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AMERICAN PLANTS,

THEIR HISTORY AND CULTURE:

WITH FULL

DESCRIPTIONS OF THE BEST VARIETIES.

“But of all the Rhododendrons produced, that from Messrs. Paul was most admired. It was stated to be a seedling from Dalhousiæ, and had flowers of immense size, and of a beautiful yellow colour.”—*Report of the Royal Botanic Society's Exhibition in Gardeners' Chronicle of May 15, 1858.*

BY WILLIAM PAUL, F.H.S.

AUTHOR OF THE “ROSE GARDEN,”

“THE HAND-BOOK OF VILLA GARDENING,” &c.

PIPER, STEPHENSON, AND SPENCE,

23, PATERNOSTER ROW;

AND OF THE AUTHOR, NURSERIES, CHESHUNT, HERTS.

1858.

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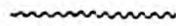


Rhododendron.
(Alarm)

Jas. Andrews Delc & Zinco

Printed by C. Chabot

AMERICAN PLANTS.



THE exhibitions of AMERICAN PLANTS in London during the last few years, especially those in the Royal Botanic Society's Gardens in the Regent's Park, and at Ashburnham Park, Chelsea, have attracted very general attention. "What a galaxy of beauty!" exclaims one, entering the charmed circle from some elevated point of view, looking down on thousands of Azaleas and Rhododendrons flushed with blossoms—white, lilac, purple, salmon, orange, crimson, scarlet, and shades innumerable, which it would be somewhat difficult to depict. Then, beautiful as the objects themselves are, art has been wisely courted to aid in the display. We have below, an undulated surface, cleverly designed; winding walks and turfy slopes; while above, an awning answers the double purpose of screening the flowers from the sun's rays, and realizing that subdued light in which the colours glow with an unwonted fervour. Strange indeed would it be had such constellations of rare and exquisite beauty been formed and passed away without producing an effect on the future of gardening. Who that loves flowers would not desire to become acquainted with their history and habits? Who that has a garden could resist the temptation to stock it with the gayest and the fairest?

The history of American plants may be briefly told. The term is popularly applied to several genera, principally belonging to the natural order Ericaceæ. They are gene-

rally "evergreen," producing their flowers for the most part in the months of May and June.

If we take the rhododendron as an example, and trace the varieties to the species, and the species to their original state, we shall find them growing wild, chiefly in mountainous districts, fixed singly and in masses, often on the margin of bogs, rivers, and lakes—sometimes growing on trees.

We have been looking in an old edition of "Miller's Gardeners' Dictionary," published in the year 1731, from which rhododendrons, azaleas, kalmias, and others, are absent, and were evidently not then known. It was not till 1736 that the rhododendron maximum was introduced from North America. Loudon, in the "Encyclopædia of Trees and Shrubs," gives as its geographical range, "from Canada to Carolina, on the mountains, near rivulets and lakes, upon rocks and barren soils." In 1763, the rhododendron ponticum was introduced from Gibraltar. This species grows wild in various parts of Asia, generally in moist soils and shady situations, but is not found in America. In 1803, arrived the rhododendron caucasicum, a dwarf species, rarely exceeding a foot in height, which is found on the mountains of the Caucasus, near the limits of perpetual snow. Six years later, in 1809, the beautiful American species *R. catawbiense* was introduced. It is described as "an evergreen shrub, four feet in height, growing in Virginia and Carolina, particularly near the head waters of the Catawba river," whence its name.

The *R.* arboreum*, which is a native of the Himalaya, was introduced in 1817. Captain Munro informs us that it grows in disintegrated granite, mica slate, and gneiss, without any thing approaching to peat; and that another species (*R. nilagiricum*) grows in a thin stratum of peat not

* *R.* abbreviation for Rhododendron.

more than six or eight inches in depth. He states the finest mass of rhododendron he ever saw was within 500 feet of the top of a hill 10,000 feet high, and "above the Deodar." "Here every possible variety of colour capable of being produced by a mixture of crimson and white was to be found: the whole side of the hill was one blaze of colour." ("Gardeners' Chronicle.") Dr. Wallich compares the effect of this plant on the Himalaya mountains to regiments of soldiers in full uniform.

