kind is before us in the recent gathering of fruit growers and others at the Mansion House, called by the Lord Mayor, to meet the Fruiterers' Company. That a largely extended cultivation of fruit trees in England is open to the enterprising, as a source of profit in dealing with the land, will not, I think, be questioned by anyone who has a thoroughly practical knowledge of the subject. The question seems to be rather one of "when, where, and how?"

An increasing demand for fruit and the realisation of remunerative prices, when it is judiciously handled, would

seem to mark out the present as a favourable moment to enter upon the work. The "where" is not so easily settled. There are some districts in England where soil and situation are so favourable for fruit culture that they might be wholly given up to it. And there are others where little hope of profit could be entertained. These are the extremes. Between them are thousands of farms on which a few acres of land might be found suitable for the purpose, and which would yield a better profit under fruit culture than under any other crop.

The fact that there are at present many farms in England with orchards which yield no profit does not militate against this statement. Investigation would disclose the facts that such have not been properly planted, the sorts have not been judiciously chosen, or the management has been bad. This brings us to the "how" of the subject. Starting with a favourable situation and a good soil, the rest depends on the sorts and varieties planted, cultivation, and marketing.

Now, it is too much to expect of the farm labourer that he should know how to select, plant, prune, and cultivate fruit trees, and further, gather, store, and market the fruit in the right manner and at the right time. Yet this has been expected of him by many of our farmers of the present, and for the want of knowing what to do he has done nothing! and neglect has been followed by the usual consequences. How shall we get over this difficulty? Of course the farm labourer can be taught; this knowledge is as easily acquired as that of managing horses, cows, and sheep; but then he has not been taught, and until he has been taught the management of the orchard should be committed to other hands.

It would be well if the farmer could himself acquire the necessary knowledge, and manage the orchard and fruit; then an intelligent farm labourer could carry out the details if definite instructions were intelligibly given.

Otherwise he should employ skilled labour. Judging by results, the farmers of the past were better fruit growers than those of the present day.

The position of the cottager and small owner or occupier differs little as cultivators from that of the farmer. The former would necessarily have to depend more on their own knowledge, as they probably could not afford to employ skilled labour. If before commencing operations they acquired a good knowledge of the subject by observation, inquiry, and reading, they would be likely to avoid a wasteful expenditure of both material and labour.

The proposal of the Fruiterers' Company to offer annual prizes for the best-managed fruit farms, plantations, and orchards, is no doubt a good one, as calculated to call attention to and develop a rising industry. The recipients of these prizes would be, in the first instance, proprietors, or leaseholders not likely to be largely influenced by these awards, which their knowledge, skill, and industry, had merited and obtained; their management, although not incapable of improvement, would have already reached a goal which was at least satisfactory to them because profitable. The national importance and value of these awards, then, would consist in the definite setting up of a standard or standards for the uninitiated to study and reduce to practice. I would venture to suggest that these prizes should have the widest possible scope, framed so as to embrace the cottagers, the small growers' holdings, the farmers' orchards, and the fruit-farms pure and simple. The whole country should be mapped out into districts, and separate prizes should be given for each district, so that the growers in the least favourable climates might in this respect compete with their fellows on equal terms. And further, these prizes should vary in their nature from year to year, so as to comprehend in time the whole *rationale* of fruit culture.

As to the old orchards existing in the country—where the trees have been merely “stuck in,” instead of being properly planted, where unsuitable sorts have been used, or where cultivation has been long neglected, there is, I fear, little hope for them in the future. Where unprofitable (and the majority I have met with are of this nature), the best thing to do is to clear them away and begin again, working on more intelligent and sounder principles.

There is no doubt that the slow returns on invested capital often hinders the planting of fruit trees. It is not everyone who can afford or has the patience to wait four or five years for the profits of an investment, even if in the future there is the prospect of handsome returns. In addition, capital is required, and must be found by owner or occupier, more or less, according to the extent of the undertaking. To plant on one's own land is best; next on long leasehold; if on a short lease, the trees should be taken at a valuation if the renewal of a short lease is unattainable.

ON THE FLOWERING AND FLOWERS OF APPLES.

[From the “*Journal of Horticulture*,” March 6th, 1890, p. 191.]

AS the seasons come round we occasionally hear it said in early summer, “There will be no Apples this year, the flowers having been destroyed by the spring frosts.” In a paper which I read recently before the Society of Arts, London, on “Fruit Culture for Profit in the Open Air in England,” I called attention to the fact that there were many days' difference in the date of unfolding of the blossoms of the different varieties, and that the general opinion was that the blossoms of the early blooming kinds were often destroyed when the late ones escaped. This is no doubt partially true, but not absolutely so, nor sufficient alone to account for a full or partial crop. There

are other facts in connection therewith which I illustrated by the flowers of Peaches and Nectarines which were in bloom at the time the paper was read, and which is equally applicable to Apples. There is a difference in the size and substance of the petals which, to borrow a comparison from our own articles of dress, may be compared to that between a full and meagre, a thick and thin coat, and further in the form of the flowers, which if cupped or expanded may be compared to the difference between a buttoned and an open coat. So satisfied was I that these latter peculiarities influenced the crop of fruit that in the spring of last year (1889) I thought it worth while to note carefully the date of flowering, the size, shape and substance of the flowers and petals of some ninety-five varieties of Apples growing in precisely the same position and climate, and this table I now submit to the public.

DATE OF FLOWERING, NAME, SIZE AND SHAPE OF FLOWERS, SHAPE OF PETALS, SUBSTANCE OF PETALS OF NINETY-FIVE VARIETIES OF APPLES.

COLUMN 1.—Size of flowers, *S. small*, *M. medium*, *L. large*.

COLUMN 2.—Shape of flowers, *Exp. expanded*, *Cup. cupped*

COLUMN 3.—Shape of petals, *N. narrow*, *M. medium*, *B. broad*.

COLUMN 4.—Substance of petals, *M. medium*. *Thick, Thin*.

Date.	Name.	Size.	Shape of Flower.	Shape of Petals.	Substance.
May 1	Irish Peach...	L.	Cup.	B.	Thick
May 5	Duchess of Oldenburg ...	L.	Cup.	N.	Thin
May 7	Flower of Kent ...	L.	Cup.	B.	Thick
	Summer Thorle ...	M.	Cup.	M.	Thin
	Keswick Codlin ...	M.	Cup.	M.	Thin
	Beauty of Waltham ...	L.	Exp.	M.	Thin
	Red Ingestrie ...	L.	Cup.	M.	Thin
	Tower of Glamis ..	L.	Cup.	B.	Thick
	English Codlin ...	M.	Cup.	B.	Thick
	Hanwell Souring ...	L.	Exp.	B.	M.
	Hubbard's Pearmain ...	S.	Exp.	M.	Thin
	Red Astrachan ...	L.	Exp.	M.	M.
	Oslin ...	L.	Cup.	N.	Thick

434 ON THE FLOWERING AND FLOWERS OF APPLES.

Date.	Name.	Size.	Shape of Flower.	Shape of Petals.	Substance.
May 7	Golden Spire	M.	Exp.	N.	Thin
May 9	Keddleston Pippin	M.	Exp.	N.	Thin
	Kerry Pippin	L.	Exp.	B.	Thick
	Lord Suffield	L.	Exp.	M.	Thick
	Devonshire Quarrenden	M.	Cup.	M.	M.
	Manks Codlin	M.	Cup.	M.	Thin
	Pitmaston Russet Nonpareil	M.	Exp.	M.	Thin
	Bedfordshire Foundling	S.	Exp.	N.	M.
May 11	Warner's King	L.	Exp.	B.	Thick
	Old Golden Pippin	M.	Exp.	N.	Thin
	May Queen... ..	L.	Cup.	B.	M.
	Emperor Alexander	M.	Cup.	M.	M.
	Scarlet Nonpareil	M.	Exp.	M.	Thin
	Adams' Pearmain	M.	Exp.	M.	Thin
	Dutch Mignonne	L.	Exp.	M.	M.
	Jolly Beggar	M.	Cup.	N.	Thick
	Ringer	M.	Cup.	M.	Thick
	Yellow Ingestrie	S.	Exp.	N.	M.
	Brownlee's Russet	M.	Exp.	B.	Thick
	Stirling Castle	L.	Cup.	M.	Thick
	The Queen	L.	Exp.	M.	Thick
	Baumann's Red Reinette	M.	Exp.	M.	M.
May 15	Sturmer Pippin	M.	Exp.	N.	Thin
	Royal Russet	L.	Cup.	B.	Thick
	Bramley's Seedling	L.	Cup.	B.	M.
	Old Golden Reinette	M.	Exp.	M.	M.
	Grenadier	L.	Cup.	B.	Thick
	Lemon Pippin	L.	Exp.	M.	M.
	Boston Russet	L.	Exp.	M.	M.
	Nonesuch	M.	Exp.	M.	Thin
	Betty Geeson	L.	Cup.	M.	Thick
	Calville Blanche	S.	Cup.	N.	M.
	Norfolk Beefing	L.	Exp.	B.	M.
	Dredge's Fame	L.	Exp.	M.	Thick
	Lamb Abbey Pearmain	M.	Exp.	M.	Thin
	Warwick Pippin	M.	Exp.	N.	Thin
	Yorkshire Greening	L.	Cup.	B.	Thick
	Minchull Crab	L.	Cup.	M.	Thick
May 18	Cellini	L.	Cup.	B.	Thick
	Cox's Orange Pippin	L.	Exp.	M.	M.
	Rymer	L.	Cup.	B.	Thick
	Blenheim Pippin	L.	Exp.	M.	Thick
	Dumelow's Seedling	L.	Exp.	B.	Thick
	Cox's Pomona	L.	Cup.	B.	Thick
	Sam Young	M.	Cup.	M.	M.
	Lord Burleigh	L.	Exp.	M.	Thin
	Forge	L.	Cup.	B.	Thick
	Margil	M.	Exp.	M.	M.
	Reinette de Canada	L.	Exp.	M.	M.
	Lewis's Incomparable	M.	Cup.	M.	M.
	London Pippin	M.	Exp.	M.	M.
	Herefordshire Pearmain	M.	Cup.	M.	M.
	Gloria Mundi	L.	Exp.	M.	Thick
	Allen's Everlasting	M.	Exp.	N.	M.

Date.	Name.	Size.	Shape of Flower.	Shape of Petals.	Substance.
May 18	King of the Pippins	L.	Exp.	M.	M.
	Beauty of Kent	L.	Exp.	M.	Thick
	Mabbott's Pearmain	M.	Exp.	N.	M.
	Court of Wick	L.	Exp.	N.	M.
	Golden Noble	L.	Cup.	B.	Thick
	Fearn's Pippin	M.	Exp.	M.	Thick
	Ecklinville	M.	Cup.	M.	Thick
	Mannington's Pearmain	L.	Exp.	M.	Thick
	Peasgood's Nonesuch	L.	Exp.	M.	Thick
	Loddington	L.	Exp.	B.	Thick
	Lord Derby	L.	Cup.	B.	Thick
	Golden Pearmain	M.	Exp.	M.	M.
	Duke of Devonshire	L.	Exp.	M.	Thick
	Yorkshire Beauty	L.	Exp.	M.	Thick
	Annie Elizabeth	M.	Cup.	M.	M.
	Northern Greening	M.	Exp.	M.	Thin
	Red Juneating	L.	Cup.	B.	Thick
	Worcester Pearmain	M.	Cup.	N.	M.
	French Crab	M.	Exp.	N.	Thick
	Small's Admirable... ..	M.	Cup.	M.	Thick
	Cockle Pippin	M.	Cup.	M.	Thin
May 21	Alfriston	M.	Exp.	M.	M.
	Court pendû Plat	M.	Exp.	M.	Thick
	Galloway Pippin	M.	Exp.	M.	M.
	Lady Henniker	L.	Exp.	M.	M.
	White Juneating	M.	Exp.	B.	Thin
	Bess Pool	M.	Exp.	B.	Thick
	Northern Spy	L.	Exp.	M.	M.

The first column relating to the size of the flowers requires no further comment than that a large flower surrounding and in close proximity to the organs of fructification would have a greater protecting influence than a medium-sized or small one. The second column relating to form is still more important from this point of view. It must, however, be remarked here that the flowers of some sorts are "cupped" from the time they open till they fall, whereas others are "cupped" when opening, gradually passing into the expanded form, and others, again, are expanded from the beginning till they fall.

The third column relates to the size of the petals which compose the flower, some being narrow, leaving openings between them, others closing completely, and some even overlapping. In the latter cases there is, I apprehend, a

much larger amount of protection afforded to the delicate embryo. The fourth column relating to the substance of the petals cost me the most thought and time. The difference here is in some cases so slight as to require a very sensitive touch to realise, although I believe it is not without influence on the crop.

Many inferences may be drawn from the facts recorded in the above table. I will only instance one. The popular opinion that early flowering sorts should be avoided would seem not absolutely correct. Two of the earliest flowering sorts, "Irish Peach" and "Duchess of Oldenburg" are constant bearers, which is due probably to the protection the embryo receives from their large cup-shaped flowers; whereas two of the latest flowering sorts, "Bess Pool" and "Northern Spy" are shy bearers, which may be due to their natural constitution, but is open to the suspicion of being influenced by the later frosts on the organs of reproduction which are less efficiently protected. But here, as in all cases of this nature, exceptions will occur.

ON THE IMPROVEMENT OF PLANTS

By Selection, Hybridising, and Cross-Breeding, having
Special Reference to the Hollyhock and the Rose.

[*Read at the Horticultural Congress at Manchester, July 21, 1869.*]

THERE are two important methods of procedure open to him who may wish to engage in the modification or improvement of plants. 1, selection; 2, hybridising and cross-breeding. The first method, "selection," is exceedingly simple, and may be successfully followed by anyone who possesses or who may acquire the habit of observing correctly. The second method, "hybridising and cross-breeding," is more complex, and requires, in addition to the habit of observing correctly,

an acquaintance with at least some of the laws of vegetable physiology. In adopting the former, we seize upon certain variations or phenomena which we meet with in Nature, and endeavour to "fix" or render permanent that which we are accustomed to call accidental; in pursuing the latter, we start with a conception which we labour to convert into a fact. To the mere man of business selection is usually the more attractive; the method is more suitable to his habits of thought and practice; but to the scientific mind hybridising or cross-breeding are usually more inviting, and the results more satisfactory. To both methods are we largely indebted for improvements in the vegetable kingdom, and it would be exceedingly difficult, perhaps impossible, to say how much we owe to the simple process of selection, and how much to the more complex and scientific labours of the hybridist.

It will be my purpose to-day to place before you, as fully and clearly as I can, a few instances of improvements by both processes, drawing, as far as practicable, from my own observations and experiments.

First, of selection. It is well known to observers in this field that most plants, and especially cultivated plants, when raised from seed, are prone to vary—

"The earth was made so various, that the mind
Of desultory man, studious of change,
And pleased with novelty, might be indulged."

We sow a handful of seed, and in some cases scarcely any two of the young plants which arise therefrom prove absolutely identical; there is a difference in size or appearance, in form, colour, or texture. This shows an inherent capacity of progress or development. It is more marked in cultivated than in wild plants, and the tendency increases under cultivation; yet it appears in both states. Among wild plants I have met with no more striking example than that of the *Lychnis diurna*, which grows plentifully in the hedge-rows surrounding my

nurseries at Waltham Cross. The flowers of some of these self-sown plants are much larger than others, some are of a deeper colour, and some of a smoother aspect and more rounded form; the habit of growth of the different seedlings also varies greatly. The Dog-Rose (*Rosa canina*) is another case in point. Examples of this fact are, however, plentiful enough in Nature, and might be adduced almost without limit if required. But it is only by selection and cultivation that the most attractive forms of these natural variations can be fixed and turned to practical account. The advanced *Lychnis*, if neglected and allowed to seed in its native wilds, would probably produce offspring for the most part similar or inferior to itself except rarely and at long intervals of time. If, however, removed to a superior soil, more highly nurtured, and the seeds gathered from the most attractive plants only, the improvement would probably go on gradually but regularly from generation to generation.

To elucidate further the principle and results of selection, let us suppose an intelligent agriculturist observing in his wheat-fields some individual plant of wheat more vigorous in growth, or more prolific, longer, stouter, and fuller in the ear than those by which it is surrounded. He wishes to retain this variation, knowing that if he can succeed in so doing he will thereby increase his crop. He sets a mark upon this plant, saves and sows the seeds separately, selects again and again, from year to year, those most in advance, be they few or many, until the variation first noticed has become constant and fixed, and perhaps even further developed. This process of selection usually requires to be pursued through several generations, some of the individuals from each successive sowing continuing to advance on the line first indicated, and the whole drawing closer together, till in the end he establishes the purity or constancy of the race. Once established or fixed the variation will remain an improved race or breed, and if the individual plants composing it are not absolutely

identical, they are yet sufficiently so for practical purposes. In this instance we have supposed a case of selection for a prolific tendency, but the same principle may be applied to any other desired improvement, as quality of grain, earliness or lateness of ripening, quantity or quality of straw, and so on. Or, to take other instances from agriculture. The farmer observes among his Mangel Wurzel a plant remarkable for the large size of the root and the small size of the top; among his turnips a root that has stood the frost uninjured, while others surrounding it have been materially damaged; he selects the Mangel with the view of increasing the weight of his crop without drawing too much from his land, the turnip for the sake of obtaining a hardier race of this valuable root, and follows up the process of cultivation already described until he fixes the recognised and coveted features.

As with the agriculturist, so with the market gardener, whose superior vegetables are in great part due to the judicious selection of the individual plants from which he saves his seed. Perhaps half-a-dozen of the whitest and closest heads of white broccoli are selected off many acres as the source of the crop for the ensuing year; and other vegetables and flowers—as onions, lettuces, stocks, &c.—are subjected to the same careful process of selection.

To continue: our seed-growers work on the same principle, although in place of leaving a few only of the best, the quantity of seed they require compels them to rest satisfied with eradicating a few of the worst only, and the value of their crop of seeds is, or should be, in proportion to the thoroughness of the selection, or as the growers term it, the purity of the stock. If in the bill dealing with the adulteration of seeds now before Parliament a clause could have been inserted ensuring the purity of the stock, I should have considered that by far the most important part of the measure.

I have intentionally given prominence to the above

cases, because I believe the farmer, market gardener, and seed grower, whatever attention they may be giving to cross-breeding now, have in the past derived their improvements chiefly, if not entirely, from selection ; whereas the horticulturist has been for many years past working more or less ardently in both fields. There has, however, I believe, even with him, till recently been but little hybridising or cross-breeding with vegetables ; more perhaps, and for a longer period, with fruits ; and most of all, and for the longest period, with flowers.

The vegetables and flowers which I have improved by selection merely are somewhat numerous ; among the former Parsley and Brussels Sprouts.

Parsley was the first plant I endeavoured to improve by selecting for seed one or two individual plants from a large bed, the unusually double or curled leaves of the selected plants having pleased my fancy. The result was so striking in the following year that I was encouraged to persevere, and did so from year to year with increasing success, until Paul's Parsley became household words. Brussels Sprouts, the seed of which it was considered necessary in those days to import from the Continent, was the next plant taken in hand, and I proved over a series of years, to my own satisfaction at least, that it was neither the Continental soil nor air, but the practice of a rigorous selection that gave to the Continental seed an acknowledged superiority.

The Aster was the next plant taken in hand, and with the same results. Stocks, Pansies, Roses, Cinerarias, Hollyhocks, Zonal Pelargoniums, Chinese Primulas, and Polyanthuses were taken up in due succession, similarly dealt with, and similarly improved.

The Hollyhock would seem to demand at my hands more than a passing word. To the improvement of the flowers of this plant by selection I gave long and close attention from the year 1853 to 1857. Let me submit to your notice some of the results of the sowing of seeds

from selected plants without the interposition of artificial fertilisation. The variety *Gloria Mundi* (yellow) gave *Sulphurea perfecta*, *Argo*, *El Dorado*, *Queen of the Yellows*, and *King of the Yellows*, all yellow flowers; and *Charles Baron* (buff). *El Dorado*, a smooth yellow flower, gave yellow flowers only, bright in colour, but rough and irregular in form. *Lady Willoughby d'Eresby* (cream colour) gave a lot of rough dirty whites. *Lady Franklin* (deep pink) reproduced itself, and also gave sundry good rose-coloured flowers. *Lady Palmerston* (blush) gave a very fine brood of peach-coloured and pink flowers. *Purple Defiance* (purple) gave a rough lot of purples. *Attraction* (pink) gave a fine brood of pinks. *Princess Royal* (cream and chocolate) gave a rough lot of dirty cream and chocolate-coloured flowers. *Crusader* (pink) reproduced itself, and also others of similar colour, varying in form. *Celestial* (blush) reproduced itself, and various shades of blush of superb quality. *Memnon* (a fine crimson flower) produced regularly some plants bearing crimson, and others bearing purple flowers. *Omar Pacha* (cream edged with white) reproduced itself. A purple seedling of good form and substance gave some purple and some blush-mottled flowers of very indifferent quality. A salmon-coloured seedling of fine quality gave flowers of the same colour, but of indifferent form. A fine dark shining crimson seedling gave flowers orange, fawn, and buff, of middling quality, but no crimson. A white-edged seedling gave flowers like the parent, but as a rule not so good. A fine rosy peach-coloured seedling gave rubbish. A nankeen-coloured seedling reproduced itself almost without variation. A pure primrose seedling of very high quality gave some primrose-coloured flowers and some primrose with dark base, usually inferior to the parent. A French white-veined seedling gave a lot of prettily and variously veined flowers. An orange-buff seedling gave also some few prettily veined flowers among many very rough ones, of the colour of the parent. A fine

purple seedling gave purple, marbled, maroon, and lilac flowers, all of superior quality.

Now, it might appear at first sight that the above results militate against the theory of improvement by selection merely. But it is not really so. It must be told that the above is a record of general results only. In most cases few or many individuals might have been selected in advance of the parent. Let it further be remembered that this is the result of one year's growing only, and it certainly proves that a variation cannot always be fixed by a single effort, which we are perfectly free to admit. It shows also the tendency of the mass of seedling plants raised from cultivated or advanced varieties to revert to a less civilised state. It shows further, that a variation once obtained, new ground once broken, often proves a fertile source of further variation and advancement. But of this I shall give an example by-and-by. Now I do not think that the variation in colour recorded in some of the above cases was due to fertilisation either by insects or other instrumentality. But it might be so. I merely express an opinion on this point, founded on the fact that the progeny of some varieties varied but slightly throughout successive annual sowings, whereas that of others varied greatly. The inference I should draw would be, that some variations are capable of a more rapid development, some are more sportive, and some more readily fixed than others.

It will be further inferred from the above facts that the finest flowers do not always produce the finest progeny. And I have found this circumstance corroborated in dealing with other plants. Certain individual sorts furnish a fine brood; others, apparently equally good sorts, an indifferent brood. Sometimes a flower or fruit of indifferent quality will produce a high-class progeny, and a high-class flower or fruit an inferior progeny. The whole question is, I admit, beset with difficulties, and offers a fine field for observation and experiment. The

exceptions to the rule, that the best flowers proceed from the best parents, are numerous. Notwithstanding, unless we possess special knowledge we cannot do better than work upon this rule, for if we reject it we have nothing so good to put in its place.

One word as to the special knowledge just alluded to. Now and then a variation, peculiarly fitted for the work of progress, will arise. Many years ago a Pansy named Queen Victoria, raised by the late Mr Thompson, of Iver, proved of this character; and more recently the Roses Général Jacqueminot, Jules Margottin, and Victor Verdier may be taken as prominent instances. From these in their day, and for a certain period, many more good flowers were raised than from all others of the period put together. Now, if one acquires this special knowledge, there is sure ground to work on. But I know of no law by which this quality of a plant can be determined in advance. In the present state of our knowledge, I conceive that it can only be ascertained by observation and experiment.

I have raised many thousands of seedling Hollyhocks, Roses, Zonal Pelargoniums, and other plants, simply on the principle of gathering the seed from the most advanced plants and flowers without any attempt at cross-breeding. My success under this method of proceeding has been greatest with Hollyhocks, as I could claim at one time (about 1857) the finest Hollyhock of almost every colour as of my production. This I account for by the fact that the subject was a good one for experiment. Although a flower long known to us, it had not been long subjected to high cultivation, and was fully ripe for improvement. With the Rose the case was somewhat different. It had been experimented on by clever and industrious men in France for a number of years, and doubtless I was here traversing ground which some of them had exhausted long before. However, success here has not been altogether denied me, and to which I shall have occasion to allude

by-and-by. Of Zonal Pelargoniums I was fortunate enough to become the possessor of a remnant of stock left by the late Mr Donald Beaton ; and while many of the variations and improvements that have issued from my nurseries are the result of mere selection, others have been carefully and systematically bred. The Polyanthus is a flower with which I am now carrying on experiments, with the view of rendering it more available in spring gardening. Four years ago I selected certain colours from a bed of mixed seedlings with the view of saving the seeds of each separately, hoping in time to be able to reproduce each colour true from seed. The first sowing produced all colours from each variety, and while subsequent sowings have done the same, yet each successive sowing brings a larger proportion of the colour of the parent ; and I do not doubt that ultimately each variety will become fixed, that is, will reproduce itself true in colour from the seed.