Dr. Hooker, to whose indefatigable exertions we are indebted for the recent introduction of most of the Sikkim species, tells us that their native habitats are as various as possible. It would also seem that some species are exposed to great and sudden alternations of climate. Some are epiphytes—growing on trees, luxuriating in the shade of a dank wood; some grow on moorlands in company with a mixed vegetation; some on the surface of rocks exposed to the full blaze of the sun; while one is covered half the year with snow. Of the Bhotan species we as yet know but little, few of them having bloomed in England; but from what we have seen, we regard them as children of promise.

Thus, while the popular cognomen, "American Plants," is derived from the fact that many of the original species were introduced from North America, it will be seen that the geographical distribution is not confined to that country, but extends to Asia and Europe also. But it seems desirable to bear in mind, that while the original species of rhododendrons have been drawn from foreign lands, the varieties used for garden decoration are chiefly of English origin. The horticulturist has been at work here. The same knowledge of the laws which regulate the vegetable economy, the same persevering industry, which have enabled the hybridist to lead up the pansy, the dahlia, the pelar-

gonium, the hollyhock, step by step, until the simple beauty of the wild forms is almost forgotten in the new creation of floral magnificence, have been exercised with equal success in reference to American plants.

The improvement of the rhododendron within the last few years is sufficiently great to be considered remarkable. On referring to "Loudon's Encyclopædia of Gardening," published in 1822, the only kinds described there which are still generally cultivated are *R. ponticum*, maximum white and purple, *catawbiense*, *caucasicum*, *hirsutum*, and *ferrugineum*. And yet these originals justly held a high position in our gardens in the olden time. Loudon (a name ever to be venerated by lovers of gardening) speaks thus of American plants generally in 1822:—"They are all highly valued for their flowers, which are large and magnificent in magnolia and rhododendron; odoriferous in azalea and daphne; beautiful in andromeda, *vaccineum*, and *erica*; while *arbutus* is valued both for its flowers and fruit." The Indian *R. arboreum*, with its bright crimson blossoms, was but just then introduced: it had probably not yet flowered in England, and was doubtless rightly considered a greenhouse kind. But while not in itself suited for out-of-door culture, except in a few favoured spots, it was destined to play an important part in the coming time. By hybridizing it with the later-blooming and hardier kinds, a race was to arise rivalling in tone of colour the brightest beauties of the East, while blooming at an earlier age, and supporting the rigours of our northern climate. In "Paxton's Botanical Dictionary," published in 1840, it is remarked:—"The rhododendron is decidedly one of the finest of all known genera, containing some of the most handsome, elegant, and showy shrubs, all of which are admirably adapted either for ornamenting the greenhouse or shrubbery, or for planting

singly on lawns." If we scan the list which follows these remarks, we shall find *R. Russellianum*, *Nobleanum*, *altaclarensis*, *Smithii*, and other hybrids of *arboreum*, bearing white, pink, rose, scarlet, and purple flowers. These were an important gain in the right direction. Here were kinds of various and brilliant colours living perpetually out of doors. How unfortunate that *young* plants would not flower, and that the *old* ones should retain the habit of their *arboreum* parent in flowering *so early in the year* that the beauty of the flowers was marred or destroyed by the ungenial weather of a British spring. Another effort was demanded. The *arboreum* hybrids had to be again hybridized with *the later blooming kinds* known as *catawbiense*, *maximum* and *ponticum*, and the progeny preserved till a race of various colours was obtained blooming in full summer-tide, in the month of June. It is principally since 1840 that the success of those endeavours has become apparent, and we have now among the late blooming kinds almost every desirable shade of colour. For this we are indebted to the skill and perseverance of the hybridist. The names of Carton, Smith, Knight, Gaines, Cunningham, Waterer, and many others, deserve to be recorded as improvers of the rhododendron in England, and much has been done by foreign cultivators. It has, however, proved unfortunate for the fame of the latter that they should have chosen *R. ponticum* and *R. maximum* for the one parent, overlooking or not recognising the superior claims of *R. catawbiense*. Thus their seedlings seldom bloom so young; the habit is less compact, the foliage and flowers narrower and less handsome, than that of the English varieties. There are exceptions to this remark; and doubtless the right track being now fully descried, we may expect in future more splendid results. Mr. Waterer, writing to the "Gardeners'

Chronicle" in 1840, respecting some of his seedlings, says:—"They were all raised from one batch of seed about the year 1810. The *R. catawbiense* I believe to be one of the parents, the other a deep rose-coloured variety of *R. maximum*. *R. catawbiense splendens* was an imported plant, and from this I have also raised many fine high-coloured and other varieties. I have crossed the arboreum hybrids until they are quite hardy, and I expect they will flower late enough for the open air another season."