With regard to the progress of improvement after selection, it would appear that the greatest progress does not take place when the variation is young. The most marked progress from a cultivator's point of view seems to occur when the variation has been some little time under cultivation, but before it loses the extra vigour not uncommon to selected variations. A case illustrative of this view has recently come under my observation. It is that of a plant of the *Primula sinensis*, which I recently exhibited before the Royal Horticultural Society under the name of Waltham White. It is a white-flowered variety with red leaf-stalks (the white-flowered variety has commonly greenish white leaf-stalks). The growth is exceedingly vigorous, the plant bearing a huge pyramidal truss of large pure white flowers of great substance. It is, in fact, a giant among *Primulas*, and a giant of goodly and fair proportions. Now nothing could have been more unpromising than the original variation from which this grand result has been obtained. It was a coarse weedy-

looking plant, bearing rough misshapen flowers ; but there were the distinct features of extraordinary vigour, and the red leaf-stalk. The first year's sowing from this plant produced more variation than improvement ; the second more improvement than variation ; and now, in the fourth year, the characters above described seem fixed, for all the seedlings raised from a choice pod of seed have bloomed so nearly alike in colour, size, form, and habit, that the variation may be fairly pronounced improved and fixed.

Thus far I have confined my remarks to the variation of plants from seed which appear to arise spontaneously, and are of everyday occurrence. But there are other variations occasionally taking place, which are known to cultivators under the name of "sports." Sports are variations from the leaf-bud rather than from seed, and I class them under "selection" because in their case man does not intentionally step in with the view of giving a turn to the workings of Nature. Cultivation may, and in many cases probably does, induce "sports," but cultivation is not deliberately pursued with that object. As an example of these we may instance the well-known case of the Nectarine, which was a sport from the Peach—that is, a branch of a Peach tree produced the smooth-skinned and otherwise different fruit known as the Nectarine. My first efforts at improving the Rose were made in 1843, and were induced by discovering a sport. I observed a branch and flower of the Bourbon Rose Proserpine, then recently introduced, of extraordinary vigour ; the flowers were larger and somewhat lighter in colour than in the original ; the leaves were of a lighter green, more obtuse, and destitute of the customary red nerves and red colouring round their circumference. This, which I believe I am right in speaking of as a sport, was nevertheless not a very marked example of this tendency. It was cultivated separately and fixed, but did not depart sufficiently from the original to be thought worthy of a new name, and was consequently sold as a superior variety of the Rose

Proserpine. About the same time I observed a branch of the Rose du Roi bearing pale flesh-coloured flowers. This branch was propagated, and the new colour fixed. When about to distribute this as a novelty, to my surprise I received it from France under the name of Celina Dubos! Now, although I know nothing of the history of Celina Dubos as received from France, I yet know that it was identical with my sport, and I think it is reasonable to conclude that it originated in the same way. Also about the same time I observed a branch on the Rose Dr Marx producing leaves finely striped with gold, and a branch of the Bourbon Queen with leaves beautifully variegated with white. Both of these sports were propagated and fixed. Of Roses, the Moss group is the most inclined to sport. I have in days gone by frequently seen two or three varieties of the Moss Rose growing on the same plant. I have seen the Baronne Prevost, which is naturally a double rose-coloured flower, produce striped flowers, and others nearly single. I have also seen Mrs Bosanquet, a white Rose, produce a branch bearing red flowers.

But the most notable recent case of this tendency is that of the new double crimson Thorn, and this is remarkable in having been observed in two different places about the same time. It should be told, however, that both these plants had been purchased from the same stock. The particulars of one case are as follows:—A tree of the double pink Thorn had been planted in a garden some fifteen or sixteen years, when a branch was observed to have started away from the centre of the tree with unusual vigour. It flowered, and lo! the flowers were crimson instead of pink, presenting a marked contrast to those on the lower part of the tree. The leaves, too, were of larger size, greater substance, and more deeply lobed. Young plants were propagated from this branch by budding and grafting, and the character was fixed.

A few words with regard to the fixing of variations or

sports seem desirable here, and with that I shall close this part of my subject. We have seen that variations or sports are, when reproduced from seed, liable to vary greatly in character, with a general tendency to revert to the type. From the first sowing there will probably be but few like the variation, but by successive repetitions of the process of sowing and selecting the variation is at length fixed. It is thus that many of our races of annuals, as Asters, Stocks, Clarkias, Candytufts, Tropæolums, and the like, not readily propagated otherwise than from seed, have been obtained. But the process of fixing variations or sports from the leaf-bud is almost certain to proceed without interruption. You graft, bud, or make cuttings of the sported branch or plant, and the plants so propagated usually remain unchanged.

I will now proceed to the second part of my subject, namely, the improvement of plants by hybridising and cross-breeding.

I have said that in hybridising and cross-breeding we start with a conception which we labour to convert into a fact. For example, we find existing in *two separate flowers* or fruits certain high qualities as size, colour, form, flavour, mien, &c., which we seek to combine in *one and the same individual*. We cross or hybridise these two plants, sow the seeds, and after few or many attempts one out of many is likely to give the desired result. As a guide in hybridising and crossing it should be noted that our best observers are of opinion that hybrids and cross-breeds derive their form and habit in great part from the female, the colours of the flowers from the male, while the constitution may be acquired from either parent.

By hybridising we understand the crossing of two different genera or species; by cross-breeding the intermixture of two different varieties of the same species. Practically speaking the work is the same. It would be out of place here to enter into a lengthened description as to how far the different species of plants may be hybridised.

Doubtless there are limits; I have tried on various occasions and in various ways to obtain a hybrid between the *Pyrus spectabilis* and the *Cydonia japonica*, two different genera, but without success, and I announce this because to acknowledge a failure is sometimes as useful to others as to record a success. On the other hand, I have succeeded in raising hybrids between the Moss Rose (*Rosa centifolia*) and the Alba Rose, two different species; also between a Hybrid China Rose (*R. gallica* $\times$ *R. indica*) and *Rosa multiflora*. Then, again, I have often tried in vain to obtain crosses between certain varieties. So that it does not seem to be exactly a question between species and species, or between variety and variety as these are at present classified by botanists. I have found, however, as a rule that the more nearly allied the varieties the more certain is the cross. The Tea-Scented and Noisette Roses are found to cross readily, but then, although these form separate floricultural groups, they belong to the same species—*R. indica*. But the Hybrid Bourbon and Moss Roses also cross readily, and here we have intermixed three different species according to most botanists—*R. indica*, *R. Gallica*, and *R. centifolia*. The grandest and the most beautiful of all the floral groups of the Rose—the Hybrid Perpetual—has a curious genealogy: *R. gallica* crossed with *R. indica* produced Hybrid China; the latter crossed with an autumn flowering variety of the *R. damascena* produced Hybrid Perpetual.

My first attempt at crossing the Rose was made in 1843. I crossed three flowers of the Tea-Scented Rose known as Goubault with the Bourbon Rose Souchet with the view of obtaining a dark-coloured Tea-Scented Rose. Let me call these flowers C, D, and E. C produced a very large pod, which ripened perfectly and gave ten large seeds. D produced a medium-sized pod with nine seeds of unequal size, one being very large, four large, and four small. E produced a small pod which contained thirteen small seeds. Of these thirty-two seeds four only ger-

minated! Three of the plants were curious cross-breeds, of no floral value, and having little in common with either parent; and one, in leaf, habit, and flower was very similar to the wild Dog Rose. As the seeds were sown in pots and placed under glass I do not think any stray seed could have found place among them. I was here, no doubt, unfortunate in the choice of my parent or parents, and regard this issue as an instance of the well-known tendency which the offspring of some cultivated plants have of reverting to the normal form. The same year I crossed about forty other flowers, but the crop of seed was indifferent, and the result nothing worthy of record. This non-success led me to submit to microscopical examination the flowers of a number of varieties of the Rose with the view of ascertaining which were likely to prove the best seed-bearers. The result of that examination is given in the "Rose Garden," ninth edition, p. 112 *et seq.* The conclusions I drew were:—

First. That certain varieties are sterile, and incapable of forming perfect seeds under any circumstances. Of these I found such kinds predominate as roll the petals of the flowers inwards, the centre of the flower being quartered in the manner of a crown. In others the pistils were weak or imperfect. Secondly. That many kinds where the pistils are perfect, which in their natural state form seed-pods which wither before arriving at maturity, may be induced to perfect their seeds by artificial fertilisation. This class of Roses is the best for him who intends raising seedlings to choose his female parents from, because there is little here to interfere with, mar, or counteract his plans. Be it remarked, however, that there are certain kinds which must not be confounded with the above—kinds which, owing to the length of time the seed-vessels are in arriving at maturity, never perfect their seeds in this country. Thirdly. That those kinds which we find seeding abundantly in their natural state are self-fertilised, and that their abundant production of seed is due to this

point mainly—the more perfect development of the organs of reproduction, especially the polleniferous parts of fructification.

Thus fortified I selected some 20 sorts of Roses, planted them in a separate corner of the nursery, and in the month of June 1846 crossed nearly a thousand flowers. Success in seeding was complete. On the 30th of September of that year I gathered 223 well ripened pods of seeds, some of them of extraordinary size. Two successive gatherings of about 100 pods each, were afterwards made at intervals of about a month, the whole number of hybridised and crossed pods gathered and stored amounting to 444. The seed was sown the same winter, vegetated during the succeeding spring and summer, and the seedlings bloomed at intervals over the next six years—that is to say, some bloomed the first year, others were six years old before blooming. The result of the hybridising and cross-breeding was apparent in many cases but not in all. Two of the most striking and complete I will describe.

I had long thought that a bright dark coloured climbing Rose was a desideratum, as at that time nearly all our climbing Roses were white or yellow. To obtain this I hybridised the Rose *Athelin* (hybrid *Bourbon*) with *Russelliana* (multiflora). *Paul's Vivid*, a bright crimson climbing Rose, of great repute in its day, and even now sought after, was raised from this effort. Again, I had conceived that if anything could add to the beauty of the *Moss Ross*, it would be to impart to it the exquisite tint of the *R. alba* or *Maiden's Blush*. To obtain this I hybridised the *Moss du Luxembourg* with an *alba* Rose, and among the offspring was a *Moss* Rose with flowers like the *Maiden's Blush*, afterwards named "*Princess Alice*."

A few years later I raised from one and the same sowing of English Rose seed, the Roses *Beauty of Waltham*, *Lord Clyde*, *Red Rover*, *Globosa*, *Princess of Wales*, *Dr Lindley*, and *Duke of Edinburgh*. Unfortun-

ately, in these cases the parentage of the offspring was not preserved.

The next flower with which I experimented was the Hollyhock. I crossed numbers of these flowers in the years 1853-7. A blush seedling crossed with White Globe, with the view of obtaining better blush flowers, gave, among others, 10 seedlings answering to this end. Fireball Superb crossed with Metropolitan, with the view of obtaining a better scarlet Hollyhock, gave one plant of the character sought. A pink seedling crossed with Lizzie, with the view of combining the bright colour of the former with the quality of spike and flower of the latter, gave a large number of seedlings, 23 of which were realisations, more or less complete, of the object sought. These are three cases selected from many of similar import. With regard to the results in crossing the Hollyhock, I may add that Mr Roake, of Clewer, at one time a most successful raiser of seedlings, obtained three of his most marked improvements, all differing in colour, from one fertilised pod of seed, whereas with seedlings raised from seed pods not fertilised he found the degree of progress slow and uncertain.

Some of my latest efforts in hybridising and cross-breeding have been directed to Zonal Pelargoniums. Attempts to hybridise the Zonal varieties with the Unique have never succeeded; and yet Mr Wills has obtained hybrids between the Zonal and Ivy-leaved, species probably as distantly related. He tells me that he hybridised some thousands of flowers without success, until he thought of dipping the hybridised flowers into water after applying the pollen, by which means he obtained seeds and seedlings, two of which, evidently hybrids, are now before the public under the names of Willsii and Willsii rosea. My experiments in cross-breeding have been numerous, but having been pursued chiefly with my own unnamed seedlings, which are unknown, I have little that is tangible to place before you. Two or three cases, however, in which

the varieties were afterwards named and sold, may prove interesting, and give a clue to those who may care to trace them. "Mrs Pollock," crossed with a green-leaved seedling Zonal, produced some green-leaved, some golden variegated tricolors, and one golden-edged variety after the character of Golden Fleece. "Amy Hogg," crossed with "Crusader," gave the result sought after in "Evening Star." "Governor," crossed with "Alexandra," also gave the result sought after in "Clio." "Dr Hogg," crossed with "Rebecca," again gave the result sought after in "Pœan." "Model," crossed with "Firefly," gave also a form intermediate between the parents, which was afterwards named "Annibal."

Leaving flowers, let us glance momentarily at fruits. I have now growing in my nurseries a brood of seedling Strawberries, the result of various crosses, the parentage on both sides having been carefully preserved. As they are not yet named, I can only speak of them as seedlings. Two seedlings raised from "Sir C. Napier," crossed with "Myatt's Pine," are worthless. Of eight seedlings between "Eleanor" and "Carolina superba," four are worthless; one is flat and rough in flavour; one resembles "Keen's Seedling" in appearance, but is of a much richer flavour; one bears large fruit, remarkable for its solidity, of the shape of "British Queen," with the fine rich flavour of "Myatt's Pine;" and one is a full-sized handsome fruit, of fine colour and good flavour, bearing abundantly, and of hardy constitution. Two seedlings between "Oscar" and "Myatt's Pine" are deficient in flavour. Of eight seedlings between "Sir C. Napier" and "Crimson Queen," three are large handsome fruit, solid, heavy, of good colour and rich flavour; one is flat and insipid; one is very acid; and three have no prominent character. Of five seedlings between "Filbert Pine" and "Myatt's Pine," one is large, of fine flavour, and very juicy; one is small, of good colour and flavour, solid, the flesh notwithstanding very tender; and three are deficient in flavour, one of which

is a prodigious bearer. Four seedlings between "Oscar" and "British Queen" are all deficient in flavour. Of seven seedlings from "British Queen," crossed with "La Constante," five are worthless from the fruitist's point of view, although one is so distinct in habit as to be scarcely like a Strawberry, and one so positively nauseous in flavour that it leaves an unpleasant sensation on the palate long after tasting; yet from the same fruit and parentage, one is of good flavour, and another of positively fine flavour. Of eight seedlings raised from "Admiral Dundas," crossed with "Crimson Queen," four are small and almost flavourless; two are large handsome fruit, of fine colour and fine flavour; one is very late, of pleasant but not rich flavour; and one is early, the fruit large, of moderate flavour, and produced in extraordinary quantities.

I shall now conclude these remarks with a few practical deductions. We have seen that in the improvement of races much may be accomplished by mere selection, but hybridising and cross-breeding, if in some cases and with some experimentalists unsuccessful, are in the hands of others shorter and surer roads to the attainment of a given object. We have seen that our best vegetable physiologists are of opinion that hybrids and cross-breds derive their form and habit from the female, the colour of the flowers from the male, while the constitution may be acquired from either parent. This is sometimes, and may be generally true, but the exceptions are so numerous that they cannot, according to my experience, be said to prove the rule. It is generally admitted that the most perfectly developed flowers and fruits are the best for the improver to work upon, and this is, I believe, true as a rule, although still attended with exceptions. Personally I have learnt from my labours in this field never to lose heart or hope. For sixteen years—from 1843 to 1859—I had laboured with such qualified success in raising seedling Roses that I had then minimised the amount of labour by omitting the costly process, in point of time, of

keeping notes of parentage, &c., when in the following year—1860—I was more than compensated for all past labour by the extraordinary flush of success already stated. I say, then, to my brother-horticulturists who may be working in this field—Never despair ; persevere and wait.

“Let us then be up and doing,
With a heart for any fate ;
Still achieving, still pursuing,
Learn to labour, and to wait.”

My experience in selecting, hybridising, and cross-breeding tells me that he who is seeking to improve any class of plants should watch narrowly and seize with alacrity any deviation from the fixed character, and the wider the deviation the greater are the chances of an important issue. However unpromising in appearance at the outset, he knows not what issues may lie concealed in a variation, sport, hybrid, or cross-bred, or what the ground newly broken is capable of yielding under careful and assiduous cultivation. If we would succeed in this field we must observe, and think, and work. Observation and experiment are the only true sources of knowledge in Nature, and while observing and experimenting we should above all things guard against prejudices.

My remarks have hitherto been chiefly of horticulture, and addressed to horticulturists. But there are three other great and important classes of the community who are deeply interested here—the agriculturist, the manufacturer, and the merchant, to each of which I would momentarily address myself.

To the agriculturist I would say, You have of late years practised draining, deep cultivation, and high manuring, and the increased fertility of your soil has largely rewarded your industry, enterprise, and skill. The next step with you is the improvement of the races of your cereals and root crops. I have in the opening of this paper shown what you may accomplish by selection

merely, but you may do far more by cross-breeding. I believe that your produce may be improved and increased by this means beyond what the boldest thinker would at this moment dare to declare.

The manufacturer is also deeply interested in this question, in at least so far as the raw material he uses is drawn from the vegetable kingdom. As the horticulturist has by selection and cross-breeding increased the size and substance of his flowers, so may the manufacturer or his agents, by selecting from other special points of view, increase the productiveness and strengthen or soften the fibre of their cotton, flax, hemp, and jute.

Again, if the horticulturist can increase the size and productiveness, advance or retard the seasons, and improve and vary the flavour of his fruits, why should not the merchant or his agent do the same with his teas, coffees, cocoa, and other vegetable productions? There can be no question here that the one is as open to modification as the other; it only requires the thoughtful interposition of the skilled brain and hand.

Thus we see how vast are the interests here involved, how rich in prospect the unexplored territory in which the horticulturist may be said to be the pioneer. The agriculturist, the manufacturer, and the merchant should in their own interests, as well as in the interests of society at large, lend him a willing and a helping hand, and he in his turn should rejoice to find his labours acceptable and capable of so wide and beneficial a diffusion. I stand before you this day and declare, what I honestly believe, that we are here waiting but working at one of the chief gateways of a grand Temple of Science, and not many years will elapse ere many of its secrets will be revealed, to the surprise, delight, and profit of the human race.

ON COLOUR IN THE TREE SCENERY OF OUR GARDENS, PARKS, & PLEASURE GROUNDS.

[*Read at the Horticultural Congress at Oxford, July 21st, 1870*].

LAST year I had the privilege of reading a paper at the Manchester Congress of this Society "On the Improvement of Plants," which subject may be said properly to belong to the "Science" of gardening. To-day I have the pleasure of submitting to you my thoughts "On Colour in the Tree Scenery of our Gardens, Parks, and Pleasure Grounds," and here find myself dealing more directly with the "Art" of gardening. While fully recognising the progress both in the art and science of gardening which has taken place in my day, I yet think that in this outlying but important province our professors have not made so free and effective a use as they might have done of the various tints of foliage which are to be found amongst trees and shrubs.

Lest I should be misunderstood, permit me to state at the outset that I hold the prevailing green with which the earth is clothed to be the best colour that could have been devised for the purpose, as blue is the most appropriate colour for the sky. But the sky, which is beyond our reach and power, is naturally subject to constant and considerable variation, and is singularly free from monotony. It is not altogether or long together of one colour. There are light fleecy clouds continually breaking up the hemisphere of blue, varying in substance and colour; sometimes hanging motionless, but oftener sailing noiselessly along more or less rapidly and every moment changing in form. Then there are the dark thunder clouds, and the golden, silvery, purple, and roseate hues which often give both life and brilliancy to the morning and evening sky.

But we have the power given unto us to vary and adorn the surface of the earth, and I would here invite public attention and invoke the artist's aid on behalf of

colour. There appears to me a monotony on the face of our English landscapes arising from one uniform and all pervading colour—green. This monotony I would seek to remove by the introduction of trees with purple, white, and yellow leaves. With the same end in view I would also plant more freely the transitory red, yellow, brown, and purple tints of spring and autumn, supplementing these efforts by the introduction of berry-bearing trees—trees with white, red, black, and yellow berries, and trees with white, red, and yellow bark for winter ornament.

With these preliminary remarks I shall endeavour to show, first, that the object I seek is desirable; next, that it is attainable; and shall conclude with a few general remarks and brief examples in support of my views.

I am free to confess that there is nothing in the whole range of nature which yields me more pleasure than the contemplation of a beautiful landscape. To stand on some elevated spot in the English or Scotch lake district, for example, and look down on a broad and varied expanse of country; to row upon the surface of the lakes and look upwards upon the towering masses of rock and tree; to trace the lake shores, the lake islets, and waterfalls, is, I believe, a recreation of a higher intellectual and more æsthetic order than the many who have not practised it might at first sight take it to be. A highly cultivated American gentleman once said to me, "England is a series of varied and improved landscapes. Now and then in remote districts one catches a glimpse of nature unaided and unadorned, but generally throughout the length and breadth of the land high art has been so skilfully applied as to effect the artist's object without leaving behind any traces of the artist's hand. But I miss the brilliant autumnal glow of the American forests; your landscapes lack colour." This very nearly expresses my ideas of English scenery; the natural beauties of our landscapes have in many cases been improved or developed at a sufficiently distant date that the old and

the new have become blended in one harmonious whole, leaving no strong lines of demarcation between the work of nature and the work of art, but the landscapes are generally cold and monotonous—wanting in variety and colour.

If we proceed to analyse a beautiful English landscape we shall find it composed of diversity of surface, light and shade, wood, water, rock, and many minor accessories, which may or may not be present either singly or in combination. These I mention, not to dwell upon, but to dismiss as the recognised features of the landscape. My business at present is with tree scenery, and principally with one feature of it—colour. Our earth tints are prominently neutral, often sombre, and to correct this should, in my judgment, be a leading idea with the true artist in landscape gardening. A piece of country however beautiful by nature, a garden however perfectly planned, yields more or less pleasure according to the skill and taste exercised in the planting, just as the proportions and beauty of the human form are improved or otherwise by the style of dress—trees, shrubs, and flowers constituting in fact the exterior dress of the garden and the landscape. Now, it must be patent to those even who are but slightly acquainted with this subject, that the labour of our plant collectors abroad and plant cultivators at home have placed within our reach many trees with coloured leaves—purple, yellow, and white of various shades—and I hold that these colours should be so blended with the prevailing green as to remove the monotony which at present obtains. That the effect of colour in the landscape would be generally appreciated was once brought home to me in a peculiar manner. I was riding in company with some friends through the park at Chatsworth in Derbyshire. Suddenly we sighted a tree with reddish-brown leaves rising from the green sward and surrounded at some little distance with the usual green trees. Remote as it was, we could not at the moment make it out, but all

admired it and agreed that it was at once telling and beautiful. Led by admiration as much as by curiosity we approached it, and discovered a dead tree retaining its reddish-brown withered leaves.

I think that any cultivated observer who may dwell ever so briefly on the tree scenery of Great Britain will admit that the contrasts of colour, weak and little varied as they generally are, present to him one of its most pleasing features. If, then, the slight existing variation of colour, restricted principally to the contrast between light and dark green, is admitted to be an element of beauty, may we not justly infer that we should gain something if we varied and increased the contrasts by the use of stronger and more distinct colours? I think, then, that I may fairly assume, that on a free and full consideration of this subject, it will be generally admitted that a greater variety of colour would be an improvement in the tree scenery of our English gardens, parks, and landscapes.

I have next to show that the object I seek is attainable. The arrangement of the colours of flowers in the flower garden has of late years been worked out with wonderful skill and effect. What were our flower gardens in this respect thirty years ago? I remember that results predicted then were considered impossible by the many, although they have been accomplished and more than accomplished long ago. Now, as far as I am aware, no one has yet applied the same principles in the arrangement of trees and shrubs with coloured leaves. I have been told that it cannot be done. But after a long study of the question and numerous experiments, I have come to a different conclusion, which I submit with all deference to those who think otherwise. I believe that here, as in the flower garden, there only needs a beginning and progress will be rapid and success certain.

Many years ago I formed a collection of pictorial trees and shrubs, and planted them closely together with the view of watching their development and eradicating those

kinds which might prove undesirable on more mature acquaintance. This plan I rigorously pursued, and now find myself in possession of a select list which I believe is sufficient to carry out all that I shall advance.

In addition to the ordinary or prevailing green, I find that I have five colours or tones of colour with which to work:—(1) *Light green*; (2) *dark green*; (3) *reddish purple*; (4) *yellow or golden*; (5) *white or silvery*; and these may be combined in a variety of ways. Dark bluish green has a good effect when placed in contrast with light yellowish green; white with dark green; reddish purple with light green; reddish purple with yellow; yellow with dark green. And these contrasts by no means exhaust our resources. I merely quote them from among a number of experiments which I have actually tried and found agreeable to my taste. I have indeed no intention here of laying down any precise or definite rules for the application of these principles. I aim at no more than to show that the materials in colour exist, leaving their combination to be dealt with by the ingenuity and industry of a cultivated taste.

It would be chimerical to suppose, unfair to expect, that any person taking this subject in hand without previous study or without the fullest acquaintance with the materials which exist—some of them newly introduced—would at once realise any great measure of success. To such an individual the scheme would probably appear utopian. He might by a momentary effort call up in his mind the short list of old and familiar trees with purple, white, and yellow leaves—the purple beech, the white poplar, the variegated Turkey oak, and some few others still among the most valuable, but so few in number that he would dismiss the subject as impracticable. But unless familiar with the black and yellow oaks, the yellow elm, acacia, and alder, the white-leaved *Acer Negundo*, and the many beautiful maples recently introduced from Japan, the host of richly variegated trees only now becoming plenti-

ful—in a word, unless familiarly acquainted with the latest introductions of this kind—he would, I submit, be drawing his conclusions from incomplete information.

In order to bring my views to a practical test, I have here a diagram, in which I have merely sought to obtain the identical colours existing among trees and shrubs, and must refer you to the specimens exhibited to show that these colours really exist. This diagram, hastily executed, will perhaps also give some idea of the effect of the arrangement of the colours which we possess*. The light green here is supposed to represent the Larch, the dark green the Yew, the reddish purple the purple Beech, the yellow the golden Oak, and the white the variegated Acer Negundo. There is also introduced here the ordinary green of nature, which may fairly be taken as the ground-work of our operations. Now, I am well aware, and would not ignore the fact, that the colours of the leaves of trees are influenced in some degree by cultivation and soil, but this does not affect my argument, as in the majority of cases they still bear the same relation to each other.

I have now to offer a few general remarks with brief examples in support of the views which I have advanced. Let us remember that we are working with pictorial trees for pictorial effect. We have spring pictures, summer pictures, autumn pictures, and permanent pictures. Summer and permanent pictures are the most valuable because of their greater durability. Specimens of these are before you, and a list of their names will be given by and by (*see* pp. 236 and 251.) The materials for spring and autumn pictures can only be shown in spring and autumn. The varying tints of the unfolding leaves of some trees in spring, and the glowing colours of the leaves of other trees in autumn, must be familiar to all observers, and these trees are beautiful in their seasons, whether regarded individually or in combination. But they are transitory.

* It is not considered necessary to reproduce this.

The varied and telling colours of spring, as a rule, quickly subside into the universal green, and the bright leaves of autumn fall speedily before the frost and gales of that season. Yet both are desirable. The warm red and yellow tints of the unfolding leaves are peculiarly cheering in the cold days of early spring, and should be introduced freely when planting. The splendour of the American forests in autumn is a theme on which many travellers have loved to dwell, and leaves from these forests may be seen in that admirable Institution, the South Kensington Museum. The trees we have long had under cultivation, and they are not only available, but capable of being wrought up with magnificent effect in this country.

Among the most effective of spring trees, the Corstorphine Plane (*Acer Pseudo Platanus lutescens*) (yellow), the *Acer colchicum rubrum* (red), the Purple Horse Chestnut (*Æsculus Hippocastanum purpureum*) (purple), and the Silver Poplar (*Populus argentea*) (white) may be instanced. The shades of green at this season are also innumerable, although for the most part gradually subsiding into one nearly uniform tint.

The brightest among the leaves of autumn are perhaps the Scarlet Oak (*Quercus coccinea*), the Liquidambar (*L. Styraciflua*), the Stag's-horn Sumach (*Rhus typhina*), the *Ostrya virginica*, and several varieties of Cherries, Pears, and Maples; these usually die off bright red. Of yellow shades may be instanced the Lombardy and Ontario Poplars (*P. fastigiata* and *P. candicans*), the Norway Maple (*Acer platanoides*), the Horse Chestnut (*Æsculus Hippocastanum*), the *Salisburia adiantifolia*, the Lime (*Tilia europæa*), the Tulip tree (*L. tulipiferum*), the White Mulberry (*Morus alba*) the *Gleditschia triacanthos*, the *Magnolia tripetala*, the *Juglans amara*, the *Acer Negundo*, the *Kolreuteria paniculata*, the Birch (*Betula alba*), and certain varieties of Cherries, Pears, Thorns, and Maples.

As examples of planting for pictorial effect, nothing can be more beautiful in the flower garden than pillars

or columns of Ivy, provided that they be appropriately placed. Here we have dark green, light green, green blotched with gold, and green edged with silver, all calculated to form permanent pictures.

Standard and pyramidal golden Yews and golden Hollies also form beautiful permanent pictures in the garden. All permanent pictures are of course also winter pictures, but the common Beech (*Fagus sylvatica*) deserves special notice; it holds its reddish-brown leaves throughout the winter, and this colour stands in warm and beautiful contrast with the Pines and other evergreens at that season. The white bark of the Birch, the white, purple, and yellow bark of certain species of Willows, the red and yellow berries of the Holly, and the yellow and black berries of the Privet are also invaluable for winter decoration.

I have often admired the effect of three large trees placed in juxtaposition in a garden in my neighbourhood, whether by accident or design I have no means of ascertaining. Near the bend of a river is a Weeping Willow, the pale green drooping branches appearing in the distance almost to sweep over the stream. Behind rises a mass of the dark feathery Yew, the plumes of foliage waving in beautiful contrast of motion, form, and colour. Still farther behind, there appears in spring rigid masses of Apple blossom, the snow-white crimson tinted flowers blending in beautiful contrast with the dark and pale green of the Yew and Willow. Here we have the ever-green and deciduous forms in combination, but they are most effective as a spring or summer picture.

Of all the errors to be avoided in the association of colours I would caution the planter against an arrangement that should present a "spotty" appearance. Broken lines, or irregular shapes of colour, appear to me more desirable in forming plantations or belts, than figures with a more easily definable outline. On the face of belts or woods, three or five plants of a kind may be planted in a

group, the outline being so broken that there are bays and promontories. In parks and gardens, single trees or groups of trees, each group of a distinct colour or shade of colour, would seem most appropriate. In working out these ideas we must never lose sight of harmony, remembering, however, that there are harmonies of contrast as well as of analogy.

There is another point which should on no account be lost sight of. There are some trees, the effect of which is beautiful close to the eye, but which lose their distinctive character in the distance. Such are more appropriate to the garden, where brought in close contact with the eye, than in the distant landscape. But there are others which lose little or nothing from a distant view, and these facts must be taken into account and acted on when planting. As a rule, trees with variegated leaves are best placed near to the eye, and those of one uniform tint are most effective in the distance.

I have already instituted a comparison between the colours of flowers and the colours of leaves, but there is an important difference in them which I must not omit to mention. The colours of flowers are often so bright and pronounced that certain of them cannot be judiciously brought into close contact; they require an intervening mass or line of some intermediate or neutral colour to render the effect agreeable and satisfactory. Not so, however, with the colours of trees; they are so subdued in tone that the association of the strongest colours does not produce violent contrast. Again, for this very reason—the colours of leaves being less bright than those of flowers—it becomes necessary here to accomplish by breadth of colour that which with flowers is effected by brilliancy of tone. Thus it follows that great breadths of scenery may be dealt with most effectively. It is indeed a mere question of outlay, and nothing more, whether variety of colour shall or shall not be extended from the garden to the outer pleasure ground and shrubberies, the hills of plantations,

the outskirts of woods and forests, and the most distant mountains and plains.

[For lists of trees and shrubs classified under the heading of "Colour," see pp. 236, 251.]

ON FORM IN TREE SCENERY.

[*Read at the Horticultural Congress at Birmingham, June 27th 1872.*]

THE bountiful Giver of all good gifts has distributed His favours with a more equal hand than those unaccustomed to the study of Nature and Nature's laws might reasonably suppose. Man, the last and crowning act of creative power, wisdom, and beneficence, is variously endowed both mentally and physically; one excels in action, another in counsel; to one is given great muscular strength, to another power of endurance; and as we descend step by step in the scale of creation, we shall find the same rule obtain. Among birds, those endowed with the richest plumage seldom possess the highest gifts of song. We gaze in admiration on the plumage of the Peacock, and we listen in ecstasy to the song of the Nightingale.

There is more variety in the vegetable than in the animal kingdom, but in the latter there is motion, which compensates or more than compensates for the greater variety in the former. Among trees, the colours of leaf and petal are less vivid and durable than in plants of lowlier growth; among flowers, the most attractive in size and colour seldom emit the most grateful odours; the Hollyhock, the Dahlia, the Camellia appeal irresistibly to the eye, but the lowly Violet, the Daphne, the Mignonette, whose flowers one might pass a thousand times unnoticed, fill the air with sweet and delicate perfumes. Even among Roses, the intermediate or pale

colours, of which examples are found in the old Provence and Tea-scented, are usually the sweetest.

In a paper "On Colour in the Tree Scenery of our Gardens, Parks, and Pleasure-Grounds," read at Oxford in the summer of 1870, to which this paper may be considered the sequel, I endeavoured to show that the absence among trees of the *bright* colours found in the flowers of plants of lowly growth was in part compensated for by the greater breadth and bulk of trees and shrubs. The subject then was *colour*, the subject now is *form*; and apart from the utility of trees for shelter, timber, and various domestic purposes, the almost infinite variety in the outline, in the arrangement of the spray, and in the sizes and forms of the leaves, places the tree world in a higher position than it might at first sight appear to occupy.

Taken from the decorative point of view, tree scenery may, I think, be divided into the beautiful and the picturesque. As an example of the beautiful may be instanced the avenue of Horse Chestnuts in Bushey Park; as an example of the picturesque, the groups of Scotch Pines on Hampstead Heath. Variety is the leading characteristic of the tree world. That this has not been recognised, or at least not generally acted on by those to whose lot has often fallen the disposal of our trees and shrubs in what is called ornamental planting, has long been a settled conviction with me. With your permission I shall therefore endeavour to unfold my views on this subject, in the expectation that I shall be enabled to establish this position, and thus lead to higher and more artistic arrangements in the tree scenery of the future.

I shall speak, first, *of the form or outline of the individual tree*; secondly, *of the form or arrangement of the spray*; thirdly, *of the form of the leaves*.

I. OF THE FORM OR OUTLINE OF THE INDIVIDUAL TREE.

I have here diagrams of five of the most distinct forms:—

Fig. 1.

1. <i>Irregular.</i>	<i>Ex.</i> The Scotch Pine (fig. 1).
2. <i>Round-headed.</i>	<i>Ex.</i> Robinia inermis (fig. 2, p. 468).
3. <i>Laminate.</i>	<i>Ex.</i> The Silver Fir (fig. 3, 469).
4. <i>Columnar.</i>	<i>Ex.</i> The Pyramidal Oak (fig. 4, p. 470).
5. <i>Weeping.</i>	<i>Ex.</i> The Weeping Willow (fig. 5, p. 471).

These I shall call representative trees, as a great portion of the tree world may be classed under one or other of these forms. There are, however, many inter-

Fig. 2.

mediate forms in which two or more of the above are found combined. For instance, the Oak and the Beech partake partly of the irregular and partly of the round-headed ; the Cedar of Lebanon, especially when old, stands

between the round-headed and the laminate; the Hertfordshire Elm is both irregular and weeping, and is from an early age one of the most picturesque of large trees. Then some trees undergo modifications of form as they pass from youth to middle and old age; but these are

Fig. 3.

only so many additional points of variety which the skilful planter will know how to seize and make conformable to his plans.

Now I think a very little consideration will lead to the conclusion that with the variety shown to exist under this one head only, very little excuse can be found for

the tameness and monotony often met with in English plantations. I can well understand the reasons for, and have often admired the effect of, large masses of any one

Fig. 4.

of these forms being thrown together under special circumstances. Further, nothing can be more correct or beautiful than a group or groups composed of any one of these when judiciously placed, and rising in harmony

with each other or with the natural features of the landscape. What I find fault with, and wish to see altered, is the unseemly jumble of trees so often met with. No guiding principles having been observed in planting, things beautiful in themselves are comparatively dull and uninteresting through the want of thought or taste

Fig. 5.

in their arrangement, or even displeasing through incongruity.

I am quite ready to admit that it is easier to condemn that which exists than to lay down any precise rules by which the uninitiated may attain the end which seems to me so desirable. I seek variety and contrast, but it must be variety and contrast with harmony. The professional

man, when engaged to put the finishing touch on a garden or estate by planting, if properly imbued with the importance of his task, should master all the natural beauties and defects of the spot to be dealt with, including its accompaniments and surroundings, and then study to increase the beauties and remedy the defects.

Whether the beautiful or the picturesque predominate naturally, it should not be reduced, but heightened by every possible effort of art, and only varied by the introduction of other features of beauty in such manner that they may not rival or overpower, but remain subservient to this dominant natural feature.

Allow me to offer a practical illustration of this remark. I was recently engaged to make suggestions for the improvement of a park which had at no distant period been increased in size by the addition of some outlying fields, and had never, so far as I could observe, been brought under the hands of the landscape gardener. The dominant feature observable in this old park was the picturesque; the surface was variously undulated, and there was a broad sedgy stream with hoary trees overhanging its banks winding through it and quitting it near the principal entrance. Here was a lodge to which the picturesque extended, but not in the fulness of beauty to be found within. By planting groups of some of our most beautiful and more regular trees around this building a new feature was introduced, affording variety and contrast without destroying or marring the effect of the natural beauties within. Again, when adding the fields to the park, the hedge-rows which had been left greeted the sight on every hand with hard unsatisfactory lines of trees in positions and of a character quite out of harmony with the surroundings. These lines were broken by removing some of the trees, and grouping around others. Again, in the immediate vicinity of the mansion, where there was an impression of barrenness, symmetrical trees were introduced, working those of irregular forms out-

wards towards the park in such manner that the picturesque and beautiful were gradually and insensibly blended. I offer this as a general example of the way in which trees may be used so as to produce the best effect in the landscape.

When planting in the vicinity of a dwelling-house, whether it be a mansion or a cottage, we often find ourselves under considerable restraint, because the form of the trees requires to be in harmony with the character of the building. It may not be necessary to consider every style or order of architecture as requiring a different assortment of trees; for our purpose it suffices to divide the whole into perpendicular, of which the Gothic may be given as an example, and the horizontal, which is fitly exemplified by the Italian style. Irregular, round-headed, and weeping trees are in character with either, but the laminate and round-headed are most pleasing to my mind in connection with the perpendicular, and the columnar and irregular with the horizontal. If the building be low, tall-growing trees should be avoided, and the round-headed, the laminate, and weeping are especially desirable, because they direct the eye horizontally and downwards. It should ever be borne in mind that the presence of lofty trees in proximity to a low building has the undesirable influence of still further depressing it.

As examples of the grouping of these representative trees, the irregular and columnar and the irregular and weeping will, I think, be most frequently available in association. Two Scotch Pines and a Weeping Willow, or a Scotch Pine and two Lombardy Poplars, make a nice group when variety of form, colour, and character are required. There is, however, scarcely any limit to the variety that might be obtained by the combination of these representative trees, but to make the best of them two things are necessary—a wide knowledge of the nature and appearance of the trees, and a correct taste in order to combine them in such a way that they are not only

in contrast, but also not out of harmony with each other or their surroundings. When the irregular or varied dominate in the surrounding tree scenery, separate groups of the "round-headed," the "laminar," the "columnar," and the "weeping" may often be sparingly introduced with good effect.

Fig. 6—*The Oak.*

2. ON THE FORM OR ARRANGEMENT OF THE SPRAY AND RAMIFICATION OF TREES.

This is a matter of less importance than the form or outline of the tree, because it is only distinguishable when immediately under the eye, whereas the outline of the tree produces an effect on the landscape from a considerable distance. For some purposes trees are divided into ever-green and deciduous, the former holding their leaves perpetually, the latter losing them annually on the approach of winter. Although the spray and ramification varies considerably and equally in both, we need here only

entertain the question so far as it appertains to deciduous trees, as the evergreen trees, retaining their leaves perpetually, the spray and ramification are almost concealed by them.

I give here examples of the spray and ramification of four trees—the Oak, the Elm, the Lime, and the Beech (figs. 6, 7, 8, 9)—having chosen them because they are well-known and readily accessible. It should, however,

Fig. 7—*The Elm.*

Fig. 8—*The Lime.*

be remarked that there are others differing as widely in form and character as these.

To those who find an interest in tracing the wonderful variety in the vegetable kingdom, there is here an ample field for observation and reflection. Scarcely two trees, scarcely two branches, can be found alike.

The change of a deciduous tree from the leafy to the leafless state is a change in form and character, and hence a new sort of variety. A deciduous tree in leaf is seen in outline only ; when denuded of its leaves it shows also in

section. Deciduous trees are not only more varied in character than evergreens, but they are also more pictorial. There is the early and late budding of the leaves, the varied tints of which give colour to the tree scenery of spring; there is the fully developed leaves of summer; the changing and brilliant hues of autumn; and lastly, the interesting variety of the spray and ramification visible in the leafless trees in winter.

Permit me to remark here that in my judgment there

Fig. 9—*The Beech.*

is no gain in rejecting either evergreen or deciduous trees when planting. Evergreens, as a rule, are massive and heavy; deciduous trees are light. Evergreens alone produce gloom; deciduous trees alone baldness—a judicious combination of the two is productive of higher results than can be obtained by the exclusive use of either.

3. ON THE FORM OF THE LEAVES.

The effect of the form of the leaves, although more marked than that of the spray and ramification, is not appreciable at any very great distance. It is, however, a most important feature from a near point of view. In

garden scenery it is scarcely less important than the form or outline of the tree. Leaves are numerously divided by botanists, but for our purpose the following divisions seem to suffice:—

1. *Needle-shaped*—Pine (fig. 10).
2. *Lanceolate*—Willow (fig. 11).
3. *Round-leaved*—Lime (fig. 12).
4. *Cut-leaved*—Plane (fig. 13, p. 478).
5. *Compound*—Black Walnut (fig. 14, p. 478).

Fig. 10.

Fig. 11.

Fig. 12.

Here, as in the outline of the tree, the intermediate forms are innumerable. In garden and shrubbery planting a most complete effect may be produced by an arrangement founded on the forms of the leaves alone. But so rich and various is the material at our command here that it is by no means necessary to restrict ourselves to this one feature, trees and shrubs often producing beautiful summer flowers, coloured spring and autumn leaves, or winter berries.

With regard to the arrangement of trees and shrubs according to their leaves, violent contrasts should, I think, be avoided. I would not place a tree with needle-shaped leaves in juxtaposition with one bearing large round or heart-shaped leaves. For example, a Scotch Pine (needle-shaped) and a Willow (lanceolate) in association, would please me better than a Scotch Pine and a Lime (round-

leaved). Some compound leaves associate well enough with the needle-shaped, and others produce a better effect associated with the round or cut leaved. The lanceolate is perhaps the most useful and accommodating form, as it stands well in contact with almost any of the others. Any one desirous of obtaining a full and accurate knowledge of this art would, however, gain more correct views in a single hour by walking among the objects to be dealt with, and placing them, mentally or otherwise, in juxtaposition, than could be conveyed by a week's writing or talking.

I will give two or three instances where I have been enabled to some extent to carry out the views I have

Fig. 13.

Fig. 14.

endeavoured to enunciate, and these may be inspected by any who may be inclined to pursue the subject.

In carrying out improvements in the Temple Gardens, London, it was required of me to hide from the view of the Parliament Chamber a block of unmeaning buildings on the other side of the river. The variety of trees was limited by the climate of London; and further, a huge *Catalpa* stood in the way—a tree of historic fame. As this could not be removed, the round formal head of the *Catalpa* was brought in closest contact with trees of irregular form, and its broad leaves were associated with

trees bearing compound leaves. Around it were grouped the Ailantus, Horse Chestnut, and Mountain Ash, with an undergrowth of Aucuba, Phillyrea, silver Euonymus, and Box, parted by various deciduous flowering small trees and shrubs, as Lilacs, flowering Currants, double Sloes, double flowering Peaches, and the like.

I have recently been engaged by the Metropolitan Board of Works to carry out improvements at Hamilton Place, London. Here again I was limited in my choice of trees and shrubs by the climate of London. Evergreens and shrubs were arranged as to form and colour so far as it was possible to do so under the circumstances. A line of trees planted by the side of the railings bounding Park Lane were planted as follows:—Scarlet Horse Chestnut and Mountain Ash alternately; Turkey Oak, Mountain Ash, Acacia, and Thorn in succession; and again Thorn, Mountain Ash, Acacia, Laburnum, and Thorn in succession. Here the undergrowth was formed of evergreens and deciduous shrubs, variously mixed, to make as agreeable a contrast as possible in form and colour with the surrounding plantations.

The most complete piece of planting which I have recently had the opportunity of effecting may be seen at Hatfield Park, a seat of the Marquis of Salisbury. This consists of a belt of shrubs and trees running by the side of a lake. My instructions here were to make colour rather than form the dominant feature, although the latter was to be taken into account. The trees in groups ran much as follows:—Scarlet Oak, White Maple, Scarlet Maple, Variegated Turkey Oak, Purple Beech, Golden Oak, Variegated Elm, Silver Poplar, Golden Willow. The shrubs and evergreens in masses succeeded each other in the following order:—Mahonia japonica, Silver Holly, *Cerasus pseudo-cerasus*, *C. caucasica*, Variegated Box, *Juniperus ericoides*, *Thuja aurea*, *Ilex balearica*, Yews, *Mahonia Aquifolium*, *Juniperus chinensis*, *Aucuba japonica*, Green Holly, *Berberis Darwinii*, Portugal Laurel, Cotton-

easter, Green Box, Gold Holly, Laurustinus, Phillyrea, Thuiopsis borealis, Portugal Laurel. Small groups of deciduous shrubs, as Purple Nut, Golden Spiræa, Purple Euonymus, Hippophæe, Purple Berberis, Shepherdia, and the like, were also introduced at intervals among the above for the sake of colour. These are now in their second year's growth, and require time to realise the intended object; but the effect, whether viewed in close proximity or from the opposite shore of the lake, has attracted the notice and received the commendation of some of our best garden artists.

[For lists of trees and shrubs classified under the heading of "form," see pp. 231-243.]

A PEEP AT THE PARIS FLOWER MARKET.

[From "*The Florist*," November 1850, p. 278.]

NO lover of flowers who visits the French capital should fail to spend a morning at the flower market. Though somewhat different in character from similar exhibitions in our own country, it is certainly in no respect inferior. I was in Paris on the last three days of July—days remarkable in the political history of that city—and so agreeable were my reminiscences of former visits that I resolved to spend the early part of one of those fête-days at the *Marché aux Fleurs*. Accordingly I arose at the dawn of day, and quitting my hotel in the Rue de Rivoli was soon at the *Quai aux Fleurs*, where the market is held. Long before I had reached the desired place, I was reminded of my approach by the return of earlier visitors. The thrifty housewife, with a heliotrope under one arm and a rose beneath the other, was moving with a brisk step, her affections, *pro tem.*, divided between the darlings of her choice, herself apparently unconscious of the busy scene which surrounded her. Then the work-

man, who had risen long before the hours of labour, in order that he might present to the sharer of his toils a fresh and sweet token of his affection and esteem, was bearing homeward a less costly offering in the shape of a stock or a pot of musk. How refining and moralising must be the influence of this love of flowers! I wish it were more general among labourers in our own land!

But I was aroused from reflection by my arrival at the market, which indeed presented a busy scene. It is a large paved square, planted with rows of acacia trees, whose soft and elegant foliage, trembling in the breeze, harmonised with the animated scene they overshadowed. In the centre of this square was the bureau, where I imagined the market-keeper dwelt, with the view of preserving order and taking toll. Near each end was a fountain, surrounded with a basin of water, apparently constructed for use as well as ornament. Around these and the bureau were lounging men in blouses, with large baskets, flat at one side to fit the back, lying at their feet waiting to carry off purchases. There was a walk in the centre of the square, and the plants were arranged on either side to face the walk. The stalls, which were principally kept by women, who were enjoying their morning's repast of bread and fruit, were set out with order and neatness. There were Oranges, Oleanders, Magnolias, Pomegranates, Roses, Myrtles, Carnations, Balsams, Cockscombs, Tuberoses, Fuchsias, Verbenas, Amaranths, Mignonette, Marigolds, Asters, and indeed almost every plant of the season, mingled together in sweet and inextricable confusion. The plants certainly were not large; they were rather close and compact, laden with blossoms, whose odours arose on every air we breathed. Then the vast quantity of a sort, each seemingly a counterpart of the rest, so nicely surrounded with white paper, and placed so closely together that the whole reminded one of a large flower garden.