We remember in our own experience meeting with an extraordinary lot of seedlings, so far as the foliage and habits of the plants were concerned, at Mr. Whalley's nursery, near Liverpool, some seven or eight years ago. They were the result of various crossings made by the then intelligent manager Mr. Smith, and were ultimately distributed before coming into bloom.

But the labour of the hybridist has not been confined to a single point. Not only has he changed the season of flowering, but he has also improved the habit of the plant, and increased the size, substance, and variety of the flowers.

If we were disposed to scrutinize the garden hybrids of this flower, we should find the most important of them referrible to one or other of the following species:—

1. *R. arboreum*; distinguished by the largest growth, long flexible leaves, silvery beneath, producing large and close heads of flowers in the month of April; the plant seldom flowering when young.

2. *R. caucasicum*; of dwarfiest growth, leaves rusty beneath, rugged above, flowers also produced in April. *R. Nobleum* is a seedling from this species, crossed with *R. arboreum*.

3 *R. ponticum*; of medium growth, leaves smooth on

both surfaces, attenuated at either extremity, flowers produced in May and June, in smaller clusters, and with narrower segments than the preceding.

4. *R. maximum*; of larger growth than the last, but not so large as *R. arboreum*; segments of the flower broader, leaves whitish, or rusty beneath, and bluntish at the base. Like *R. arboreum*, the plant seldom flowers in a young state.

5. *R. catawbiense*; of dwarf growth, leaves short, convex, drooping, rounded at both ends, bark and leaf-stalks yellowish green, flowers produced in large and compact clusters in May and June.

The above sketch has been made in order to develop the history of the rhododendron, rather than with the view of tracing every variety to its first parentage. So variously intermixed have the modern kinds become by crossing and re-crossing, that it might be difficult in the case of a given sort to say to which species it most intimately belonged. This, however, can be done in many cases, and for garden decoration we prefer the varieties which bear the strongest traces of *R. catawbiense*, because the plant is very hardy, of compact growth, and well clothed with handsome foliage: it blooms young, the trusses of flowers are large and handsome, and produce abundantly, late in May, or early in June, thus escaping the damaging effects of the spring frosts.

The offspring of *R. ponticum* and *R. maximum* have, however, some points of merit peculiar to themselves: they assume a more tree-like form; and the seedlings from *maximum*, if longer in coming to maturity of bloom, furnish us with some of the most distinct and beautiful of intensely spotted varieties. Of recent garden hybrids, the edged flowers are perhaps at once the prettiest and most distinct,

although many of them are probably unknown, except to those who narrowly watch the experimental issues in gardening. But however much has been accomplished during the last eighteen or twenty years, we must not suppose that the hybridist will rest satisfied with the work already done. Even while we write, new forms and shades are daily springing into life. The gorgeous species recently discovered in Sikkim, Assam, and Bhotan, some of which only have yet flowered in England, will but serve to stimulate the improver's zeal. Raised from seeds gathered off the wild forms, they differ among themselves, and offer to him flowers of distinct hues, some of the most wondrous size, and others possessing a delicious fragrance, opening a far wider field for thought and manual labour than did the *R. arboreum* of 1817. It may be said they are of doubtful hardiness, or, if hardy, they come into leaf and flower so early in the year, that the young leaves and flowers are destroyed by the April frosts. So was it with the *R. arboreum*, but we have already shown, that by hybridizing with kinds of later vegetation this disadvantage has been overcome. And cannot the experiment be repeated, and with endless variations?*

As some of our readers may probably be disposed to engage in this fascinating branch of cultivation, we shall

* In illustration of this remark, we may mention, that at the present date (May 20) there are two seedling varieties of *R. campanulatum*, an early blooming Nepal species, magnificently in bloom in the nurseries, though scarcely more than fifteen inches high. They are blooming not only *later in the year* than the sort originally received, but *as younger plants*. The one is a large-flowered, white variety; the other is of a white ground, delicately flamed with carmine, and blooming as freely as *R. catawbiense*.

pursue this inquiry yet a little further. Of the many directions in which we fancy the skill of the operator may be successfully employed, none seems more inviting than that of hybridizing these newly-acquired Sikkim and Bhotan kinds with the finest seed-bearing hybrids of *R. catawbiense* and *R. maximum*. The two latter are hardy, and flower late. By crossing, we may hope to combine in some of the hybrids, or cross-breeds, the splendid flowers of the Sikkim kinds with the hardy and late vegetating properties of the Americans. But more, we shall expect new colours; and, most of all, fragrance. Further time may be agreeably and profitably employed in pursuing the track already marked out by modern cultivators—in crossing the finest and most recent hybrids the one with the other. By this means, improved forms, new and more varied colours, increased substance, and races better constituted for an English climate, may doubtless be yet obtained.