I could not look on such a variety of beautiful objects

without wishing to know the prices at which they were sold, and these I found were anything but extravagant. But I paid for my inquisitiveness. I was quickly beset by the men *en blouse* before mentioned, who seemed to take it for granted that I could not carry home my purchases. It was in vain I declined their services—"they were sure Monsieur Anglais would not carry plants through the streets of Paris; and if he did not intend to purchase he would not demand the price." Who could answer such arguments, backed as they were by the reiterated cries from the vendors, "*Ce n'est pas cher, monsieur, ce n'est pas cher.*" No, indeed, thought I, as I gazed on a pot of Forget-me-Not offered for six sous, and contrasted its soft and delicate tints with the sunburnt countenances around, and the horny hands which upheld it; it is not dear; yours is no overpaid occupation; truly thou fulfillest the commandment of thy Maker—"In the sweat of thy brow shalt thou eat bread." Having purchased this simple plant, and handed it over to the man *en blouse*, I was allowed to pursue my course unmolested, my new acquaintance acting as my protector.

One of the most striking features of the market was the bouquets. I had noticed them on entering, but I now caught sight of others, the flowers arranged with exquisite taste, and which far surpassed all that I had previously seen. These were lying at one corner of the market, close to a heap of cut flowers, with which a flower-girl was busily engaged. Bouquets were made with great rapidity, and sold as rapidly as made. Retiring to a respectful distance, sheltered by an acacia tree, I resolved to watch the movements of the fair bouquetière, and thus obtain an insight into the difficult art of nosegay making.

Although slight variations were introduced, one general principle seemed to regulate the whole. One of the prettiest that was manufactured was round and flat, and arranged in this manner—The first act was to collect

together a handful of red roses, these formed the centre ; around them was placed a narrow belt of mignonette ; then a ring of white carnations ; next in order came a band of purple pansies ; heliotrope succeeded, not regular as the preceding, but scalloped ; then came a band of pelargonium compactum (salmon-coloured) raised a little above the other flowers ; last in order was a row of dahlias and roses placed alternately ; and surrounding the whole, fern leaves. While studying these manœuvres, I had resolved, if possible, to impress the knowledge thus acquired more thoroughly on the mind by making there and then a bouquet ; and seeing the boquetière now little occupied, I stated my wishes, and readily obtained permission.

My instructress being again called off, did not notice my proceedings until the bouquet was nearly completed, when to her astonishment she discovered a fac-simile of her own. "C'est mon habitude, monsieur," said she with unfeigned surprise, "c'est mon habitude." "Et moi, aussi," was my reply. "Ah!" rejoined she, "c'est la mode Anglaise." Her attention being again called off in another direction, I had not the opportunity of undeceiving her, although the gravity with which my attendant, who was in the secret, regarded the whole proceeding excited my risibility more than once. But the pleasant hours passed in the morning air had given me a keen appetite, and having purchased the bouquet, I left the market.

THE SHOWER.

[From "*The Florist*," June 1855, p. 164.]

OF the many delights experienced in the pursuit of gardening, no mean pleasure arises from contemplating the gradual development of the objects cultivated. We sow the seed and watch with interest the springing

germ ; we adopt the young and tender plant, nurture it during hardships, trials, and difficulties, and hail with delight the unfolding of new leaves and blossoms as it rises to maturity. But beyond the direct pleasures and influences of gardening it is no small gratification to consider that it brings one continually in contact with the beautiful and sublime in nature, and engenders habits of observation and reflection which enable the mind to understand and enjoy them. How rich and varying is the aspect of Nature ! Who can do otherwise than rejoice amid the new-born glories of spring ? What fulness and strength are exhibited in the manhood of summer ; what beauty and variety in the mellowed landscapes of autumn ! And even winter is not without its beauties and attractions ; there is much to interest in tracing the ramification of the leafless trees, or in watching the silent spread of frost and snow as it covers them with a mantle of matchless purity. If we turn from the seasons to the different times of the day, fresh sources of contemplation and enjoyment await us ; the leaves and blossoms gemmed with dewdrops in the early morn, and the rich glow of expanded flowers in the twilight at eventide are equally interesting. Then there are new beauties awakened in nature by the appearance of those phenomena known as mists, clouds, and storms.

Perhaps there is no time at which a garden offers so much that is exhilarating and delightful as immediately after long-deferred rain. The recent dry spring has placed us in a position to receive with more than usual gratitude the boon newly conferred. The long prevalence of dry easterly winds, attended by sunny days and frosty nights, had been little favourable to the progress of vegetation. With what joy, then, did we inhale the first breathings of the soft westerly wind, and with what avidity did the thirsty earth drink in the falling shower ! The denizens of the garden seemed suddenly to awaken with new life and beauty, leaves brightening, flowers

unfolding, as the warm rain moistened their parched surfaces.

The recent shower forcibly called to our minds a scene once witnessed in the forest of that kingly residence, Fontainebleau. The day was serene and cloudless, and after spending the forenoon in the park and gardens we sought the forest, that we might hold converse awhile with Nature, beneath the agreeable influences of its leafy shades. The last place visited, though not the least interesting, was the "Hermitage," where some convulsion of remote ages has cast on the surface huge blocks of sandstone, sometimes bare, and sometimes clothed with heather. The extensive and beautiful prospect afforded here induced us to linger till the sun was low in the horizon, and while closely engaged in the pursuit of a beautiful green lizard we were startled by the rumbling of distant thunder, and saw signs portending a coming storm. The heavens grew blacker by degrees while the peals of thunder reverberated among the distant hills. We were six miles from shelter and therefore judged it prudent to retire, and drove some distance through the forest, the tempest scowling over our heads, and the declining sun at our back. As the sun cast a lurid purplish flame on the tufts of trees occasionally met with in the glades and openings through which we passed, the contrast of light and shade was intensely beautiful, and the whole scene impressively grand and sublime. It was striking to behold how greatly the aspect of the forest was changed in the short space of an hour or two. Silence reigned supreme; the axe of the woodman, the hum of insects, and the songs of the feathered tribe were alike hushed. Some flowers which were seen in the morning holding their faces up to the sun as it fell through the trees above, were now folded up, whilst the forest cattle before scattered were gathered together in motionless groups or hid from view amid the dense tufts of trees. Soon the "big rain came dancing to the earth,"

and it was indeed a shower fraught with fragrance and fruitfulness.

The first sign of the breaking up of the storm was a small spot of blue sky shown by the bursting of a cloud. From this point the floating vapour which had just before overspread the whole heavens gradually dispersed, opening a view into the immensity beyond. It was most interesting to watch the fantastic shapes the clouds assumed, as, ever changing, they coursed along the sky in taking their departure, sometimes black, at others thick and murky, and anon of a fleecy lightness, their upper edges fringed with gold.

But the warring of the elements ceased, the sky was again cloudless, the fragrant earth, refreshed by the shower, presented to the sight trees, herbs, and flowers bespangled with liquid diamonds. The sound of the axe again rose upon the ear, and the feathered inhabitants of the forest issuing from their leafy tenements sat motionless on the outer boughs warbling in subdued accents their evening song.

OLD HUMPHREY.

[From "*The Florist*," September 1857, p. 261.]

READER, have you ever enjoyed the privilege of perusing the writings of "Old Humphrey?" Whether your answer be "yes" or "no," you may perhaps feel inclined to ask in return, "What has Old Humphrey to do with flowers?" Grant me a little patience and I think I shall be able to show at least a remote connection, and one probably bearing on your interests and pleasures. Let me confess at the outset that I cultivate flowers for profit, but not for profit only, for like most lovers of flowers I have my pet plants, which serve to amuse my leisure hours and conduce to other than pecuniary gain. In my early youth I was, through

the kindness of friends, made acquainted with the works of "Old Humphrey," and many are the solitary hours I can look back upon as pleasurably and profitably spent in their perusal. Manly simplicity of style, earnestness of purpose, cheerfulness, buoyancy of thought, and confidence in things unseen constitute the charm of his many writings. Of the various subjects on which he wrote let us hear what he had to say on flowers.

"ON FLOWERS."

"How many gratifications do we daily enjoy? and how disproportionate is our gratitude to the Father of Mercies when compared with the number and magnitude of his favours! The skies above our heads and the earth beneath our feet are beautifully adorned by heavenly hands. The balmy gale breathes health around us; the brook and the crystal spring pour forth their refreshing and invigorating streams. By day the glorious sun gilds the creation with his beams, and by night the silvery moon and the glittering stars shed their grateful lustre.

"There are many things which give pleasure to age but impart no enjoyment to youth; and others, which afford a gratification to the young, which the aged cannot share. The rich can procure pleasures which the poor cannot obtain, and the poor man enjoys advantages that the rich cannot purchase; but some things appear equally to delight the old and the young, the rich and the poor, and among these may be mentioned flowers. Yes, whether flowers flourish in the garden or bloom in the greenhouse, whether they are scattered over the pathway, sprinkled on the verdant banks, or widely strewn over the mountains and the valleys, they never fail to please; they impregnate the air with their sweetness, and delight the eye with their exquisite beauty. Think of the flowers that you have gathered, smelt, and gazed on, and then ask yourself if you have been sufficiently grateful for the pleasures they have afforded you.

“Sweet it is to enter the greenhouse filled with elegant blossoms where the night-blowing *Cereus*, the Scarlet Geranium, the Fuchsia, the Lobelia, the Camellia, the Arum, and the China Rose are mingled with a thousand other beautiful flowers. And sweeter still to walk in the garden where, in their appropriate seasons, we may see the lovely Rose, the gaudy Tulip, the stately Hollyhock, the magnificent Tiger Lily, the gorgeous Pæony, the Anemones, Dahlias, Carnations, Rockets, Stocks, and Marigolds.

“And still sweeter than all, to roam at liberty in the sunlit fields and sequestered dells where the modest Primrose, the golden Buttercup, the splendid Foxglove, the dancing Daffodil, and the sweet-scented Violet are profusely scattered. Did you ever lie at your length at mid-day on the side of the broad-breasted mountain decked with Heath-flower, entranced with silent ecstasy? Or sit on a shady bank gazing on the earliest Primrose of the year with admiring wonder? or bend in a retired nook with intensity of interest over the blue minute flower of the Forget-me-Not? If you have not done these things you know not the pleasure, the joy, the delight that may be excited by a flower.

“Were the flowers of the world to be taken away, they would leave a blank in the creation. Imagination cannot suggest a substitute for them. Be grateful for the gift of flowers. Look at the stateliest room in the stateliest mansion; see it decorated with carvings and gilding, with paintings and sculpture, with china vases, ornaments, and costly drapery; fair though they be, the flowers in the light wicker-basket on the stand are fairer still.

“‘Though all around be rich and rare,
The flowers are fairest of the fair,
And voiceless, as they are, impart
Sweet music to the eye and heart.’

“The blushing maiden, elegantly dressed, who trips along yonder with a light heart and sparkling eye, steals

ever and anon a glance at the Moss Rose-bud blooming at her breast. We will not inquire who gathered and placed it there, though, while his hand was employed, his heart breathed the prayer that he never might plant any thorn in her bosom. She could tell you if she would ; nay, look at her happy face, and you may know without her telling you, how much of calm delight and peaceful pleasure may be crowded into the petals of a flower. The poor aged widow in the almshouse must also have her flower. Old and poor and lonely as she is, she has not forgotten the time when she had a garden of her own ; and now she sticks a bunch of Gilliflowers in her broken blue jug, and placing it in the window, looks upon it with satisfaction. And why should she not ? May her flowers bloom, and her hopes of Heaven brighten. The aged labourer, too, who held the plough in his boyhood, and who now has near fourscore years on his forehead, when his blue Sunday coat, with the broad skirts and big buttons, is taken out of the oaken coffer, cannot wear it in peace to the house of God unless it has a Sweet William or Pink in the button-hole."

How simple ! how luminous ! how truthful ! how practical ! Are not words like these, dropping from the lips of a good and wise man, worthy of being treasured up ? Do they not establish—yea, ennoble—a pursuit ? Here is a man of undoubted goodness and talent, attached to those things which engage our affections, and whether we cultivate for profit or pleasure, do we not derive new impulses from the halo of brilliancy and beauty with which he surrounds them ?

On a recent visit to Hastings, I determined to make a pilgrimage to Old Humphrey's tomb. It was a calm summer's evening, the sky above was cloudless, scarcely a ripple moved upon the sea ; the sun was slowly setting in a flood of glory behind the western hill, as I ascended the steep steps and acclivity of All Saint's churchyard. Arrived at the summit, a humble stone, erected by the

committee of the Religious Tract Society, marks the spot where peacefully repose his perishable remains. On it are engraved these words:—

“In his writings
He sought the honour of God,
And the highest happiness
Of mankind.”

No body-stone presses on his dust ; the millefoil spreads its beautiful green leaves over the ground, and the luxuriant grass waves silently to and fro beneath the long shadows of the majestic elms, through which the old church peers grey and mistily. Before and behind rise the east and west hills, clothed with furze, and brake, and bramble ; to the right extends a deep valley, the hill-sides dotted with houses and trees ; to the left opens the boundless sea, murmuring in constant cadence a sweet but solemn requiem. Beautiful spot ! how calm, how picturesque, how lovely, how completely in harmony with his character and works. As I stood, transfixed by the beauty of the prospect, many were the visitors to this old churchyard, and few departed without pausing and saying a kind word over the tomb of George Mogridge, better known as “Old Humphrey.”

NATIVE SINGING BIRDS.

[“*From The Florist*,” May 1867, p. 98.]

WE have received through the post an anonymous circular pleading in behalf of “our indigenous singing birds.” In a postscript the sender remarks—“I hope you will help me in my endeavour to save our singing birds.” Beautiful creatures ! you have, and always have had our sympathies, and bold indeed must be the hand that would venture to molest you in our domain. Your gay flutterings impart life ; your joyous warblings

music to the otherwise still though beautiful scenes of the shrubbery and flower garden. What is the country in spring time without birds? The carolling of the Lark in the early morning, the charms of song rising continually throughout the day, and the whistling of the Blackbird carried far into the "gloamin'," are no mean sources of enjoyment to those who can appreciate the charms of a country life. More than this, it appears to us that birds have their *right of inheritance*, as we have ours; and while we would jealously guard our own and the fruits of our labour, we believe that we can do this without destroying theirs. In other words—there is room for both of us in this wide, wide world.

Is it true, as is alleged, that our singing birds are diminishing in number, or are they merely changing their locality—quitting the immediate vicinity of large cities, where the craftsman is so rapidly destroying their means of shelter and food, to find in the distant woodlands and hedge-rows a more natural and congenial home? The writer of the paper in question asserts that small birds are actually diminishing, falling a prey to the gunner, being shot in mere wantonness, principally by boys, for what in their lack of wisdom they call "sport." Sport, indeed! we do not envy the breast that can make sport out of the sufferings and death of even the meanest of God's creatures. To kill for food, to kill in self-defence is justifiable, but to kill for mere "sport" is, to our apprehension, most blameworthy; and while we would plead for the feathered songsters on the ground of their life, their beauty, and their melody, we think we can establish a strong case in their behalf on utilitarian grounds alone. Some years ago a mania took possession of the French farmers, and the destruction of birds was carried on with a cruel success. Myriads of insects immediately infested the country, which all the ingenuity of man was incapable of contending with, and equally strong efforts had to be resorted to, though with slow success, to rehabilitate the

birds so ruthlessly destroyed. Corroborative of this, we would point to the swarms of caterpillars in the hedges and gardens round London of late years, and ask, Is not this reasonably attributable to the diminution in the number of our small birds?

On the other hand, we know by bitter experience how vexatious it is to have our fruits injured or destroyed before fit for gathering—to have our seed-beds scratched over immediately that the seed is carefully and laboriously committed to the ground, or the springing germ destroyed apparently in mere wantonness. And to this we are certainly in no humour to submit. But is there no remedy but death to the destroyer? Cannot we devise means of shutting off the depredators by means of netting, thereby effectually preserving the crops, which is rarely done by the most uncompromising plans of bird-killing? Cannot we by such means divert the busy energy of the birds so as to avoid the harm and secure a greater blessing? According to our view, there is a waste of thought and labour in first devising means to destroy the birds, and then having to provide something in the place of birds to destroy the insects. Is it not less trouble and sounder economy to protect our crops from the birds, and thus compel the latter to search closer for insects as a means of livelihood?

In our judgment at least it is about as just to kill birds for destroying or stealing a few seeds and fruit, as it would be to hang a man for misdemeanour or petty larceny. If, as in some places is the case, birds destroy much fruit, let us remember that they also destroy many insects, for the fruit season is short, the insect season long. It is well authenticated that a blackbird or a thrush will destroy twenty slugs or snails in a day, and we have often been astonished when watching the proceedings of the smaller insectivorous birds by a computation of the quantity of insects a nest of young finches will consume in the course of a day. Thus, we venture to hope that we have shown

that there is no just ground on which to destroy birds from any point of view—utilitarian, humanitarian, or æsthetic; and in our most severely combative moods we should remember that—

“He prayeth best who loveth best
All things both great and small,
For the dear God who loveth us
He made and loveth all.”

“MY FATHER’S GARDEN.”*

[From “*The Florist*,” July 1867, p. 150.]

WE have read through this book with sufficient care and thought to feel justified in recommending it to others. It is not a book on gardening in the strict sense of the term, although there is in it a good deal of information on gardening. This in general is accurately conveyed, the aim of the author being apparently to inculcate habits of perseverance and honest industry, which he does with all the grace and energy of his simple, clear, and fascinating style.

The hero, George Able, the son of a market gardener, is sixteen years of age at the opening of the tale. His father’s garden, consisting of one acre only, is situate on the Surrey side of the Thames and is adapted to the growth of early vegetables, which had afforded the Ables a decent livelihood for at least two generations. But the rapid rise of buildings closed them in on every side, and, notwithstanding their utmost efforts, their vegetables refused to grow as of old, while the facilities of transit by railways from distant and more favoured localities reduced the prices of their produce, so that they found

* “My Father’s Garden,” by Thomas Miller. London: George Routledge & Sons.

their income gradually diminishing. To make matters worse, a new railway takes from them three-fourths of their acre of ground, which they hold only as yearly tenants, and for which consequently, they can claim but small compensation. At length poverty fairly stares the worthy family in the face, when an idea strikes George's mother that he might build a small greenhouse with some old bricks and posts that had long lain unused on the ground. Old Able is almost prostrated by his misfortunes, but George sets to work, manages to buy the glass, receives a liberal supply of cuttings from old friends of his father, and grows a house full of "bedding plants." Our first extract will serve to show that unlike many youths of his age, George "calculated," and this habit of mind, no doubt, contributed largely to his ultimate success:—

"I calculated that if everything went on prosperously the most I could expect in the shape of return for the outlay and labour would be from a few bedding-out plants rather late in the spring, for I had no doubt, well-known and respected as my father was, he would obtain plenty of cuttings for me for nothing when he went round among his friends, for no class of men are kinder to one another than gardeners, or more ready to help each other to a job of work."

Sister Jane, who was an invalid, and compelled to lie down almost constantly through suffering from a spinal complaint, not only sympathised with and counselled our hero, but also lent him material aid in preparing cuttings, which her nimble fingers enabled her to do much more quickly than he could. As George's small greenhouse did not wholly occupy his time, he wisely thought he might try to earn a few shillings elsewhere, which, while it did not prevent attention to his home duties and the development of his plants, gave him what the industrial mind delights in—constant and useful employment. To this end, he undertakes to teach gardening to boys in a reformatory.

"The boys tried me very sorely for the first few days,

but when they found I never lost my temper, nor reported them as I threatened to do if they did not be more attentive and behave better, yet never fulfilled my threat, they said 'I was a good sort and no gammon,' and I was soon able to do anything I pleased with them, for I began in the first instance by selecting them myself, for the head gardener had long known my father. . . . The first one I selected was an impudent-looking little rascal, who was taking a sight at me with the end of his thumb to his nose, and his four little fingers expanded, but there was such an expression of good humour in his roguish face, that I picked him out at once, while he blushed as if ashamed at what he had done. . . . The second was a sturdy determined-looking little fellow, who was taken red-handed with a lump of bacon he had snatched from off the open window shelf, where it was exposed as if to tempt him, and who offered no other defence than that he was hungry and thought it would be jolly to have a frizzle as he had got some 'toke.' His father was transported for felony. I picked him out because he looked me full in the eye, and a smile lighted up his firm square face as I placed him beside his companion. The third I picked out was a gipsy boy and had lived in tents. He was a swarthy little scoundrel, and the expression of his dark eyes was like that of a rat's. So I went on completing my number, partly from the impression made upon me by their looks, and partly from what the head gardener told me of their precedents and behaviour while they had been in the reformatory. I had arranged beforehand where they were to commence and had marked out the ground, for there were full two acres in all under spade cultivation. Spades were given to them suitable to their age and strength, and they were delighted when they got out into the open air."

As George's bedding plants came to maturity he visits Mr Rose, a rich nurseryman in the neighbourhood, with whom the family had long dealt for seeds, and does a satisfactory stroke of business with him. But his cus-

tomers were not all of this type. Having as yet no connection he was glad to sell some of his plants to hawkers and costermongers. Later on, in a deal for some "Christines," Mr Rose fairly "walks over" George, although the latter silyly tells him at the onset that he was going to take them to his rival, Mr Smith. Mr Rose, however, although a very "hard nail," was not the man to benefit by others without seeking to render some return. George, by steady perseverance, honesty, and exercise of judgment, had improved in circumstances and gained very general respect, although still short of capital. He wants another greenhouse, but cannot bring his mind to build it until he sees clearly how it is to be paid for. In his difficulty he consults Mr Rose, with whom and his clever daughter Polly he now stands on pretty easy terms, and Mr Rose, by advancing money for bedding plants which he would require, enables him to carry out his views. After this the circumstances of our hero continue to improve, and, like most true-hearted, courageous, and intelligent men, he rises with his circumstances. He is a great favourite with the opposite sex, especially with Mr Rose's daughter Polly, and Lily the daughter of an officer in the volunteers, which corps he has joined with an eye to business. At length he becomes manager to Mr Rose, and, as might be expected, marries Polly, and finally succeeds to the business. Sister Jane, who recovers her health, marries a clergyman; while old Able and his wife are amply provided for, principally through the restoration of property which, unknown to them, had been purchased by the grandfather. Old Mrs Able pleads successfully for a dinner to the street-hawkers on George's wedding-day. With the following extract we must conclude a much longer notice than we had intended at the outset. George is now a rich and influential man :—

"When I look back and consider the humble position I occupied when a boy—and I think that but for the encouragement my dear mother gave me, and the path

she directed me into, and which I followed obediently, I might have all my life remained a poor hard-working market gardener—when I think of this, I rebel against the rule which advises us to rest satisfied with the lowest estate we may be placed in, for I will not believe that it was ever intended that one endowed with human intelligence was pre-destined to remain stationary.

"There are and ever will be, I suppose, 'hewers of wood and drawers of water,' and I pity those who remain contented with such servile occupations. Those who exclaim against ambition raise a cry against progress, for it is that which causes a spirited lad to strive to excel both in the playground and in the school, and though on the latter point I speak not from experience, as my education was of the very humblest, yet I have known many who won the honour of captaincy in our schools that went out and distinguished themselves in the world, as they were sure to do. Had I been kept down and remained only a common market gardener, I should have striven hard as I grew older to have carried off a prize at some exhibition of vegetables for the finest cabbage or lettuce, if I could have grown nothing better; for I believe that in the humblest calling we may for a time follow, anyone with a right ambition will reach the top of it."

The tale is a sweet picture of family concord, and points the road of honest and persevering industry as the surest means of reaching an honourable end. We repeat, lest we should mislead our readers, that this is not a book on practical gardening, but it is one, nevertheless, that all nurserymen and gardeners—young nurserymen and gardeners especially—should read. Joyous in spirit, clear, vigorous, and simple in style, reminding us in this respect of Swift without any of his coarseness, it bears a forcible contrast to much of our garden literature. No fine words, no bungling sentences, no flippancies or conceits—the tale runs on like a smooth river, flowing through well-kept banks studded with bright and beautiful trees and flowers,

redolent of odours, joyous with song. Our young writers on gardening, whose style is not yet fixed, could not do better than take this as their model.

The book is plentifully adorned with pleasing illustrations, and is a marvel of cheapness even in this age of cheap literature.

HORTICULTURAL NOMENCLATURE.

[From "*The Florist*," Dec. 1868, p. 274.]

"WHAT'S in a name?" is a question that has often been raised, and doubtless as often settled—at least to the satisfaction of the questioner. Now, whether taken from the political, literary, social, or commercial point of view, there is, we apprehend, much in a name; and if we descend from the general to the particular, we fancy that from a horticultural point of view it is not a matter of indifference. True it is that our greatest poet has said, "A Rose by any other name would smell as sweet," but we take leave to doubt whether it would always seem as fair. We have observed that certain names at once take hold of the public, are in every one's mouth, and make the novelty popular from the beginning, whereas in other instances the reverse of this is the case—the high qualities of the novelty require knowing to make the name popular.

If we look back on the past, or take the existing nomenclature of plants, we find much that is incongruous, and in bad taste. Botanists and horticulturists have alike erred here. The former have transgressed by adopting a frightful terminology, by compounding words of different languages, and by applying words which do not correctly interpret facts. As an instance of the latter, the word *coccinea* (scarlet) is often applied to things crimson, *cærulea* (blue), to things purple, and *alba* (white), to things

which would hardly pass as such in the murky atmosphere of the sootiest town. The horticulturist, even of our own time, too often gives the reins to fancy, and after reading some of our plant catalogues one would almost think that the days of bright blue Roses and luscious out-of-door Grapes had at length arrived. It may be pleasant enough, and sometimes temporarily profitable, to give the reins to fancy, when the practice not only amuses the mind but at the same time fills the pockets of the performer. But there is a large and increasing class of amateur gardeners in the community—matter-of-fact people—to whom this method of proceeding is obnoxious. There is delusion in it. The purchaser acts, hopes, realises, and is disappointed. The object has not fairly answered to the character given of it. We do not accuse the giver of these highly-coloured names of wilful exaggeration. The culture of flowers is not exactly that matter-of-fact occupation which some would represent it to be. There is poetry in it, and the ruddy glow of imagination will often unconsciously tinge the objects over which it delights to hover; but if the names are applied with a poet's license, the descriptions should at least be precise, definite, and truthful. If horticulture is to become a science to the few, and remain a source of recreation to the many, its votaries must remember that even in poetry, and certainly in actual life, the imagination must be restrained within due bounds, or the results will be neither intelligible nor satisfactory.

But these are not the only points on which reform is needed in the nomenclature of plants and flowers. Where is the cultivator who would not rejoice to see the long French names of Roses and other plants reduced to a state in which they might be spelt, pronounced, and understood by all? Could not the nurseryman into whose hands these novelties first pass, translate such names as are translatable, and re-christen others? for many of such names are at present a mere jumble of unintelligible

sounds to those who are the oftenest called on to pronounce them. To prevent confusion this work might be delegated to some tribunal whose authority would by common consent be acknowledged—and followed. We once knew an ingenious labourer who remembered the name of the Rose "*Je me maintiendrai*" by assimilating it with the words "*Jemmy maintain me*," and we have heard more than one philosophic nurseryman mourn over the loss of time incurred in writing "*Souvenir de la Reine d'Angleterre*" five hundred times over, when "*Ajax*" or "*Ino*" would have answered every purpose.

Further, something may be said on the fitness of names. A flower that would well become the name of "*Blushing Bride*" would make a very indifferent "*Alderman*," nor should we expect to see exactly the same complexion in a "*Vulcan*" as in a "*Venus*." A large Gooseberry might appropriately bear the name of "*Achilles*," which would be far more euphonious and agreeable to ears polite, than such names as "*Bang up*" and "*Thumper*," which exist plentifully among this class of fruit. In this instance, however, we would not advocate a change of names already established—they are short and easy enough, if homely or provincial—but that future names be chosen from a more refined vocabulary.

Finally, we have seen it somewhere suggested, and think the suggestion a good one, that newly introduced species, the botanists' plants, should bear names coined from the Latin or Greek languages, expressive of some prominent feature; and the horticulturist's plants, which we are used to regard as mere variations of species, should have applied to them popular names of our own language. The names of the good and great ones of our own time, and of all time, offer for this purpose a rich repertory from which we might freely draw.

These suggestive remarks are thrown out with all good humour for the consideration of those into whose hands the naming of our plants and flowers usually falls.

There are many cries for reform just now; and among small things it is nowhere more needed than in our horticultural nomenclature.

A WALK THROUGH THE VIA GELLIA.

[From "*The Florist*," December 1868, p. 278.]

HAVING had occasion during the past summer to visit Derbyshire on business, it occurred to us to give up one day to a walk through some parts of its beautiful scenery that we had not before traversed. Communicating this intention to our household, the only remonstrance we met with was from a bright boy of six, mildly put—"You'll come back as soon as you can, won't you, pa."

Finding ourselves at Matlock one July evening, and having heard much of the picturesque and floral beauty of the "Via Gellia," the mountain road to Middleton and the Black Rocks, we fixed on this as the morrow's excursion. We breakfasted and were on foot early, as all pedestrians should be, and taking the road by Cromford were soon deep in the valley. Right and left far up the hill sides, and deep in the beds of the almost exhausted streams, plants and flowers were strewn with a magnificent profusion. To attempt to enumerate and describe all these would prove tedious, as the various species one is generally accustomed to meet with at wide intervals and distances seemed gathered together here. Besides, our English botany, never very deep, was sometimes tried severely in settling the species, and then there were species so universal as scarcely to need particularising. So varied and so abundant were the forms met with at every turn that we think the Via Gellia might be aptly called the Valley of Flowers. Never certainly in all our rambles (and in boyhood they were numerous and wide)

did we find ourselves in close contact with such a magnificent collection of wild flowers, and we dwelt long in imagination on the aspect of this valley in the fresh and glorious months of April and May.

Up to this time we have been on foot nearly three hours, a great part of the time having been spent in gathering and examining at leisure the various plants met with; and now the pleasing murmur of a distant rill falls on the ear. Soon by the roadside we meet with a crystal pool, the water rushing down a mossy gully from a considerable height and proving of a delicious purity and coolness. We pause here for rest and shade. How deep the stillness! broken only by the murmuring of this sylvan stream and the confused hum of innumerable insects winging their way in the noontide air. How delightful the change to one whose ordinary occupations are among the busiest haunts of men! The only sign of civilisation is the road just traversed; the only sign of domestication an unusually wild, shaggy, and picturesque specimen of that picturesque animal the donkey. How delightful! But, alas! no human happiness is enduring or complete. The Via Gellia, beautiful as it is, is not altogether free from worldly grievances. We are suddenly assailed by a host of fierce flies—lean, hungry blood-suckers. In vain we buffet, they are too active to be caught, too hungry to be driven off. Now we try to remember that we should return good for evil, and never retaliate except in self-defence. But it really was unendurable. What was to be done? Luckily we bethought us of our pipe. We filled, lighted, and blew a cloud upon them fast and furious. The battle was but for a minute; as suddenly as they had appeared they were gone! We arose with a hearty laugh, pursued our journey, thinking to ourselves, “When a man gets a holiday but seldom, he cannot afford to let it be spoilt by trifles.”

Hitherto we had scarcely quitted the road, being content with the number of species of plants growing by

the wayside. But what are yon small red berries here and there rising above the leaves of some dwarf plant, and glittering in the sun? Strawberries? Yes, strawberries! and very nice they are, too. They have not the flavour of "British Queens," but their slight agreeable acidity is very refreshing. We only wish they were a little bigger. Once off the road, once on the hillside, and we find objects of fresh interest in quick succession—birds, insects, geological specimens which we admire, examine, and covet, but are obliged to dismiss. Descending again into the road we tread over immense breadths of Lily of the Valley of a vigour that a grower for exhibition might envy. Ah! what is this? A toll-gate? Truly so. But here, as in most rural districts, bipeds pass free. On we go without let or hindrance. Oh! the pleasures of pedestrianism, of which this is only one example. No railway extortions to combat, no trains to meet, or rather *to wait for*, no coachmen or ostlers to fee, no 'busses to cram into; on we go, turn to the left, and commence the ascent of the mountain road to the mining village of Middleton. "Only a mile, sir," says the toll-keeper, "but a tough mile, *rayther*." We push on. To the right is a bank still strewn with flowers, differing somewhat from those we had found in the valley below, though generally we could only note those seen from the roadsides, not having time to explore the recesses, heights, and depths of the hillsides.

On the road to Middleton we met with wild Raspberries, which we tasted and found very acceptable under the circumstances. On the left of the road we are ascending is a deep ravine, bottomed by the Via Gellia, along which we have just passed. The white road lies basking in the sunshine. The sides of the ravine are clothed with various forest trees—ash, mountain ash, and maple seeming the most abundant, the Ayrshire rose and hawthorn being also plentiful in places. As we ascend, the species and number of plants seem fewer, and we altogether miss those kinds which delight in moist situations. The views

from this road alone would repay a long walk or ride, but there are richer splendours in store for us. Middleton is at length reached, and one face of the Black Rocks is prominently in view. Middleton struck us as a village of poor dusky houses, but without any signs of deep poverty. The cottagers had few exotics, but many wild flowers in their gardens, among which the periwinkle and wild chamomile seemed the favourites; the mezereon and the holly were of more than common luxuriance.

There is something exhilarating in the friendly recognition you meet with from everyone in these out-of-the-way places. It seems to say, "We are glad to see you, and proud of the beauties of our district, which we see by your faces you admire." In all thinly-peopled districts there is at least the semblance of a universal brotherhood. In large towns, on the contrary, fashion makes it unfashionable to know even your next door neighbour.

The Black Rocks are neither high nor difficult of ascent, but from the top there is a magnificent and extensive view—the village of Middleton on the left, the town of Cromford lying immediately beneath, and a glorious and apparently illimitable valley stretching away on the right hand. "The finest view in England, sir," said a respectable man in rustic garb. We thought probably so as we gazed, and the conviction grew upon us that it was past our powers of description, and therefore we shall not attempt to describe it. The breezes, the first real breezes we had inhaled for months, felt peculiarly refreshing, and we lingered till the descending sun reminded us that we were on foot and far from our night's resting place. The top of the Black Rocks is decorated with Scotch pines, their bare tough roots fantastically interlaced on the surface of the ground, while behind is a wood or forest of firs. The faces of the rocks are bare, black, perpendicular, showing from the base as if of stupendous size. The base is adorned with trees, beech

principally, with an undergrowth of fern which literally covered us with brown dust as we brushed through it. The form of the faces of the rocks in some instances, reminds one of certain animals, particularly the antediluvian giants.

Thus ended our day's excursion, for the return was diversified only by a slight detour, taking Bonsal instead of Cromford on the way back to Matlock Bath. Tired in body but refreshed in spirit, we returned to our hotel, carrying with us a large bouquet of wild flowers, and fully satisfied that we had spent a day in and around the Via Gellia which would give rise to many pleasurable thoughts in the future.

FLORICULTURAL MILLINERY.

[From "*The Florist*," May 1869, p. 98.]

FLORICULTURAL MILLINERY! We can find no better term to express our idea of a practice very commonly followed with regard to plants and flowers grown for exhibition, and on which we invite discussion. It is well known to practical horiculturists that most of the plants and flowers seen at our flower shows are more or less "dressed." Is this legitimate or not? and if legitimate, is it desirable? Legitimate we think it is *to a certain extent*, although, perhaps, no two individuals would draw the line precisely in the same place. It is not, that we are aware of, absolutely forbidden by any society, and precedent and usage may be urged in its justification. Desirable we think it is not, and that for various reasons which we shall state hereafter.

Every cultivator who has grown plants and flowers for exhibition knows well that success depends chiefly on two fundamental points—(1) *Skill in production*, which premises knowledge and judgment in the choice and growth of individual plants and flowers; and (2) *Taste and lightness*

of finger in the arrangement and dressing, much the same sort of skill as is required in tricking out a cap or a bonnet, and hence the term we have chosen to express it—"Floricultural Millinery." Now, these two points, which are essentially distinct, are not in our judgment of nearly equal weight, the "skill" in production being of far more importance than the "taste and lightness of finger" in the arrangement or dressing. Yet our experience, derived from observation, compels us to say that we think the "finish and symmetry," which are due in great measure to "taste and lightness of finger," often exert an undue influence. The eye is pleased by it, and the judgment does not travel back so far as to inquire concerning the whence and whither.

In making the above comparison we are well aware that a cap or a bonnet has to be made by hand; it cannot be grown; it is the work of an hour. On the contrary, a plant or flower must be grown by a long and thoughtful process. Produce, we say, by the means of growth in your power, the finest plants and flowers you can; but having done this, rest satisfied; do not supplement the efforts of a year's thought and labour by the transient arts of millinery.

We are free to admit that a plant must be tied up, and this is better done neatly and with taste than in a careless or bungling manner. Flowers, too, should be so placed in their stands that they may be well seen, and the colours should be so assorted and arranged that each may enhance rather than detract from the beauty and effect of its neighbour. Thus far we concede—nay, consider necessary and commendable. But the little tricks resorted to to make a plant or flower look other or better than it really is find no sympathy in our nature. The flattening of Pansies by pressure to meet the florist's canon that Pansies should be flat; the gumming and brushing of the petals of Pelargoniums; the artificial packing of the petals of Carnations; the building-up of Dahlias; the pinning of

Hyacinths—all these practices are, in our judgment, of questionable taste, and of even more questionable honesty. By the use of them we may approach more nearly to the florist's ideal, but we are reaching that ideal by trickery and deception, rather than by horticultural skill and honest labour.

Do not let us be misunderstood. We are not here questioning the florist's canons, most of which we admit to be founded on common sense and correct taste; it is the means often adopted to reach them that we take up the pen to do battle with.

Is this "millinery" desirable? We think not, and on other grounds than those we have already advanced. It has always appeared to us that the decline in the cultivation of florists' flowers, or in what used to be popularly so called, is due in some measure to this floricultural millinery. A judge may be hoodwinked, a competitor may be jockeyed by it. But the public—how does it affect them? They view, admire, and purchase from these highly-dressed flowers, but in their hands, even under the most skilful cultivation, the antecedents are never realised. Hence disappointment ensues, a suspicion of deception is awakened, discouragement is the result, and the flowers themselves go out of fashion.

We cannot but think, then, that in justice to the public, and in the interests of exhibitors themselves, this is a state of things which it is most desirable to remedy. And the remedy lies with the judges. If exhibitors find the arts above hinted at to tell with the judges, they will continue to practise them. Perhaps no rules of any society can be made clear or stringent enough to ensure the desired end. But horticultural societies might justly intimate to exhibitors that the judges would be instructed to recognise the skill of the horticulturist, rather than the mode of the artist, and if the judges carried out such instructions this would doubtless soon work a beneficial change.

INSECT INTOXICATION.

[From "The Florist," June 1870, p. 129.]

IT is well known that the flowers of the Hollyhock (*Althæa rosea*) contain an abundance of honey, and humble bees and hive bees seem alike fond of it. But unfortunately the honey possesses an intoxicating or stupifying property, the precise nature of which I do not know. The first year or two that I grew Hollyhocks in this neighbourhood the bees did not touch them, being, I assume, new to them, the hidden treasures lay long undiscovered; but now they seem to prefer them to any other flowers, and the otherwise gay scene is enhanced by the motion and music of these winged labourers. They sip and sip till they become too helpless to fly, although they retain the power of stinging, as I have unfortunately experienced more than once while handling the flowers. It is indeed pitiable to behold the humble bee—he is the greatest tippler—with rounded form and rustic garb hanging by one leg to the petals of a flower, his portly person suspended between earth and heaven, while he vainly struggles to "hold on." Down at last he goes, luckless wight! for a fall of six feet cannot be pleasant, even to a bee when gorged with feeding. Safe on *terra firma*, he goes through a series of antics excessively ludicrous—running, tumbling, whirling, sometimes recovering and taking wing, but oftener lying exhausted on the cold ground till the next day.

The hive bee is less funny, but what a sad loss of time to him! for he oftener crawls into the pockets of the flowers, and remains there while the earth revolves, and till the sun again warms him into life and activity. I wonder what account he gives to his queen of his long absence and little gains as he returns slowly and leisurely to his hive. But the worst remains to be told. Neither of these insects seems to derive wisdom from experience.

Human reason and animal instinct seem alike assailable by these seductive influences, for I am pretty certain, judging by numbers, that the same individuals return again and again to their drunken orgies.

ON THE RELATIVE VALUE OF CLARIFIED AND UNCLARIFIED SEWAGE AS MANURE.

[Abridgment of paper read at Brighton before the British Association for the Advancement of Science, 1872.]

I TAKE it as a good sign of the times that the sewage question is engaging the attention of some of the first and most earnest minds in the country. Every individual in England is interested in it from a sanitary point of view, and to householders of limited means it is a question of vital importance from a monetary point of view. Our sewage must be effectually got rid of at whatever cost. We live by breathing as well as by eating and drinking, and our sewage cannot any longer be allowed to pollute the air we breathe and the water we drink, thereby increasing the death-rate among the weakly and enervating the strong. If we can dispose of it at small cost, rate-payers will be charged low rates; if only at great cost, high rates; and the difference between high rates and low rates is equivalent to the difference between ease and anxiety, comfort and hardships, in thousands of English homes. But I am not here to-day to enter into all the bearings of this wide and difficult question, but merely to state my views of the value of "clarified" and "unclarified" sewage as manures, and I contend that the vegetable physiologist and practical horticulturist should be able to throw some light on this branch of the subject. I may, perhaps, be permitted to state that I have looked long and earnestly at this question, both from the theoretical and

practical point of view, and from numerous experiments have arrived at the conclusion that sewage when "clarified" is a most valuable manure for porous or well-drained soils, even when cultivated according to the recognised systems. On the other hand, I have no faith in the value of sewage of any kind, or for any land if used in an "unclarified" or sludgy state, unless accompanied with a laborious and costly system of cultivation. In order to show clearly the grounds of my preference for "clarified" over "unclarified" sewage, it would seem necessary to advert briefly to the sources whence plants derive their food, and to the conditions favourable to the free use of this food. Plants feed on the air through their leaves, and on water through their roots. And here it is important to bear in mind that the roots of plants can no more absorb solids from the soil than the leaves can absorb solids from the air—water and gases are their food—they cannot eat like animals, they live by breathing and drinking. Whatever earthy or metallic compounds may be found in the ashes of plants after incineration must have been introduced there in a state of solution, or have been manufactured within the plants themselves. "The water absorbed by the roots contains matters held in solution; these are deposited in the plant, and remain there with about a third part of the water, the rest escaping almost as pure as distilled water."—*Decandolle Physiologie Vegetale, Tome I., p. 113.* Now, our best vegetable physiologists are of opinion that carbonic acid enters the plant both in the water and the air; the oxygen is afterwards set free by the agency of solar light, the carbon remaining behind in a solid state. I need not enlarge on the manner in which plants feed through their leaves, because, *practically speaking*, we cannot influence them much through this channel; in out-of-door culture at least we influence them chiefly through their roots. To this end—1st, we put on or into the soil such manures as we judge likely or have found by experience to promote the develop-

ment of certain parts of plants; and 2ndly, we keep the soil loose or open by ploughing, harrowing, hoeing, digging, and the like, that the air and sun-heat may freely enter the soil and render these manures readily available. This embraces the theory and practice of cultivation. Now, highly important as is the use of appropriate manures to aid in the development of our growing crops, as a cultivator I attach more importance than is commonly attached to the physical conditions of the soil, especially to keeping the surface loose and the soil porous that the water may get away, and that the air and sun-heat may follow wherever the water or clarified sewage goes. The clarified sewage is food placed within reach of the roots; the presence of air renders this food more plentiful, and the sun-heat stimulates the roots to feed. The fertility of the soil is therefore largely influenced by the amount of air and heat which it contains. This brings me to the principal objection which I have to urge against putting sewage on the land in an unclarified or sludgy state. I am free to admit that the sewage clarifies in its passage downwards, presenting to the roots the same food as if the sewage had been previously clarified; but the surface of the earth is thereby made to act as a filter, and the physical conditions of the soil are altered. The unclarified sewage in passing through the soil has become clarified, but the pores of the soil are more or less *closed against the passage of air*, and a solid or half liquid glutinous mass rests on the surface of the earth *throwing back the sun-heat*. The food is there, but the stimulants of air and sun-heat are shut out or greatly diminished, and the fertility of the soil is impaired in a corresponding degree. Horticulturists know well the importance of earth-heat, as many of their highest efforts depend on it. The greatest authority on this subject (Lindley in the Theory of Horticulture, p. 136) thus alludes to it:—

“It may hence be considered an axiom in horticulture

that all plants require the soil as well as the atmosphere in which they grow to correspond in temperature with that of the countries in which they are natives. It has also been already shown that the mean temperature of the soil should be above that of the atmosphere." Again (p. 137) "Those who imagine that the advantage of drainage arises from the removal of stagnant water or any such cause alone, overlook the great and important fact that drained land in summer is from 10° to 20° warmer than water-logged land." Again (p. 138) "As scarcely any of our cultivated crops are natives of countries so cold as our own, it is manifest that they all require to have the earth warmed for them, or are much the better for it."

The free access of air to the soil in which plants grow is not less important than that of heat.

"The roots of plants, notwithstanding their underground position, are subject to the action of the air which permeates the earth. We have long known that trees suffer if we inter the base of the stem in such manner as to exclude the air from their roots. The roots suffer more from contact with stagnant water, even when richer in nutritive matters, than when in contact with running water, because the latter brings them a constant supply of oxygen. M. Th. de Saussure found that plants whose roots were placed in gas deprived of free oxygen died at the end of a few days, whilst those placed in contact with the atmosphere lived and prospered."—*Physiologie Végétale, Tome I., pp. 136-137.*

Many years ago I used "unclarified" sewage extensively, and for a lengthened period. The results were not satisfactory until I adopted the practice of stirring the surface of the soil after every application of the sewage. The results then exceeded my expectations, but when estimated were not found equivalent to the largely increased cost of labour. Afterwards the sewage was clarified by the use of quick lime and used for a lengthened period in this state; this was judged better

than the use of unclarified sewage without labour, but not equal to its use with frequent hoeings. At present I have two large cesspools into which the sewage is diverted and allowed to settle, becoming almost clear by subsidence, in which state it is freely used and found most valuable.* In conclusion, I would say that I am of opinion that the sludge in sewage is valuable as a manure. But I object to its application to the surface of the soil in a semi-liquid state. If so applied the surface of the soil should be constantly stirred and broken, which, of course, involves considerable expense. It then becomes a question whether it is not more economical to separate the sludge, employing it as a solid manure, or for other purposes, leaving a clarified liquid behind for irrigation.

WHO IS RIGHT?

[From "*The Florist*," July and Aug. 1874. *pp.* 155, 177.]

I HAVE often found a difficulty in the differences of opinion expressed by competent judges as to the merits of certain plants and flowers, and in no case is this more remarkable than among Zonal Pelargoniums. As a practical cultivator I can make due allowance for circumstances, soil, and climate, but these put together hardly amount to a solution of the difficulty. I think the anomalies must arise from the want of a clearly defined and acknowledged standard to judge by. In the case of Pelargoniums, for example, one grower or class of growers will be influenced principally by the flower, another by the truss, a third will be swayed by the habit of the plant, and a fourth will weigh all these points in combination, giving to each his estimate of their respective value, and pro-

* From experiments, not completed when this paper was read, I found a marked difference in Geraniums watered with unclarified sewage and with sewage clarified by lime, in every case in favour of the latter.

nouncing accordingly. Certainly, when dealing with a plant which is used for such various purposes, it would seem to help to an accurate estimate of value if the plant were looked at from one or other of two points of view—(1) as a florist's flower, in which shape, size, and substance are the chief requisites; and (2) as a decorative or bedding plant, in which colour, habit of growth, freedom and duration of flowering, should be placed in the ascendant. This, I am aware, has been done in the Report of the Royal Horticultural Society, so far as to classify them as "bedding plants" and "pot plants," but the "doctors" still differ widely, which I will proceed to show, by placing side by side the opinions of the Floral Committee of the Royal Horticultural Society of London, and those of two or three of the largest growers of this plant in the vicinity of London:—

GOLDEN TRICOLORS.

Allan-a-Dale.—Discarded as a bedding sort, *R.H.S.*; recommended as superior for bedding, *E. G. Henderson & Son*.

Hong Kong.—Discarded as a bedding sort, *R.H.S.*; recommended as superior for bedding, *E. G. Henderson & Son*.

Miss Batters.—Discarded as a bedding sort, *R.H.S.*; recommended as a bedding sort, *H. Cannell*.

Mrs Dunnett.—Discarded as a bedding sort, *R.H.S.*; recommended as superior for bedding, *E. G. Henderson & Son*.