We believe it is not a settled point, whether the hardy kind should be the male or female parent. Dean Herbert's theory would lead us to look to the male parent for habit and constitution; but if this be correct as a rule, we know of exceptions in the case of rhododendrons, having found seedlings of *R. arboreum*, crossed with hardy kinds, not hardy. Thus we should say, in the absence of exact knowledge this may be made a matter of convenience.

We have thus briefly traced the history of the most important of American plants—the rhododendron. Next in order of beauty is the Azalea, a deciduous shrub, of dwarfer growth, indigenous to Asia and America, growing on the borders of lakes, in swamps, and in shady woods. The flowers are white, fawn, yellow, copper, red, scarlet, purple, with the usual intermediate shades; some striped and

variegated; deliciously fragrant; produced in April, May, and June. The azalea rivals the rhododendron in richness and brilliancy of colour, but the flowers are not so large, neither is the foliage so handsome; nor is the plant evergreen: the colours are those deficient or wholly wanting among rhododendrons. The Belgians have hitherto borne away the palm for the development of the azalea, the handsomest kinds having been originated in and around the town of Gand, thence termed "Ghent Azaleas." These are now plentiful in English nurseries. As with the rhododendron, so with the azalea, the "garden hybrids" have evidently proceeded from several species: of these, *A. pontica*, *nudiflora*, *calendulacea*, and *viscosa*, appear to have produced the best.

There is yet another plant of conspicuous importance in the "American Garden," and which is popularly known as the "Hardy Heath." According to the botanist, there are here three distinct genera, *Erica*, *Gypsocallis*, and *Calluna*, which correspond respectively in popular nomenclature to Heath, Moor Heath, and Ling or Heather. The heaths are diminutive evergreen shrubs, natives of Europe and Africa, many of them plentiful in Britain on sandy plains, or found covering continuous miles of mountain slopes. Although not nearly so numerous as the rhododendrons and azaleas, there are yet many varieties, some of which have probably originated from seed in a wild state, and others in gardens. They flower for the most part from July to September, some in March, April, and May, while the *gypsocallis carnea* blooms from January till April. Whether planted in beds by themselves, or as edgings to beds containing genera of larger growth, they are both effective and interesting.

The remaining twenty-four genera of the natural order

Ericaceæ are natives of various parts of Europe, Asia, and North America, chiefly of the latter country, whence they have been brought, through the enterprise of science or commerce, at various dates. Although all are interesting, and some highly ornamental, the species and varieties are but few in number, and have undergone but little change from their original state. Of these we shall have something more to say by and by.

Let us now turn to consider the more practical part of our subject, namely, the Conditions of Growth. Who that has a garden would not grow American plants? But, alas! what difficulties arise, or *seem to arise*, in our progress along the path which leads from the wish to its realization. Perhaps the matter is almost settled when the questions arise "Would these beautiful plants thrive in my garden?" "Is it not commonly said they will not grow except in peat?" These are indeed important questions, and we will endeavour calmly and briefly to discuss them, in order that the reader may be in possession of the real facts of the case.

A glance at the history and economy of American plants will shew the purposes for which they are adapted, and the soils and situations most congenial to their nature.

Now it is a safe rule of practice to ascertain the circumstances under which a plant exists and flourishes in nature, and follow a system of cultivation in harmony therewith, so far as is convenient and practicable in domestic gardening. But fortunately for the beauty of our gardens, these and other plants, *when in a state of cultivation*, may be brought far away from the conditions under which they exist in nature, for mountain air is not always accessible, and morasses hardly desirable in cultivated gardens. We would not, however, wittingly rank ourselves among those who main-

tain that American plants are all but indifferent as to soil and situation: it is a mistaken zeal that would place a plant in an unsuitable position or unfriendly soil: such a course only ends in disappointment, and often brings the plant into disrepute. As in the animal kingdom, so in the vegetable, different races require different food, and, when in a domesticated state, different treatment. The horse seeks his grass, the dog his flesh; the rose flourishes in loam, the rhododendron in peat, having a positive dislike to lime in any shape. Still this distinction is less broadly marked in the vegetable kingdom than in the animal, and if the natural diet is costly or unattainable, a compounded diet, with a slightly varied treatment, may often be successfully substituted. The range of soils is perhaps by many somewhat unnecessarily restricted. There are various soils not peat, quite worth trying before casting aside as unsuitable. De Saussure found in the branches of rhododendron 11 per cent. of the oxides of iron and manganese, when the soil (peat) contained only 18 per cent.: these, therefore, may be important elements in a suitable soil.