Saragossa.—Discarded as a bedding sort, *R.H.S.*; recommended as a bedding sort, *E. G. Henderson & Son*.

SILVER TRICOLORS.

Caroline Longfield.—Discarded as a bedding sort, *R.H.S.*; proved fine for bedding, *E. G. Henderson & Son*.

Clarinda.—Discarded as a bedding sort, *R.H.S.*; proved fine for bedding, *E. G. Henderson & Son*.

Mrs Masters.—Discarded as a bedding sort, *R.H.S.*; proved fine for bedding, *E. G. Henderson & Son*.

Mysterious Night.—Discarded as a bedding sort, *R.H.S.*; proved fine for bedding, First-Class Certificate, *E. G. Henderson & Son*.

Miss Farren.—Discarded as a bedding sort, *R.H.S.*; a fine bedding sort, of first-rate quality, *W. Paul*.

SILVER MARGINED.

Alma.—Discarded, *R.H.S.*; recommended for bedding, *John Fraser*.

Princess Alexandra.—Discarded, *R.H.S.*; one of the best for any purpose, *H. Cannell*; the best white-leaved bedding variety, *E. G. Henderson & Son*; an excellent bedder, *John Fraser*.

Mountain of Snow.—Discarded, *R.H.S.*; recommended for bedding, *John Fraser*.

Variegated Stella.—Discarded, *R.H.S.*; recommended for bedding, *John Fraser*.

BRONZE ZONALS.

Beauty of Wolverstone.—Discarded, *R.H.S.*; fine bedder, *Downie & Co*.

Criterion.—Discarded, *R.H.S.*; very good, *Downie & Co*.

Kentish Hero.—Discarded, *R.H.S.*; the finest bedder, *Downie & Co*.

Midas.—Discarded, *R.H.S.*; probably the best of all the Bronze Zonals, *W. Paul*.

W. R. Morris.—Discarded, *R.H.S.*; extra fine, *E. G. Henderson & Son*.

Plutus.—Discarded, *R.H.S.*; a first-class variety in every way, *H. Cannell*.

This brings me to the end of Zonal Pelargoniums judged for the beauty of their leaves. In my next paper I will deal with the varieties judged for the beauty of their flowers.

[From "*The Florist*," 1874, p. 177.]

IN my last paper I pointed out the difference of opinion formed by the Floral Committee of the Royal Horticultural Society and some of the largest growers of *Pelargoniums* as to the merits of the different varieties valued for their leaves. In the present I shall proceed to place side by side the opinions of the same authorities as to the value of varieties judged by their flowers:—

Memnon.—Discarded for bedding, *R.H.S.* ; one of the best bedders, *H. Cannell*.

Commissioner.—Not equal to others of similar character, *R.H.S.* ; recommended for bedding, *John Fraser*.

Claude Lorraine.—Not equal to others of similar character, *R.H.S.* ; novel, distinct, and beautiful, *W. Paul*.

David Garrick.—Not equal to others of similar character, *R.H.S.* ; recommended for bedding, *John Fraser*.

Douglas Pearson.—Not equal to others of similar character, *R.H.S.* ; one of the best dark bedding varieties, *H. Cannell* ; first-class bedder, *C. Turner*.

Madlle. Nillson.—Not equal to others of similar character, *R.H.S.* ; a great acquisition for bedding, *John Fraser*.

Diana.—Not equal to others of similar character, *R.H.S.* ; recommended for bedding, *W. Paul*.

White Perfection.—Discarded as a pot plant, *R.H.S.* ; fine for pot culture, *John Fraser* ; fine shape and very free, *H. Cannell*.

George Peabody.—Not equal to others of similar character, *R.H.S.* ; extra, *Downie, Laird, & Laing*.

Sydney Turner.—Not equal to others of similar character, *R.H.S.* ; a novel and distinct variety, *Downie, Laird, & Laing*.

The following are also given as not equal to others of similar character by the Floral Committee of the Royal Horticultural Society, and are offered by Messrs E. G. Henderson & Son as of proved quality —*Deuil de la Lorraine, C. Fox, Margaret, Miss Saunders, Mons. Charles*

Rouillard, Mr Gladstone, Mrs Goodford, Sir Charles Napier, Sir Thomas More, Thomas Speed, Troubadour, Velocipede. To the last-named variety Messrs Henderson attach the description, "Beautiful scarlet, splendid bedder and winter bloomer."

COTTAGE GARDENS ASSOCIATION.

[From "*The Garden*," December 9th 1882, p. 517.]

I SHALL not be surprised if in this matter I am met at the outset with the remark that cottage gardens already exist and have long existed in many of our towns and villages, and that their past history, with few exceptions, is not such as to encourage any new movement in this direction. I should at once admit the force of this remark if applied to these associations as they have been constituted and managed in the past, and rejoin that I propose to move on entirely new ground, where the objections applicable to the past do not necessarily apply.

Cottage garden associations have hitherto been considered too much a matter of charity or patronage, pet schemes of local magnates, patronised by a class, encumbered with rules and trammelled by influences, religious, political, or social, which, if good in themselves, do not leave the tenant with that freedom and independence which is not only necessary to the full enjoyment of his holding, but which he is justly entitled to claim in return for a fair rental duly paid.

In the scheme which I am about to submit for consideration I would lay aside all idea of charity and patronage, and seek to establish opportunities for improving health and storing food similar to those which the friendly society and the savings bank offer for the storing of money. I would accomplish this end by means of an association under the Limited Liabilities Company

Act, in which shareholders would receive a fair amount of interest on capital invested. The chief objects I have in view in connection with this movement are recreation and thrift. I seek to provide a "hobby" for the humbler classes of society, employment for their leisure hours, free from the trammels of any one particular school of thought—employment that is at once recreative, healthful, and remunerative. Let me endeavour to show, first, that it is *desirable* to bring gardening within easy reach of the humbler classes of society; and secondly, that the project is *practicable*.

I.—DESIRABILITY OF THE PROJECT.

Am I not right in assuming that a "hobby" of some sort is almost necessary to men in every station of life to complete satisfactorily the sum of human occupation. The members of the upper and middle classes of society have, from their means, position, and influence, a power of choice in this respect which the labourer, the artisan, and even the small tradesman do not possess. Can they live on from week to week and year to year performing their work industriously and spiritedly without a "hobby?" Or, if this in some cases be possible, would not the pursuit of one prove of incalculable benefit to them physically, mentally, and morally? I think it hardly necessary to bring forward evidence in support of the opinion that it would, and I think further that cottage gardening is a suitable "hobby" for most men in the station of life to which I have referred. It is not only beneficial in its influences on both mind and body, but, unlike many "hobbies," it teaches thrift, and is thus specially suited for their requirements and means, increasing their stores of wholesome food at a small cost. I think also that the subject has an *educational* as well as a *moral, social, and economical* aspect.

In regard to the EDUCATIONAL ASPECT, it seems to me that in view of a further extension of the franchise it

has become very important that the adult masses should be educated in a manner that will enable them not only to see and hear, but to go one or two steps further—to think, understand, and judge for themselves. There have been demagogues in the past, there are demagogues in the present, and the number is not likely to decrease with the prospect of an extended franchise. Torrents of eloquence will be poured forth in the future *ostensibly* to awaken the labourer, the artisan, and the small tradesman to his true interests, but *really* to advance the views or interests of the declaimers. Now, cottage gardening strikes me as one particularly desirable mode of adult education; it deals with *things* rather than with *words*. The child who begins at school with the alphabet, and passes, perhaps slowly, but gradually onward, accumulates knowledge almost insensibly, and during the process thinking, understanding, comparing, and judging usually play a more or less conspicuous part. But the man, whether young, middle-aged, or old, who has not been taught to read, write, or calculate, or who has but a slender acquaintance with reading, writing, or arithmetic, stands in need of more practical, more direct, and quicker teaching. Well, I am of opinion that such teaching is best conveyed by bringing him in contact with some useful art in which he has to deal with objects rather than with words, and in which he can take an actual working part. And gardening is an art of this character. Even cottage gardening demands and encourages not only working, but thinking, understanding, comparing, judging—does not occupy the mind with the present alone, but is continually carrying it backward into the past and onward into the future.

My experience does not lend support to the opinion that you cannot get the working classes to think; it may have been true in the past, but it is hardly true in the present. If in a given number of men who undertake to cultivate plots of garden ground there is in the first instance but one thinker, he and his surroundings will gradually

influence the rest. This is a work in which a little leaven leaveneth the mass. The majority may in the first instance copy only, but they will assuredly end by thinking, understanding, comparing, judging. This habit once contracted and applied to one thing will in due course be extended to others, and gradually the barren waste of mind will become more or less cultivated or fertile; the labourer, the artisan, and the small tradesman will no longer be the sport of vain, pretentious men or the tool of demagogues, but reasoning beings, who can solve at least some of the plain political problems set before them. If these views be correct, I think it follows that cottage gardening is not only a valuable means of adult education, but a political safeguard—a counterpoise to the pernicious teachings of ignorant or false patriots—and likely to prove a material help in the establishment of that order of mind which is usually possessed of a sound political faith.

I pass on to the MORAL ASPECT. It is unquestionable that men of high moral attributes, rich and poor alike, are naturally drawn to gardening, and I believe it to be equally true that the pursuit of it, whether for profit or as a recreation, produces a love of order and a distaste for low and sordid pleasures. The physical exertion necessary for successful gardening is healthful to the body, and the interest arising from the ever-varying changes in the aspect of vegetables, fruits, and flowers is equally healthful to the mind, and this has a moral as well as an educational influence. The sequence of events is so rapid, so plain, so beautiful, that even the untutored mind can hardly help having forced upon its attention what we are accustomed to speak of as cause and effect. We sow the seed, and however limited our experience, upheld by hope, we rest assured that we shall see, and usually do see in succession, the germ, the plant, and in some cases the flower and the seed again. The habit of reflection is thus perhaps insensibly acquired and cultivated, and the moral nature is improved.

I would here ask you momentarily to contrast the moral influences likely to ensue from a recreation such as this, with those engendered by the too common practice of the cottager in separating himself from his family when his work is over, and resorting to the unhealthy atmosphere of a taproom and its surroundings. Once there, he too often spends his hard-earned wages in drinking and smoking to an extent which is both extravagant and harmful, and to which he is often stimulated by conversations and amusements which are the reverse of healthful. Do not, however, let it be supposed that I am passing an unqualified condemnation on these luxuries and amusements; it is the abuse of them only that I would condemn. Let the cottager smoke his pipe, quaff his ale, and chat with his neighbours if so inclined in his garden plot and elsewhere. Labour creates thirst, physical exertion needs rest, and happy the man who can be content to assuage the one and enjoy the other under the healthy conditions of his own home or garden. Here, as in the ale-house, he may come in contact with men of his own age, men of the same mental calibre and social status, seeking one common aim, while his energies are aroused by the desire to do as well or better than his compeers, and as this is a kind of labour which naturally leads to healthy thinking while working, his whole nature is likely to be improved by the trains of thought awakened.

As a means of SOCIAL IMPROVEMENT with the humbler classes, cottage gardening must, I think, stand in the very front rank of accessory measures. It is the least selfish of social pleasures. It is at once social and profitable. A man's wife and children can help in the work, and while doing so look forward to share the pleasures and substantial benefits of it day by day. While he engages in digging and planting, they may perform the lighter work. Can there be a pleasanter sight than that of a cottager in his garden surrounded with his children digging and sowing in spring, watering

and staking his early crops in summer, and collecting and storing his potatoes, onions, parsnips, and carrots in autumn for winter use? They sow pence in seeds, shillings in rent and labour, and ordinarily gather in half-crowns as the value of the produce, and this without waiting for a longer period than the patience of an indifferently cultivated mind is equal to.

It would be easy to provide statistics to show that the return of interest on capital invested is equal to what is here stated, but there is a shorter and equally certain road to this object—the admission of the cultivator—which will probably be considered satisfactory. “A B,” a married man with a family, says—“I hold 24 poles of land, for which I pay 6d. a pole. Last year I sold off this plot sufficient to pay the rent, and then had vegetables enough for my own family nearly all the year round. My crops were potatoes, parsnips, carrots, onions, cabbages, winter material, and scarlet runners. I believe those of my neighbours who work at it find the cottage plot a good thing.” In reply to the question, “Does your garden plot pay you?” one cottager admitted taking no less than £10 in one year in prizes at the cottagers’ show. Another—“It pays those who work, but some of them do not work, and they find it does not pay.” Another—“It pays me very well, and would pay me better if I could afford to buy manure. I keep fowls and rabbits, and use the little manure they make, and can see to an inch where it has been used.” Another—“My crops would pay me well for my work if I could get them myself, but my garden is constantly robbed; even my peas and beans are taken.” Another cottager told me that 12 poles of land was enough for any cottager. Another said the farmers in his neighbourhood did not approve of cottage gardens, as the men worked in them in the early morning, and went thence tired to their regular work. Another (an ungrateful man, I fear) replied as follows—“They said the plots were set out to help the poor, but it was the worst

bit of land in the parish, and the rent was more than the farmers paid for good land.

With regard to the ECONOMICAL OR UTILITARIAN ADVANTAGES of gardening, I hold the opinion that the working classes would benefit largely by the free use of fresh vegetables in diet. I say *fresh* vegetables, and what means are so likely to furnish them with such as a garden of their own? And it should not be overlooked or forgotten that the products of the garden are not exhausted by the vegetables and fruits raised for present or immediate consumption. There is a store of both for winter use, and as these are successively brought forth at that season, and the family reaps the substantial benefits of their past labour, they are pleasantly reminded again and again of the delights of the garden in the summer time.

If, as I hope, I have proved satisfactorily that it is *desirable* to bring gardening within easy reach of the humbler classes of society from an educational, as well as from a moral, social, and economical point of view, I may now ask to be allowed to consider

II.—THE PRACTICABILITY OF THE PROJECT.

I propose to establish a company under the title of "The Cottage Gardens Association for Great Britain and Ireland, Limited." This association is to be formed with the view of providing labourers, artisans, and small tradesmen, and others with suitable plots of ground to be cultivated as gardens. The association proposes to accomplish this end by purchasing or hiring on lease suitable plots of land as near as possible to towns and villages. As the principal object of the directors will be to develop gardening as a source of both recreation and profit to the humbler classes, they will not seek for large profits on the undertaking, but merely a fairly remunerative interest on the capital embarked. The preliminary expenses will be confined to the outlay

actually incurred. It is proposed that the centre of the association should be London, with branches throughout the Kingdom—the latter under local management, but subject to the general rules of the association. On each allotment there may be erected a greenhouse and arbour, the site and plans of buildings being first approved by the directors of the association or committee of management. In this scheme I think we have good grounds on which to establish a claim to the kindly co-operation of landed proprietors, municipal authorities, and the wealthy class generally. Surely it is not an insignificant or unimportant aim that would at once place within easy reach of the toiling millions a source of health, recreation, and increased supply of wholesome and nourishing food. I cannot but think that in this rich, populous, and enterprising country shareholders will be forthcoming sufficient to set the association fairly afloat, and that once at work it will prove not only self-supporting but yield a fair interest to the shareholders for their capital.

I derive much encouragement from the fact that the love and practice of gardening among the humbler classes is to a great extent inherent, and is rapidly increasing, even under the difficulties which at present usually beset it, and it is reasonable to suppose that it would take a considerable development if small plots of suitable land in accessible places could be rented at a fair value. In the face of this fact there would, in my opinion, be little risk, and the prospect of a fair profit, if representatives of the towns and villages in England were to rent land easily accessible, with the view of reletting it to cottagers, artisans, and small tradesmen. A central association in London, inviting the towns and villages to form branches under local committees of their own choosing, conforming to one central code, except in minor matters, should meet with a ready response. No heavy responsibilities need be incurred, the expenditure in any one district being regulated by actual demand.

No doubt there would in many districts be a difficulty in acquiring SUITABLE LAND, but that difficulty does not seem insuperable, and is probably less now than at any recent period.

But it may be said all land is not suitable for cottage gardening. Certainly not. In choosing land for cottage gardens there are many points worthy of being taken into consideration, such as position, quantity, quality, and rent. There is no position equal to that attached to the cottage, and where it is possible to acquire land adjoining cottages without land, and attach it to them, this would be the greatest boon. The cottages of our large landed proprietors usually have a small garden; but how often do we see rows of cottages existing and still being erected back to back with scarcely more land attached to them than the cottages stand on. In London and the immediate vicinity of large towns this may matter but little as regards gardening, however valuable a plot of land might be to the cottagers as a playground or drying-ground; but in positions where soil and climate permit of successful gardening, on sanitary and social grounds no cottage should be allowed to be built without a portion of cultivatable land being attached to it. I do not think that I am exceeding the bounds of propriety in urging this point on the attention of local boards and rural sanitary authorities under whose supervision all plans of proposed new buildings must now necessarily pass. If they have not already the power of enforcing this it should be given them by Act of Parliament. I should like, too, to see every country school teaching at least the elements of gardening, and every agricultural and horticultural association owning or renting a plot of ground and organising a plan by which they might relet to the cottager and aid or advise him otherwise in his undertaking.

If land cannot be obtained adjoining cottages, it should be as near to them as possible. A walk of a mile or two may not matter to the sedentary man who is constantly

sitting at his work, but to the ordinary labourer who is standing or walking as well as working all day it is laborious and distasteful, and it involves a serious loss of time to both.

Where towns are large, and land in their immediate vicinity is usually dear, a cheap railway fare to some appropriate spot would be a boon, and is probably one which railway companies might be disposed to grant. Nor am I sure that railway companies might not be disposed otherwise to aid the association. The unoccupied land adjoining many railway stations is wisely allowed to be cultivated by their *employés*, and they have other unused spaces which might be available for cottage gardening, due provision being made for the safety of their traffic.

Land taken for cottage gardens should be free from the proximity of large trees, although a certain amount of shelter if without shade and root intrusion is usually an advantage. If water is come-at-able so much the better, as crops are often starved and sometimes lost for want of water in dry weather.

As to the *QUALITY OF THE LAND*, the richer the better. It certainly should not be of that poor material known as a hungry soil. If not rich, it should at least be a soil that will answer to the application of manure at the hands of those who may choose to apply it. Poorness of soil is, however, of least importance in the vicinity of large towns, as manure there is usually cheap, and sometimes of no money value whatever. Land taken for cottage gardens should not be of a character that becomes too hard at times to be worked by manual labour; hence strong clays are objectionable; on the other hand, soils too loose and porous at the surface, or so near to sand or gravel that rain passes rapidly through them, are equally objectionable; what is commonly understood as a medium loam is the best of all soils for cottage gardens. It should, if possible, be a soil that will work at all times. The cottager, whose time is not often at his own disposal,

ought not to have to wait for the soil to be in a proper condition to work, it ought to be ready at all times to suit his leisure. Depth of soil as well as texture or substance should be taken into consideration. Depth compensates in some measure for want of solidity, as the roots of plants will push deeper in light than heavy soils in search of nourishment and support. A wet soil is always objectionable, and unless such can be thoroughly drained before the allotments are set out, it should be scrupulously avoided.

With regard to the SIZE OF THE ALLOTMENTS, they should, perhaps, vary from 10 poles to 40 poles each. A man with a family of boys would easily cultivate a much larger plot than one without them, and the larger plot would be a greater boon in finding them healthful and profitable employment in their leisure, and in providing a larger stock of vegetables and fruit for household use. Again, a man whose daily employment was gardening or similar work might probably not care for so large a plot as one whose occupation was sedentary, or whose hours of labour were less prolonged, to whom digging, hoeing, and the various out-of-door operations of gardening would be a change.

In every branch of the association there would of course be a separate managing committee, and this, with other matters of practical detail, would require a discriminating adjustment at their hands. If a large plot once granted was found to be indifferently cultivated, a smaller one should be substituted for it after due notice. There should be a cart-road touching one point of each allotment, and a pathway for a wheelbarrow traversing its longest side.

These, then, are what I should consider the principal requirements of land purchased or rented for cottage gardens. It is probable that all these advantages will be rarely found in combination, but although all are desirable, all are not necessary for profitable gardening. Hence, in order to secure the right thing, a thorough practical know-

ledge of the nature and capabilities of land in those who have the purchasing or renting of it for redistribution is of the very highest importance.

THE QUESTION OF RENT is one for each committee of management to settle; it must necessarily vary in different localities and under different circumstances. Supposing a piece of land to be taken at £4 an acre, it would seem that the rates of 7s. 6d., 15s., 22s. 6d., and 30s. per allotment of 10, 20, 30, and 40 poles would not be an unreasonable charge for small plots after division, in order to cover preliminary expenses of management and any deficit caused by occasional non-payment of rent. If this proved too great a margin (and the preliminary expenses would be found to vary considerably), the surplus under this head might be returned to the tenants *pro rata* after the yearly balance of accounts was struck. It would doubtless be a safe plan to insist on the payment of rent in advance, but this, I fear, would shut out some whom it would be very desirable to reach. However, a difference might be made in the rental in favour of those who were willing to pay their rent in advance.

There is one very important point in which the various managing committees might render essential service to the holders of allotments, namely, in securing for them the best qualities and most suitable varieties of PLANTS AND SEEDS on the most advantageous terms. Bad seeds and plants are a serious loss to the cultivator, and it is best known to those who have had the most practice in gardening that some sorts of vegetables, fruits, and flowers are more profitable to cultivators than others. For instance, some varieties of cabbage have the habit of spreading their leaves in such a manner that they occupy twice the space required by others without giving a corresponding return in the size of heart. Again, some varieties of vegetables and fruits are more delicate and some less productive than others. To grow such, even if the quality were a shade higher, which however is not always the case, might suit

the pocket of the rich, the taste of the epicure, or the skill of the educated gardener, but would hardly be a wise economy on the part of the cottager. A committee, or some members of a committee, might reasonably be supposed to know which were best or most suitable, and willing to use their knowledge for the advantage of the cottager. Such a committee or sub-committee, recommending or supplying seeds and trees at cost price, would be likely to render him an essential service, by securing for him the most suitable articles at the smallest cost. But of course it should be optional on the part of the tenant whether or no he avail himself of the offer.

Let us endeavour to show how this might be worked out. Suppose the committee offer to do this on condition that the cottager send in a list of his wants by a certain date, specifying quantities, and varieties also, if he prefer doing so. These lists when collected should be sent to a reliable nurseryman or seedsman, who would likely sell a quantity at a lower price than he would charge the individual for the small quantities he would require to purchase. Cash payments would of course be required in this case.

I have already mentioned that one cottager with whom I am acquainted admitted taking no less than £10 in prizes at one show.

COTTAGERS' SHOWS of vegetables, fruit, and flowers are very useful in stimulating the cottagers to exertion, but they should be so managed that no one exhibitor can take all the leading prizes, and they should draw the cultivator as a friend. The exhibitors should be divided into three classes—(1) *Cottagers whose ordinary occupation is other than gardening*; (2) *cottagers who are employed in nurseries or private gardens*; and (3) *shopkeepers or small tradesmen*, separate and distinct prizes being offered to each class of exhibitors. No person should be eligible to compete for prizes who rents a cottage at more than 8s. a-week. The largest number of prizes should be for vegetables, the next for fruits, and the next for flowers.

The weight or number of each exhibit should not be large. In addition to the prizes for productions of the garden, the show would almost certainly be rendered more interesting and more useful if small prizes were offered to children for collections of wild flowers.

The exhibits at cottagers' shows should be judged by gardeners or seedsmen, men of character and knowledge, that the awards may not be open to suspicion of favouritism or incompetency, and that the articles brought to the front may be accepted as standards of excellence. The practical teaching conveyed by the awards of such men would be valuable to the cottager as a guide for the future provided all exhibits were labelled with their proper distinguishing names.

Perhaps there is no feature of cottage gardening as it is and has been in which the ideas of charity and patronage occasionally come out so disagreeably as at the cottagers' show. Let anyone enter the tents of certain of these exhibitions on the morning of the show, when the cottager is bringing in his exhibits, and note the movements and bearing of some of the managers, subscribers, and patrons. I say *some of them*, because the ill-timed assumption of social superiority is not universal nor even general, but it is nevertheless too common to pass without a word of comment. Sometimes the managers of the show seem to expect from the cottagers the same amount of courtesy and address to which they are accustomed in the refined and educated circle of society in which they ordinarily move, and grow indignant at the freedom or irritated by the want of ready intelligence which they meet with. Hodge is civil of course, but he is probably excited and on new ground. If brusque in manner, and slow in understanding "rules and regulations," this should not be imputed as an offence. He does not mean it to be so, and bigger men than he are often puzzled by "rules and regulations."

It has often seemed to me that the custom of accepting

SPECIAL PRIZES from individuals is open to objections, although I am sure they are usually offered from high and generous motives. At the ordinary flower show some nurserymen look on these as advertisements of the cheapest and most remunerative class, and perhaps their acceptance may be excused there on the grounds of finance; but at the cottagers' show, where very small money prizes are given, special prizes surely are not needed, and at both they open the door to a compromise of independence. Mr A., whose sympathies are wholly utilitarian, gives 3s. and 2s. for the best and second best dish of potatoes. Mr B., who rejoices in the superiority of an æsthetic nature, gives a like amount for the best arranged bouquets. Mr C., who is fond of the table, supports the cultivation of fruits, while Mr D., who is of a domestic turn, offers 5s., or perhaps a guinea, to the domestic of unexceptional character who has lived the longest in the same family. When the prize-cards are placed on such exhibits, the names of the donors, as John Brown, Esq., are written in a large bold hand, while you must put on your spectacles to read the name of poor Hodge, who by his industry and skill has made two pecks of potatoes grow where but one grew before. Again, when the prizes are distributed on the ground, which they often are in the afternoon of the show, the distributor has been known to give some kindly words of advice in the face of the company to some of the triumphant prize-takers. Now, I do not think that these mistakes and intrusions are frequent or over-balance the good which results from the cottagers' show as it is, but I do say that they reduce the value of it, and are unworthy of the issues which naturally hang upon successful cottage gardening.

Finally, if a cottagers' show is held in connection with cottage gardening, it should not be contrived primarily as an outing for the local residents at large, but as an exposition of cottage industry and skill, and as a gala-day for the cottager.

ON THE LITERATURE OF ANCIENT AND MODERN GARDENING.

Read before the Royal Society of Literature, London, 23rd March 1887.]

THE "Literature of Gardening" may be said to commence with the earliest period of history. In the second chapter of the Book of Genesis we read—"And the Lord God planted a garden eastward in Eden, and there He put the man whom He had formed. And out of the ground made the Lord God to grow every tree that is pleasant to the sight and good for food. The Tree of Life also in the midst of the garden, and the Tree of Knowledge of Good and Evil. And a river went out of Eden to water the garden." And here I would observe that in this the first garden of which we have any record not only "every tree that was good for food," but "every tree that was pleasant to the sight" was planted, so that *ornamental gardening* was recognised at a date coeval with the creation of man.

The Bible throughout abounds in allusions to trees and flowers. A passage in Deuteronomy would almost seem to warrant the conclusion that experience had revealed to the cultivators the existence of the sexes of plants, although the discovery of this fact has been claimed for a much later period—"Thou shalt not sow thy vineyard with divers seeds, lest the fruit of thy seed which thou hast sown and the fruit of thy vineyard be defiled."—Deuteronomy, chap. xxii., v. 9. In the first Book of Kings (chap. iv., v. 33) it is recorded of Solomon that "he spake of trees from the Cedar tree that is in Lebanon even unto the Hyssop that springeth out of the wall." In Ecclesiastes (chap. ii.) we read—"I made me great works; I builded me houses; I planted me vineyards; I made me gardens and orchards, and I planted trees in them of all kinds of fruits; I made me pools of water to water therewith the wood that bringeth forth trees." In Solomon's Song frequent allusion is made to a garden—"Thy plants

are an orchard of Pomegranates" "Let my beloved come into his garden and eat his pleasant fruits;" and trees, plants, and flowers were apparently ever present to this author's imagination. In the 5th chapter of Isaiah it is said, speaking of an unfruitful vineyard, "And I will lay it waste; it shall not be pruned or digged;" and in Jeremiah (chap. ii.)—"Yet had I planted thee a noble vine, wholly a right seed; how then art thou turned into the degenerate plant of a strange vine unto me." These passages seem to show that pruning, digging, and raising plants from seed were practised at that time. In the 18th chapter of Isaiah we read—"For afore the harvest, when the bud is perfect and the sour grape is ripening in the flower, he shall both cut off the sprigs with pruning-hooks, and take away and cut down the branches." The 31st chapter of Ezekiel, which is full of beauty, contains special reference to the trees of the Garden of Eden, comparing them with the Assyrian.

The Garden of Eden is supposed to have been situated in Persia, while that of the Hesperides, which contained the Golden Apples (probably oranges) given by Juno to Jupiter on the occasion of their marriage, and are described by Scylax (600 B.C.), are supposed to have been situated near Mount Atlas in Africa.

The famous Gardens of Babylon formed by Semiramis (2000 B.C.) were composed of groves and terraces, and contained objects both for use and beauty. Those who may wish to see a description of them will find it in the writings of Diodorus and Strabo, and in the early pages of Dr Falconer's "Historical View of the Gardens of Antiquity." Sir Thomas Brown, in his "Garden of Cyrus," says—"Cyrus the elder, brought up in woods and mountains, when time and power enabled, pursued the dictate of his education, and brought the treasures of the field into rule and circumscription, so nobly beautifying the Hanging Gardens of Babylon that he was also thought to be the author thereof."

The literature of the East abounds in allusions to gardens. The Persians were greatly indebted to Cyrus the younger for the enjoyments they derived from them. Xenophon (about 400 B.C.) tells us (*Memorabilia*, lib. v.) that wherever Cyrus resided or whatever place he visited he caused the gardens, called *Paradises*, to be stocked with everything beautiful or useful that the soil produced.

There is, however, not much to be said of the "Literature of Gardening" among the nations of high antiquity. Jews, Egyptians, Assyrians, Persians, and Carthaginians were no doubt practical gardeners and had gardens, but if they wrote much on the subject, which is hardly probable, very little has come down to us. Hesiod's "Works and Days" is agricultural rather than horticultural, although according to Pliny, Ovid, and Manilius he had originally treated of the grafting of vines and olives and of various trees and plants. He speaks of

"The good which Asphodel and Mallow yields,
The feast of herbs, the dainties of the field."

He also enumerates the oak, the vine, and the fig.

The gardens of Alcinous and those of Laertes, both of which are described by Homer in the *Odyssey*, are said to have contained fruits, vegetables, and flowers. The garden of Alcinous is thus described :—

"Close to the gates a spacious garden lies,
From storms defended and inclement skies ;
Four acres was the allotted space of ground,
Fenced with a green enclosure all around.
Tall thriving trees confessed the fruitful mould,
The reddening apple ripens here to gold ;
Here the blue fig with luscious juice o'erflows,
With deeper red the full pomegranate glows,
The branch here bends beneath the weighty pear,
And verdant olives flourish round the year."

* * * * *

"Beds of all various herbs for ever green
In beauteous order terminate the scene."

And again—

“Here a rich juice the royal vineyard pours,
And there the garden yields a waste of flowers.”

Of Laertes it is said—

“Yet busied with his slaves to ease his woe,
He dressed the vine and bade the garden blow.”

Epicurus is said to have been the first who laid out a garden at Athens. Hesiod, Homer, Xenophon, Theophrastus, Dioscorides, and Ælian are writers on the subject. Pythagoras and Democritus also wrote treatises on the properties of plants. Theophrastus, the successor of Aristotle, wrote a history of plants, which by some has been ascribed to Aristotle, although admitted not to have been given to the world during his lifetime. However that may be, it is much in advance of any book of an earlier date that I have seen. In it the author not only enumerates by name a great number of plants, but describes them. We have, however, not very much from the Greeks on gardening.

Coming downwards to the Romans, we find that Cato, Varro, Virgil, Horace, and Martial wrote on trees and flowers, and Columella has a good deal to say on gardens. Varro tells us there are more than fifty authors (Greek and Roman) who have written on agriculture and gardening. Pliny's “Natural History” also enters largely into the subject. We think we may fairly claim Virgil's *Georgics*, 2 and 4, as belonging to the Literature of Gardening, although we should not like to stand sponsor for his theory of grafting. In truth, the Romans seem to have held, contrary to fact, that any one tree could be grafted on any other. In Columella's “Husbandry” the whole of the 3rd and the greater part of the 4th book is taken up with an account of vines and vine culture. He treats of kinds, soil, climate, planting, pruning, digging, and propagating, and states that a vineyard will speedily decay if it is not supported by assiduous culture, for which

he gives instructions. From the vine he passes on to the chestnut and oak. In the 5th book he has separate chapters "on the culture of provincial vineyards," "of the several sorts of olive trees," "of pomiferous trees," and the like. The 10th book is "of the culture of gardens." The 11th book is also worth perusing, and there is a book concerning trees, including vines, olives, figs, nuts, pomegranates, pears, apples, and others too numerous to mention, with a separate chapter "of the violet and the rose." He quotes frequently from Virgil, and speaks of Celsus and Atticus, "whom our age has most approved with respect to husbandry." He has one chapter headed, "What must be done every month by accommodating all sorts of work to the times and seasons." Columella's "Husbandry" contains a good deal of sound practical advice as to gardening pleasantly conveyed; altogether it is a remarkable book for the age in which it was written; it stands quite alone, and will even bear reading now by those who know enough of the subject to avoid being misled by its few puerilities. There was at that time no theory of gardening; it was the practice of it handed down from preceding generations, and extended by the Romans, which Columella so amply recorded.

The Natural History of Pliny is of course generally known. He treats of "the pleasures of the garden," "the laying out of garden ground," "the natural history of plants grown in gardens," "of sowing seeds," "of the maladies of plants and their remedies," and gives a long list of vegetables. He also writes "on the nature of flowers and gardens," and while mentioning that Theophrastus among the Greeks has written on the subject of flowers, says none of the Roman authors have, to his knowledge, written expressly of them.* He speaks also of the succession in which flowers blossom—the spring flowers

*He however tells us elsewhere that Cato was the first, and for a long time the only, author who treated of this branch of learning.

and the summer flowers—enumerating the violet, the anemone, and the hyacinth among the former, and the lychnis and two varieties of the pothos among the latter. The properties of plants, trees, and fruits, are not overlooked, and a long list of their uses as remedies classified according to particular diseases is given, from which it appears to me our early English Herbals have been in a great measure derived. According to Pliny and others the kings of Rome cultivated their gardens with their own hands, and the Romans had pleasure gardens in the very heart of the city. The love of the marvellous, which in the present day records occasionally the “big gooseberry” and the “fat rose” as at once a wonder and a joke, seems to have existed then, for the Romans boasted of “pampered” cabbages that the poor man’s table was not large enough to hold, and asparagus heads weighing 3 lbs. each. Pliny enumerates, among other plants, twelve varieties of the rose and four varieties of the lily. He classifies plants according to their stems and according to their leaves, and had observed that some plants begin to flower at the top and others at the bottom of the stalk.

On the fall of the Roman Empire there is a chasm which I suppose it is impossible to fill up. On the revival of arts and learning gardening soon attracted attention. Italy was apparently the first of European countries to engage in agriculture and gardening, and Pierre de Crescent was one of the earliest writers on gardens of pleasure. This was at the end of the 13th century. About two centuries later, Lorenzo de Medici had a famous garden in Italy, and the taste gradually spread in that country and to others. Filippo Re and Clarici are the greatest early Italian writers on gardening. Later on Malphigi stands high as a writer on the anatomy of plants.

The Dutch were early in the field as gardeners, some assert even before the Italians, but both nations have been

cultivators rather than writers, the "Hortus Amstelodamus" of Commelinus, and the "Dutch Gardener" of Van Oosten being the principal works of Holland on the subject after the revival of learning.

The Belgium of to-day stands high among European countries both for practical and theoretical gardening. Owing to the fostering care of the present and preceding sovereigns the horticultural schools of that country are of the first order, and the horticultural literature is sound and comprehensive. There are now two monthly periodicals on gardening and botany profusely and beautifully illustrated, and many works on special branches of garden literature, as Verschaffelt on the Camellia, published in Belgium, and which stand in the very front rank of horticultural literature.

The literature of gardening is more plentiful in France than in any other European country we have hitherto spoken of. As early as the eighth century Charlemagne in his "Capitularies" alludes to gardens, and gives a list of what plants are best to set in them. The most elegant writers in the French language have some charming snatches on gardens, which I regret that time does not allow me to introduce, but in the early history of French literature there is but little on *practical* gardening. At least from the time of Andr Lenotre (17th century) the French have given much attention to *landscape* gardening, and the writings of Girardin of the past and Alphand of the present are pretty familiar to those who follow this subject. De Lille and Rapin are also well known by their poems on gardens, while Etienne, Boyceau, Mollet, Liger, Marion, Morel, Le Maistre, D'Argenville, and Watelet wrote usefully and well. La Quintinye and Duhamel are their greatest early writers on the subject, while Redout's "Les Roses" and "Liliaceae" are prominent among illustrated works. During the present century Charles Naudin, Edouard Andr, Courtois Gerard, Poiteau, Hardy, Comte L. de Lambertye, Vilmorin, and Decaisne are well to the

front. Numerous works, some illustrated, have been published on the Rose, and scarcely any branch of gardening has escaped elucidation either by books or pamphlets. "Le Bon Jardinier," which is published yearly, is a work of considerable merit. There are also horticultural libraries in Paris and horticultural societies at Paris, Lyons, and Lille, which publish journals recording their transactions. The "Revue Horticole" and the "Journal des Roses" are beautiful works now in course of publication in France, and small books on flowers and fruits are continually issuing from the press.

Germany is the last European country we think it necessary to notice in regard to the literature of gardening, and German works on the subject are to a great extent translations or compilations from other sources.

We now come to the literature of gardening in England. The earliest works I have on trees and plants are the "Ortus Sanitatis" printed at the close of the fifteenth century and Macer's "Herbal," the first *printed* edition of which appeared according to Pritzel in 1487. My copy of the latter is in Latin verse, but I have seen although I do not possess an English translation of it. Both these works are in the character of Herbals and are illustrated with rude cuts of the plants they describe.

Dr Pulteney in his "Sketches of Botany" states that there are several manuscripts on trees and plants in the Bodleian Library which were written before the invention of printing, or at least before its introduction to England, and there are several manuscripts in various other libraries.

Johnson in his "History of Gardening" tells us that the author of the first book written on the cultivation of the soil in England was Walter de Henley in the reign of Edward the Third (1327-1377). In a translation of this work by Elizabeth Lamond (1890) it is stated that the earliest edition was the English translation issued by Wynkyn de Worde immediately followed both in the M.S.

and the printed copy by a tract on the planting and grafting of trees, adapted and translated from Palladius.*

Dr Bulleyn (1500-1576) wrote on gardening, and tells us that we had excellent apples, pears, plums, and cherries in his time, although it was customary to import them from France and Holland.

Thomas Tusser (1515-1580) wrote "One Hundred Points of Good Husbandry," a book which has gone through many editions. This work is principally on agriculture, but he gives lists of forty-two sorts of seeds and herbs for the kitchen, twenty-two sorts of herbs and roots for salads and sauce, eleven herbs and roots to boil or to butter, twenty-one stewing herbs, forty herbs, branches, and flowers for windows and pots, seventeen herbs to distil in summer, and twenty-five herbs to grow in the garden for physic. He also gives a list of twenty-seven sorts of fruit trees to be set or removed. The book is written in verse, and is full of wise precepts on rural affairs in general.

In "Arnold's Chronicle" (1521) is a chapter on the "Crafte of graffynge and plantynge and alterynge of frutys." Sir Anthony Fitzherbert published "The Book of Husbandry" in 1532. The first part of Turner's "New Herbal" was published in 1551, but is botanical rather than horticultural.

Thomas Hyll published "The Profitable Art of Gardening" in 1563, and there are other editions of this book about the same date.

Didymus Mountain published the first part of the "Gardeners' Labyrinth" in 1571. He does not claim originality. As a compilation it is valuable, bringing together scattered fragments on practical gardening. A

* The earliest MSS. on gardening which I have seen appear to me copies or translations of Latin authors, and abound in superstitious details. Later writings too are repetitions of previous authors borrowed without acknowledgment, a practice which presumably did not begin then and certainly has not ended now.

second part of this book was published in 1577, and numerous editions succeeded at brief intervals.

Henry Lyte published a translation of "Dodoens' Herbal" in 1578, an interesting book, because although it does not embrace cultivation, the enumeration of plants and trees, their description and nature, is very full and valuable. Dodoens seems to have borrowed much from Dioscorides, a Greek herbalist of the first century, as our own Gerard later on borrowed much from Dodoens.

In 1578 appeared also a translation of Heresbach by Barnaby Googe, under the title of "Foure Bookes of Husbandrie, containing the whole art and trade of Husbandrie, Gardening, Graffeing, and Planting, &c," of which Johnson in his History of Gardening says :—"This is a book replete with just observations, and though short and imperfect, still superior to any work that had preceded it."

Sir Hugh Platt published "The Jewel House of Art and Nature" in 1594, and the "Paradise of Flora" in 1600, subsequent editions of the latter having the title of "The Garden of Eden." I have both these books, but not the first editions of them; the former has little in connexion with gardening, although the author claims to have presented the Lord Mayor with fresh green artichokes on Twelfth-day, and with a score of fresh oranges which he had kept from the previous Whitsuntide. "The Garden of Eden" is really a book on gardening. The author says in his epistle to the reader that "his collections are not written at adventure or by an imaginary conceit in a scholar's private study, but wrung out of the earth by the painful hand of experience." The publisher tells us there was "not a gardener in England of any note but made use of his discoveries and confirmed his inventions by their own experience." He speaks of trees and plants as "God's Vegetable creatures." The style is clear and elegant, conveying much sound instruction, but the author was living in the dawn of gardening and did not discern all things so clearly as he thought. He was in friendly communica-

tion with gardeners and lovers of gardening and seems to have scrupulously acknowledged the services of those he borrowed from.

In 1597 appeared the "Herbal or General History of Plants" by John Gerard, but this work, important and valuable as it was in regard to its influence on gardening, is botanical rather than horticultural. In the same year was published "A New Orchard and Garden" by William Lawson, and with it "The Country Housewife's Garden." These two works are usually found together, and seem to have been written by a man who had a practical knowledge of his subject. The first is principally occupied with the orchard, the second with herbs, but here he recommends two gardens, one for flowers, the other a kitchen garden. Gervase Markham, who wrote in the early part of the seventeenth century, seems to have been an author by profession. His chief works are agricultural rather than horticultural. In "A Way to get Wealth" he has, however, a division—"The making of Orchards, planting and grafting, the office of gardening and the ornaments, &c.," but which seems to be the same as Lawson's "New Orchard and Garden" already alluded to.

John Parkinson published his first book "Paradisi in sole Paradisus terrestris" in 1629. I have read somewhere that he intended the title of this book as a play on his own name Park-in-sun. This work seems to me a new departure in the literature of gardening, for it not only recognises and figures the many *varieties* of flowers which were springing into life under the hands of the cultivator in his time, but it has a good deal to say—and says it well—on the arrangement of gardens, and on the cultivation and preserving of the plants which they contained. It is the work of a scholar, and one who did not look with indifference or contempt on the practical operations of the art. His "Paradisi" or "Garden of Pleasant Flowers" begins with the Crown Imperial and ends with the grapes. In the large list of flowering plants which he enumerates

are: Tulips 137 sorts, Narcissus and Daffodils 95, Hyacinths 50, Crocuses 31, Irises 73, Anemones 67, Ranunculuses 23, Geraniums 9, Auriculas 22, Primroses and Cowslips 21, Carnations and Gilliflowers 52, Pinks 20, Roses 24, and smaller numbers of other flowers. Continuing his work he takes up the kitchen garden as a second part, and concludes with the orchard as a third part. With both of these he deals somewhat briefly, but still with no apparent diminution of interest. We have no time to give extracts, and this is the less important, as the "Paradisi," although not free from error, is a wonderful book for the age, and should be in the possession of every lover of gardening. In 1640 appeared the "Theatrum Botanicum," or Theatre of Plants, by the same author, which some would likely consider a greater work, but which is botanical rather than horticultural.

Walter Blith's "English Improver Improved," my edition of which is dated 1652, is a book much in advance of the times, and although principally agricultural it treats of woodlands, orchards, and garden fruits. The next year appeared "A Treatise of Fruit Trees," by Ralph Austen. This is a good book, and contains much sound advice on the subject on which it treats. The author exposes the superstitions and errors of the earlier writers on gardening. In 1654 was published anonymously "The Countryman's Recreation" or the Art of Planting, Grafting, and Gardening. This book, which has a copious table of contents, touches on almost every point of practical gardening, but while containing some good things abounds in vulgar errors.

Samuel Hartlib's "Legacy of Husbandry" (1655) is a genuine book, although not an original one. He says—"Gardening is but a few years standing in England and therefore not well understood," and again, that a Surrey landlord feared the gardeners would spoil his ground by digging it! I have a curious little book styled "Adam out of Eden," by Adam Speed, Gent (1659). In it he tells

us that there are about London that do make yearly £200 an acre by gardening, but as he also tells us to graft Apples, Roses, and Vines on Cherry Stocks, he cannot be considered a reliable authority.

About this period Dr John Beale wrote several treatises on orchards and fruit trees of considerable merit. "The Gardens of Cyrus," by Sir Thomas Browne, also attracted some attention at this time. But John Evelyn, by the translation of "The French Gardener" and "The Complete Gardener," and the publication of "The Sylva Terra and Pomona" and "The Kalendarium Hortense," gave a great stimulus to gardening. These works, as may be supposed, were elegantly written, and written by one who understood the subject and took a deep interest in it. Robert Sharrock, Fellow of New College, Oxford, was the author of two books on gardening, one "The History of the Propagation and Improvement of Vegetables," in 1660, the other "An Improvement to the Art of Gardening," published in 1694. These are good books, and would doubtless be very welcome to many in those days. The "Flora Ceres and Pomona" of John Rea was published in 1665. It is a folio volume illustrated with numerous formal plans for flower gardens, and copious lists of flowers, fruits, and trees. John Worlidge wrote several works on rural affairs. "Systema Agriculturæ" (1669) and "Systema Horticulturæ" (1677) both treat of gardening, and are not without merit. Drope published a small book on fruit trees in 1672; it is full of sound instruction, which appears to have been gathered from experience.

"The Planter's Manual," by Charles Cotton (1675), is a work on fruit trees only, and gives lists of the best sorts of fruits and pears for every month of the year. Moses Cooke wrote a book on forest and fruit trees (1679), which was an authority in its day, and passed through several editions. Another work on fruit trees by T. Langford (1681) was considered in its day a book of considerable merit, and contains at the end a few pages "Of greens and green-

houses," with a catalogue of choice fruits and evergreens to be had at Brompton Park. Other writers of this time are Leonard Meager, Samuel Gilbert, and John Reid. Gilbert in his "*Florist's Vade Mecum*" gives a list of no fewer than thirty sorts of Roses which were cultivated in gardens at that time (1683).

Sir William Temple wrote an essay on "The Garden of Epicurus or of Gardening in the year 1685." It favours the Dutch style of gardening, and is written with his customary ease and elegance. London & Wise published two translations from French authors between 1699 and 1706, with alterations and additions, which made them standard works in their day. William Fleetwood, Bishop of Ely, the greatest preacher of his time, brought out in 1707 "*Curiosities of Nature and Art in Husbandry and Gardening*." It is very well written, but much behind the age, and the writer evidently knew nothing of practical gardening. Other authors of this period are John Mortimer and William Salmon, while translations of Van Oosten's "*Dutch Gardener*," and "*The Theory and Practice of Gardening*" by Le Blond were offered to the public.

The love of gardening displayed by James I., Charles I., Charles II., Queen Mary, and Queen Anne, and the means they employed to promote it, had doubtless a great influence on its literature, and we now find literary men helping it forward by occasional efforts—Cowley's letter "*The Garden*," addressed to Evelyn, may be given as an example. In the early part of the 18th century John Laurence wrote a series of works on gardening, chiefly derived from his own experience, and which were much in advance of previous writings on the subject.

Switzer is a great name in the garden literature of this age, and if we had the time we might say a great deal in praise of his industry and intelligence as an author. He wrote "*Iconographia Rustica*" (1718), "*The Practical Fruit Gardener*" (1724), "*The Practical Kitchen Gardener*" (1727)

—all comprehensive in nature and sound in teaching—and numerous other works. Richard Bradley was also a voluminous and distinguished writer on gardening at this date. His "New Improvements on Planting and Gardening" and "Treatise of Husbandry and Gardening" are two valuable works, although not distinguished by originality.

Passing over many writers of this period whose works were useful but not remarkable, we come to Philip Miller, the "Hortulanorum Princeps" of the 18th century. His "Gardener's and Florist's Dictionary" was published in 1724, in which work he was assisted by other gardeners of the period. Successive editions of this work appeared, the 9th edition in 1792, edited by Professor Martyn of Cambridge. This long remained a standard work on gardening and botany, and translations were published in the French, Dutch, and German languages. He published also "The Gardeners' Kalender," 1731, which passed through many editions, and some papers on gardening which appeared in the "Philosophical Transactions."