We have seen rhododendrons do well in a mixture of loam and old cow-dung, but it is well worth bearing in mind, that the hardiness of certain varieties is affected by the nature of the soil. Thus Mr. Masters of Canterbury found some of the Sikkim species perfectly hardy when growing in peat, but tender when growing in loam.

Mr. Frost tells us, that in the woods at Dropmore thousands of self-sown rhododendron ponticum may be found growing on every soil except stiff clay. We have seen them there, and right well do they grow, producing the most charming effect in woodland scenery. And although we are aware that they usually refuse to grow in stiff clay soils, we have seen them do well in such, but *never except in*

combination with shade and moisture. These may be considered favourable conditions under most circumstances; still in moderation only: for if in excess, the growth may be satisfactory, but the flowering will be scanty and indifferent.

In our opinion a garden must be a *very small one*, and suitable soil far more costly than we have ever known it to be in any part of England, to warrant the exclusion of Rhododendrons and Azaleas, of Heaths, Kalmias, Ledums, and Andromedas. What! shall we give up American plants because there is no peat-soil in our gardens, and it does not happen to exist on the next estate? Is any thing really valuable obtained without some expenditure of money or labour? Nay, in gardening, we would go further, and say, that great results are scarcely attainable without some enthusiasm. Look at our Orchid growers. They have been known to import soil from extraordinary distances, and this in addition to costly structures and constant expenses of fuel. And who shall say that American plants are not as beautiful in their way as these rare and costly denizens of more luxurious climates? But on the varied surface of this beautiful island of ours is peat really so scarce an article? Is it not to be found, rich or poor, wet or dry, in greater or less quantities, in every county, and in the hollows or on the slopes of every leafy wood? It may be so poor as to be improved by the admixture of well-pulverized manure, crumbled into the state of black mould; so sandy and dry as to require the introduction of cow-dung, loose stones, rock, or similar substances, retentive of moisture, over the surface of which the small delicate fibres freely trail, drawing thence an abundant supply of nourishment.

But while we prefer natural peat where attainable, if there is no peat at hand we can manufacture some. Gardening has happily passed that era when the most trifling

obstacles were magnified till molehills became mountains, the mountains an excuse for labour or a cover for ignorance. In no art, perhaps, have greater strides been made in recent times than in the art of gardening. The darkness, once impenetrable, has well nigh disappeared. Even the dim mists in which so many objects are but indistinctly seen, are daily waxing fainter; empiricism is settling into science, by the sure and steady process of induction. In many places the component parts of peat exist in a separate state. Sand, decayed leaves, turf, old tan, and any *thoroughly decayed* vegetable substances, may be so combined as to produce a soil in which American plants thrive perfectly. If the leaves can be obtained from the ditches and hedgerows already decomposed, it saves the trouble of collecting and fermenting them, and they may be mixed at once with equal portions of chopped turf and sand. Or they may be raked together in autumn, and laid in heaps for twelve months, until thoroughly decayed, adding to the heap, from time to time, any garden refuse that will rapidly decompose. But while the surface-soil is of the first importance in the culture of American plants, the nature of the sub-soil is not altogether a matter of indifference. We have seen all that is really valuable for ornamental purposes flourishing in a light sandy loam not more than eighteen inches deep, *resting on a bed of clay*, while in a similar soil, *resting on gravel*, their progress was any thing but satisfactory. The reason is obvious. In the first instance (clayey sub-soil), while the surface soil allowed the moisture to pass among the roots, it was retained in close proximity below, and given upwards in case of drought, thereby maintaining the necessary conditions of coolness and moisture, the extremes of stagnation and rapid evaporation being equally avoided; while in the other case (gravelly sub-soil), the moisture

passed rapidly away, and the delicate hair-like roots suffered from exhaustion in dry weather. Had the surface-soil been deeper in this latter case, or more retentive of moisture, the sub-soil would have been a matter of little moment. We believe the only conditions necessary for the successful cultivation of American plants is a soil that is loose and light, containing sufficient vegetable matter to preserve a due and equable amount of moisture.