Batty Langley wrote "New Principles in Gardening" in 1728, and "Pomona," with numerous coloured plates, in 1729. The "Scot's Gardeners' Director," by James Justice, was a book of some repute about the middle of this century. Sir John Hill was a voluminous writer on gardening and botany. His "Eden," folio, numerous coloured plates, 1757, is still an interesting book, and his "Vegetable System" (1759), 24 vols. folio, full of plates, is a magnificent book, but of little practical or scientific value. Thomas Hitt wrote a sensible book on Fruit Trees in 1757. Sir William Chambers wrote "Dissertations on Oriental Gardening" (1744). Johnson, in his "History of Gardening," says it is "puerile in the extreme," but with all deference to this great and good man I must confess to have read it with pleasure and I think with profit. In 1769 the Rev. William Hanbury wrote "A Complete Body of Planting and Gardening," 2 vols. folio, and which was published in numbers.

Numerous works appeared about this time which it would serve little purpose to enumerate, many borrowing largely from their predecessors. The early writers on English gardening were mostly scholars who had little knowledge of the subject; the style was consequently superior to the matter. Later on, when practical men began to write more freely, the matter was superior to the style. But as education became more widely diffused the union of the two gave us a more satisfactory garden literature.

The "Unconnected Thoughts on Landscape Gardening," by Shenstone the poet, published in 1764, deserve more than a passing word. They were apparently jotted down at intervals while he was carrying out improvements at his beautiful *ferme ornée* "The Leasowes," and might be read with advantage by some of our modern improvers.

Having been brought by the sequence of time into the arena of landscape gardening, we propose to diverge here to follow briefly but separately the literature of that branch of the art, although we have no intention of taking part in the fierce but bloodless combats which ensued. We may safely assume that the earliest gardens were simply enclosed pieces of land with fences or hedges as a protection against cattle. Then followed formal plans to please the fancy and for the convenience of access to the different objects which the garden contained. Gradually following upon this rose up artistic or landscape gardening. Men wrote little on the subject, and the earliest literature of any importance on this branch of the art, seems to have been Lord Bacon's "Essay on Gardens." It is true that the writings of Shakespeare abound in allusions to trees, plants, and flowers, and later on came the essays of Sir Wm. Temple, Addison, Pope, Lord Kames, G. Mason, and Walpole. Switzer also wrote on the subject from the more practical point of view, while Bridgeman, Kent, and Brown were workers rather than writers. Whately, W. Mason, and Repton, were distinguished writers on this branch of

the art at a still later date, and their works even now take high rank with those of Marshal, Gilpin, Knight, and Price. A fierce controversy raged between some of these writers; Knight and Price on the one side, and Repton and Marshall on the other, were in the van of the contending schools; both wrote well but neither seemed to succeed in making the other understand him, and it seems hardly desirable here to open up the controversy. The chief writings on the subject may be occasionally met with on old book-stalls and purchased for a few shillings if any one should wish to indulge in the luxury of an intellectual puzzle. From this time, however, it may be said that gardening took the position of an art, although many years rolled by before it was elevated to the rank of a science.

To return, John Abercrombie (1744-91) wrote from experience, and his works, which are numerous, had a great circulation, and considerable influence on the gardening of his age. It is related of this author that he was invited to write his first book on gardening "Every Man His Own Gardener" by a London bookseller, and after much hesitation consented to do so on condition that Dr Goldsmith undertook the revision of it as to style before publication. Goldsmith consented, but returned the MS. to the publisher saying the author's style was best suited to the subject of which he treated. The number of books on gardening continued to increase, many of them published without the author's name. Garton, Weston, Colin Milne, Meader, Boutcher, William Mason, G. Lindley, Bryant, Felton, and Kennedy, are names worthy of being preserved. William Speechly wrote "A Treatise on the Culture of the Vine, &c." (1790), and "A Treatise on the Pine Apple, &c." (1796), which in their day were standard works.

Dr Erasmus Darwin is entitled to recognition here as the author of "The Botanic Garden" or "Loves of the Plants," a very flowery poem (1781-89) and of "Phytologia" or "The Philosophy of Agriculture and Gardening" (1800).

In 1787 William Curtis commenced "The Botanical Magazine," which has been published without intermission to the present day. This work, which is beautifully illustrated, was for some years edited by Curtis and Sim, then by Sir William Hooker, and is now edited by Sir Joseph Hooker, and although botanical rather than horticultural, can hardly be omitted from the Literature of Gardening. A copy of this work sold recently for £118.

William Marshall, who took part in the Knight-Repton controversy on landscape gardening, wrote a good book "On Planting and Rural Ornament." H. C. Andrews on Heaths, Roses, &c. (illustrated), Forsyth on Fruit Trees, Maddock on Florists' Flowers, Steele on Stove and Greenhouse Plants, M'Phail on General Gardening, and Bucknall on Orchards, are writers of this period still worthy of perusal. Repton's works on Landscape Gardening (1794-1817) were paramount in their day, and are still highly valued by many. But at the close of the 18th and dawn of the 19th century the name of Thomas Andrew Knight is the most prominent in the Literature of Gardening, principally by the numerous papers he contributed to the "Transactions of the Horticultural Society of London," of which Society he was the President. Of distinguished merit are the works of Walter Nicol (1798-1810) on General Gardening, and William Pontey (1814-1823) on Forest Trees. Professor Martyn, of Cambridge, in his edition of "Miller's Gardeners' Dictionary" (1803-1807), furnished a valuable contribution to the Literature of Gardening.

But the greatest of writers on our subject was John Claudius Loudon (1783-1843), whose works on every branch of gardening raised it to a higher position than it had yet enjoyed, and placed within reach of its votaries full, clear, and accurate information concerning the details of its various practices. His "Encyclopedia of Gardening" and "Arboretum et fruticetum Britannicum" are prodigies of industry and skill, and specially valuable as

works of reference. Cushing's "Exotic Gardener" and Hogg's "Treatise on the Carnation, &c.," are both good books of this period (1812). The "Hortus Gramineus Woburnensis" by George Sinclair (1816) is a valuable book, and the writings of Robert Sweet are entitled to more than a passing word. His "Hortus Suburbanus Londinensis," "The Hothouse and Greenhouse Manual," "Hortus Britannicus," "The Geraniaceæ," "The British Flower Garden," "The Florists' Guide," and "Flora Australasica" (the four latter beautifully illustrated, and still much sought after), have stood well the test of time. Ronald's "Apples" is also a good book.

Henry Phillips wrote some interesting books on gardening between the years 1820-1831, among others "Pomarium Britannicum," "Sylva Florifera," and "Flora Historica."

William Cobbett wrote "The Woodlands"—a good book—(1826), and "The English Gardener" (1833), which are distinguished by the strong common sense and clear style of this author. Other writers of this time are Patrick Neill, Morris, Harrison, Chandler, Billington, and Loddiges. Harrison commenced "The Floricultural Cabinet" in 1833, a useful and elegant work which was published monthly and extended to 27 volumes. Loddiges began "The Botanical Cabinet," a high class work, in 1817, which stopped in 1833; it contains coloured plates of 2000 different plants. "The Botanical Register," also a high class periodical, commenced in 1815, and stopped in 1847 with the 33rd volume. The later volumes of this periodical were edited by Dr Lindley. "Maund's Botanic Garden," my copy of which in 13 volumes is not dated, is also a beautiful book, the illustrations numerous, artistic, and life-like. "The Horticultural Register," edited by Paxton and Harrison, begun in 1832, extended to 6 volumes only, and "The Floricultural Magazine," by Robert Marnock, in 1836, to a like number. The "Magazine of Botany," by Paxton, begun in 1834, had a longer and more successful run, extending to 15 volumes.

George Glenny, for some time Editor of "The Gardeners' Gazette" and "The Horticultural Journal," and author of many Treatises and Papers on "Florists' Flowers," was a clear and forcible writer, and helped much to popularise that particular branch of the art.

The "Pomological Magazine," begun in 1827, is now usually met with in 3 vols.; it contains coloured plates and descriptions of many of our best fruits.

"The Florist," commenced by Edward Beck in 1848, closed in 1882. As I was for some time part proprietor of this periodical I will only say that contributions to its pages were made by some of our soundest and best writers on gardening, and the illustrations of fruits and flowers were generally acknowledged to be faithful representations creditably executed.

Other works of this period entitled to high commendation are Stewart's "Planter's Guide" (1829), Johnson's "History of Gardening" (1829), M'Intosh's "Practical Gardener" (1828), M'Intosh's "The Book of the Garden" (1853), Chandler's "Camellia Japonica" (1831), and Thompson's "Gardener's Assistant" (1859).

From about the year 1840 I was in a position to see every book on gardening as it issued from the press, and many books of earlier date which I had not previously seen. I remember one little book which, speaking from memory, was entitled "Outlines of the First Principles of Horticulture," by John Lindley. Lindley was a systematic and physiological botanist, and he utilised his physiological knowledge in the construction of this little book. The principles there laid down, afterwards extended in "The Theory of Horticulture" and in the pages of "The Gardeners' Chronicle" by the same author, laid open to the practical gardener sure grounds of procedure which raised horticulture to the rank of a science.

The publication of the "Gardeners' Chronicle" in 1841 by Paxton, Lindley, and others gave a considerable impetus to the Art and Science of gardening. Lindley

proved a very competent editor; not only did he write clear, sound, and forcible leaders, many of them brilliant and beyond what some had hitherto thought gardening literature capable of bearing, but he drew around him as contributors many of the best spirits of the gardening world. It is a source of much pleasure to me while penning this retrospect to remember that I had the privilege of reckoning Loudon, Lindley, and Paxton among my early friends, and later on Dr Hogg, who is still happily living, in what may, I think, be fairly called the golden age of garden literature. But the "Gardeners' Chronicle," issued weekly, did not long occupy this field alone. In 1848 appeared "The Cottage Gardener," by G. W. Johnson, one of the soundest and best writers on gardening the age has produced, and whose loss we have but recently been called upon to mourn. This periodical, changed in title in 1861 to the "Journal of Horticulture," and for some time past edited by Dr Hogg, who had previously assisted Mr Johnson in his editorial duties, at once attained a large circulation, and now deservedly holds a very high position among authoritative works. "The Gardeners' Magazine," edited by Shirley Hibberd, is also an excellent weekly periodical of long standing; and "The Garden," edited by William Robinson, also published weekly, is an elegant work enjoying a large and high-class circulation. "Gardening Illustrated," "Garden Work," "Amateur Gardening," "The Gardening World," and the "Horticultural Times," are also useful and cheap weeklies; so that now there are no less than nine weekly periodicals on gardening published in England.

Of recent but not living writers we must not overlook DONALD BEATON and ROBERT FISH, and further,

ROGERS. 1837 . . . Vegetables and Fruits.

RIVERS, T. 1837 . . . Roses and Fruits.

TOWERS. 1839. . . . General Gardening.

AYRES. 1850 . . . " "

GORDON. 1858 . . . Coniferæ.

SMEE, ALFRED, F.R.S. . . "My Garden." 1872.

MOORE, THOMAS, F.L.S. Ferns, &c., and "Gardeners' Chronicle."

Of living authors who have published original works on gardening we may mention :—

- ANDERSON, J. . . . "The New Practical Gardener."
- BARRON, A. F. . . . The Vine, British Apples, &c.
- BURBIDGE Orchids, &c.
- DOUGLAS, J. . . . Hardy Florists' Flowers, &c.
- FISH, D. T. . . . Miscellaneous.
- *HIBBERD The "Gardeners' Magazine."
- HOGG, Dr. The Fruit Manual.
- Do. The "Journal of Horticulture," &c.
- *KEMP "How to lay out a Garden."
- MASTERS, Dr. . . . "Gardeners' Chronicle."
- MONGREDIEN . . . Trees and Shrubs.
- NICHOLSON Dictionary of Gardening.
- PAUL, W., F.L.S. . . Roses, Villa Gardening, &c.
- RIVERS, T. F. . . . Fruits and Roses.
- ROBINSON, W., F.L.S.. The "Garden," &c.
- THOMSON, D. . . . General Gardening.
- THOMSON, W. . . . General Gardening.
- VEITCH & SONS . . Orchids, Coniferae, &c.
- *WILLIAMS, B., F.L.S. . Orchids, Ferns, &c.
- WRIGHT, J. General Gardening.

This list might without favour be considerably extended, but we would remark here that some of our best living writers seem now fully occupied in writing anonymously or otherwise for the numerous serial publications on gardening.*

In conclusion, allow me to offer a brief résumé of the work we have passed through.

* A few extracts from some of our best writers were here read, which it is not thought necessary to reproduce. Other writers have also sprung into note since this paper was written, and those marked thus (*) are no longer living.

We have seen that the Literature of Gardening commences with the earliest historic period. The work goes on through Jews, Egyptians, Assyrians, Persians, Carthaginians, Greeks, and Romans, to the fall of the Roman Empire, the beautiful as well as the useful attracting the notice of those several peoples. There is then a blank ; gardening no doubt went on, but I can find no literature of it worth recording. On the revival of learning in the middle ages the Italians, French, and Dutch are the earliest in the field, and are followed by the English and other nations. Shortly after the introduction of printing, books on gardening appear at intervals, till in the seventeenth, eighteenth, and nineteenth centuries a flood of garden literature pours in upon us. The gardener, the herbalist, the botanist, sometimes working on their individual lines, and sometimes on mixed lines, succeed each other in due order. The gardener furnishes the physiological botanist with facts, while the botanist renders the gardener essential service by his labours in the fields of systematic and physiological botany. The botanist's figures and descriptions of nature's plants, and above all his discoveries and publication of the facts of vegetable anatomy, disclose to the view of the practical gardener new fields for the exercise of his industry and skill, which he joyously avails himself of, and the surface of the earth grows more productive and more beautiful by the successive uprising of new forms and tints under his fostering care.

THE DAWN OF LANDSCAPE GARDENING IN ENGLAND.

[From "*The Garden*," April 5th, 1890, p. 312.]

A VERY scarce tract on landscape gardening has just fallen into my hands. It is entitled "*An Essay on Landscape Gardening*, by John Dalrymple, Esq., author of

"An Essay towards a General History of Feudal Property in Great Britain." This John Dalrymple was a Scotch advocate, and (I suppose subsequent to the writing of this essay) according to Lowndes, *Sir* John Dalrymple, and if the compiler of a book catalogue in my possession is to be trusted, still later on became Earl of Stair.

I do not find this essay recorded in any of the biographical manuals which I possess. The MS. was procured from Mr Dalrymple for Mr Shenstone through the medium of Mr Dodsley about the year 1760, and became the property of Mr Bolton Corney in 1815. The last-named gentleman edited and published it in 1823, but only a few copies were printed. I may remark *en passant* I have glanced cursorily through Shenstone's published letters, but do not find any allusion to this pamphlet, although Mr Dodsley's name frequently occurs in them.

It will, I think, be generally admitted that this essay possesses much interest, (1) because it was written in the dawn of landscape gardening, before the great controversy on that art nearly a century ago, which has settled down into the general adoption of the present style of English landscape gardening; and (2) because it is probable that Shenstone (whose beautiful garden, or rather *ferme ornée*, "The Leasowes" was still talked about in my early days) derived some of his inspiration from this source. Shenstone, the author of "Unconnected thoughts on Gardening," was a practical landscape gardener as well as a poet of that age, and of his estate, "The Leasowes," Johnson, in the "History of Gardening," remarks, "when it came to Mr Shenstone's hands it was a mere grazing farm, but he left it a perfect fairy-land." About the time of which I am writing (1760) Bridgeman and Kent had broken in upon the dull uniformity of the existing style of laying out grounds, and they are the only landscape gardeners mentioned (the latter approvingly) by Dalrymple.

This brings me to the consideration of the essay itself,

in which, whatever may be its merits or demerits, the author has evidently thought the subject well out and gives his conclusions generally, although not always, in a clear style and with a logical precision which is rarely equalled in writings on this subject. The author commences by asserting the desirability of uniting pleasure to utility in gardening, and reminds us that this art is comparatively young, and "not as yet arrived at the same degree of taste to which some of the other arts have." His first principles are thus stated :—

"There seem in Nature to be four different dispositions of ground, distinct from each other and which create distinct and separate sentiments.

"The first situation is that of a highland country consisting of great and steep mountains, rocks, lakes, impetuous rivers, &c. Such a place is Inverary. The sentiment which a situation like this creates in the breast of a beholder is obviously, and everyone feels it, that of grandeur.

"The next is what one may call a romantic disposition of ground, consisting of sunk vallies, woods hanging over them, smooth rivers, the banks steep but accessible, and the rocks appearing high, not so much from their own height as from the trees which crown, and the wild birds that are continually hovering over them ; such a situation is generally destitute of prospect ; but then in return, both the whole and parts of it being very precisely marked, give the same room to the imagination of the gardener that they give to that of the landscape painter. Places like this we have on the banks of many of our small rivers in the low countries of Scotland. The sentiment which such a situation seems to flatter is that of composure of mind and perhaps even of melancholy.

"A third disposition is that of grounds running by gentle falls and rising easily into each other. In situations of this kind are placed many of the English modern gardens, and particularly those which Kent delighted in

laying out. Such a situation as this is generally attended with great verdure, cultivation, and populousness, and naturally creates in the mind that sentiment of cheerfulness which society and action are apt to create.

“The last situation is that of a dead flat. A situation of this kind may, from its verdure, or from its extent, or from its contrast with other grounds which surround it, create some particular sentiment, but merely considered in itself it appears to create little or none.

“Nature not only raises these different sentiments, upon the view of these different situations, but she gives a love and attachment for one or the other of them according to the different tempers of men. A man who is fond of great projects or great exploits, or who has a high regard for the splendour of his ancestors, will love the first situation. . . . A man in misfortune will naturally retire to the second situation ; and for this reason many of the convents abroad are observed to be built in such places. A cheerful gay temper will naturally love the third, and a person of no taste or feeling will as readily be pleased with the sameness, and (if I may use the expression) uninterestingness of the last situation.”

These remarks may not cover all the ground that the modern landscape gardener claims as the just basis of his practice, but considering that this is perhaps the first comprehensive treatise written on the subject it is marvellously trite and true. A strictly formal style of gardening was then in vogue, borrowed from Italy, Holland, and France, while the excellent but meagre views put forth by Bacon, Addison, and Pope were acknowledged as the written law. London and Wise, Bridgeman and Kent had designed or laid out gardens before this date, but they had published nothing on the subject, and our author would seem to have been more indebted to Bacon, Addison, and Pope than to them, while giving free play to his own originality and force of thought. Perhaps he may also have been aided in his task by Sir William Chambers’ “Dis-

sertations on Oriental Gardening," then recently published (1744).

Before descending from situations to details of practice, he remarks that "as nature has created a love in different tempers for one or other of them, it would appear to be the perfection of art to second these her operations." This remark, however, is qualified by the admission that it may sometimes be desirable to soften or temper instead of heightening any sentiment not agreeable in itself.

The author proceeds :—"The objects, either natural or artificial, which enter into the composition of a garden are chiefly four—buildings, grounds, water, and trees," to which it may be said he might have very well added rocks. For the first or highland situation he recommends the castle with Gothic tower, with which the other buildings through the garden should correspond, although there may be particular spots where the Doric or even the more rustic Tuscan order would be proper to supply its place. If a piece of water is to be made it should be a lake, not a pond. "The rapidity and noise of the rivers should be increased by artificial bulwarks and impediments, as is done at Inverary, and the falls of water should, either by the interposition of rocks, or of new streams brought over them, be made to look more like cataracts than cascades." If a plantation is to be made it should consist of the great forest trees, and they should be planted irregularly. "As there should be a greatness in the quantity of the plantation, so should there be a greatness in the view of particular trees." The chief natural defect of a highland situation is considered to be that it is generally ill-inhabited, and has too much the appearance of dead life, and to counteract this, "whatever buildings are erected should be in conspicuous places to create a notion of life and populousness." It is remarked "There is a fine gradation of inanimate objects up almost into objects of life. A barren hill has a very dead appearance; covered with waving woods it has a more animated show, but if a cascade is seen tumbling

down that hill through these woods, it becomes still more enlivened."

Of the "second" or "romantic" situation, he considers the sentiment to be created by it is that of composure rather than of grandeur. He still recommends the Gothic for houses intended for use, but with regard to the architecture of ruins they may be of Grecian form; the plantations should consist of evergreen groves, the trees set very near each other in the quincunx order, sometimes producing "long straight walks," and "long arched walks." Water here should be smooth and quiet, and if a river, it should be made to lose itself at the end in a thick wood, and may be shaded in its course with Weeping Willow and other trees. A small stream may be made to run purling over pebbles, and if a waterfall or cascade is introduced, the water should not be broken, but made to fall in one regular sheet. "It is difficult to give directions for the management of the ground in such situations; smoothing into a flat is always against taste; and yet, perhaps, it would here flatter the indolence of the mind." Again, "The best disposition is to throw the ground into smooth walks, following the course of the water and hills; a solitary walk in a deep valley, by the side of a smooth water, and covered by the shades of the neighbouring hills and woods, is the very region of melancholy." This is one of the very few points in the essay in which I do not find myself at one with the author. I would not "flatter the indolence of the mind," nor could I feel happy in "the very region of melancholy." A garden and its surroundings may very properly be designed and planted for rest and meditation, but it is going a little too far, in my humble judgment, to provide for indolence and melancholy. The change of scenery presented by a varied and picturesque or beautiful garden is the safest rest, but as to melancholy, is it not dangerous to cater for its gratification?

The third situation is that of a champaign rich country full of gentle inequalities. "The sentiment which it creates

is cheerfulness, and therefore in a garden in this situation the disposition and assemblage should be such as may still further carry on that sentiment." Here follows an eulogium on Kent, succeeding which are the author's opinions of water, planting, and buildings in association with ground of this character. The river should be of a serpentine form—sometimes losing itself in the appearance of a thicket and sometimes in that of a lake, but for the most part keeping its own pleasant meander. "The planting in such a place should consist of trees of the most beautiful forms and colours, both of home and of exotic kinds. They should be planted in the loose and open manner, so that the beauty of each particular tree, and the beauty of the ground they cover may be seen, or if the particular roughness of a hill forces the gardener to plant them in thickets, he should if possible make the colours run into and lose themselves in each other like the colours of the rainbow. As this is the situation in which the beauty of single trees may be best seen, so it is here chiefly that the connoisseur in the science of trees should exert his knowledge and taste."

Nothing could be finer than this passage, and I would commend it seriously to the consideration and adoption of those who have the responsibility of choosing trees for ornamental planting. Over and over again (in some instances even as recently as this year 1890) have I looked upon plantations for ornament with disgust rather than pleasure, owing to the ill-chosen and ill-assorted individuals of which they are made up. It is green, universal green—even the various shades of that colour not being made the most of—while the gold and silver tints, the brown, the purple and other shades are almost or altogether ignored. It is surprising how little known or used are some of our most beautiful shrubs and trees. Am I going too far in saying that the landscape gardener has only half learnt his profession who lacks the knowledge of the habits, forms, and tints of the modern as well as the old-fashioned hardy

ornamental shrubs and trees? As regards buildings, the Chinese and Grecian architecture are recommended here, also the simplicity and elegance of the Ionic order.

The fourth and last situation is that of a dead flat.

"The English in such a situation attempt to humour Nature; the French in such a situation attempt to hide her. The first, from their too great love to her, expose even her weakness; the last, from their contempt of her, conceal even her beauties. If these two tastes were to make concessions to each other, perhaps the points of perfection might lie between the two."

The moulding of the flat into the gentle unevenness of Kent, which no one understood better than the late Robert Marnock (and which is exemplified in his construction of the gardens of the Royal Botanic Society in the Regent's Park, London), is spoken of approvingly. Art is here courted. But such a situation, as is aptly remarked, is calculated to afford pleasure to the senses rather than to the imagination. Buildings of all species that have dignity in them are admissible here.

On the last page the author remarks:—"Could we suppose a great monarch lavishing his treasures, as it is said the Emperor of China has done, in beautifying the face of Nature, the most fortunate disposition of grounds for an attempt towards perfection in this art would be where there was a considerable flat adjoining to the palace; where that flat ran into gentle unevennesses; where these unevennesses lost themselves in a romantic retired situation; and where that romantic situation again opened and extended itself into a view of awful, magnificent, and simple nature."

This passage recalls to my mind the gardens at Drummond Castle, Perthshire, where the most cultivated scenes are gradually and artistically blended with the grandest and wildest in a manner that would almost lead one to believe that the artist had been influenced by this dictum in landscape gardening.

When taking up the pen with the view of bringing this essay under the notice of the lovers of gardening I had no idea of running on to so great a length, and yet much is left unnoticed that is well worthy of a thoughtful perusal; consequently I would recommend all who are interested in the subject to get the pamphlet, and they will not, I judge, regret the time spent in reading and digesting its twenty-two small octavo pages.

THE END.

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