This brings us to consider in what manner these plants may be introduced to the flower-garden with the greatest advantage and effect. When peat, or its component parts, are costly, or a garden is of limited extent, single plants may be inserted on the face of shrubberies; standard rhododendrons and others may be dotted here and there on lawns; a clump or group of clumps may be formed in a suitable position, or a border may be planted wholly with them, either in separate masses or mixed. If peat be plentiful, and the garden sufficiently large, a certain space may be set aside exclusively for their use, planting in mixed or separate masses with the walks or margins of turf.

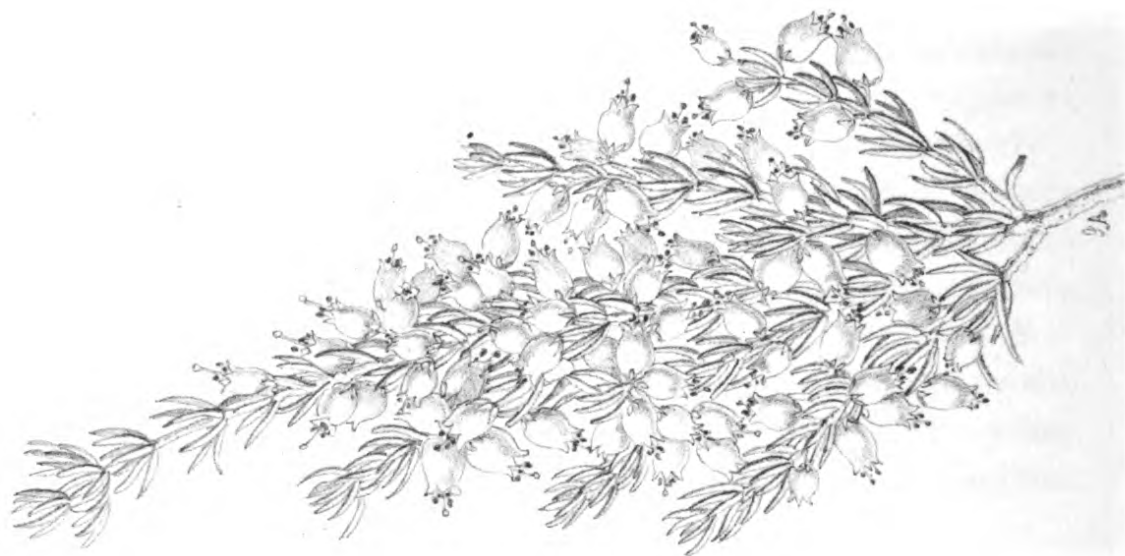
In the winter of 1855-56, we undertook the formation of a group of American beds in a small garden. It was agreed that the number should be five; two filled with the choicest rhododendrons, one with azaleas, one with hardy heaths, and another with a mixture of ledums, andromedas, pernettyas, and the like. The soil was most unsuitable, and therefore, after marking out the beds, it was removed to the depth of twenty inches, the bottom loosened six inches deeper. The sub-soil was dry, or we should have considered fourteen inches a sufficient depth. Peat was delivered on the spot in the form of turves, at 14s. per ton, a lower price than artificial peat could have been manufactured for. The turves were cut with the spade

into pieces about an inch square, and afterwards well battered, that there might be sufficient loose soil to fill up the interstices between the lumps. The whole was cast into the beds, trodden firm, and allowed a few days to settle. The plants were now selected from the beds in the nurseries, choosing, as far as possible, those with flower-buds, varying the colours, and taking care *that each bed contained sorts which flowered at the same period*. This is highly important, for if kinds are chosen which flower at different dates, the effect is never complete. The plants were first laid on the surface to ensure the best arrangement of colours, &c., and then planted with the spade, the soil firmly trodden around the roots. When the planting was finished, the beds were well drenched with water. Two or three times during the spring was this repeated; and so complete was the success, that not a leaf withered; and so abundant was the flowering, that within three months of the date of planting, this little spot was the most attractive in a beautiful garden. It may be remarked that the above description of the *modus operandi* in planting is equally applicable on a large or small scale. If American plants are so situated as to be fully exposed to the sun, it is a good plan to plant thickly, so that the ground beneath is shaded by the foliage, and a portion of the plants can be withdrawn as they increase in size.

But where the soil is naturally peat or sandy loam, we should expect an American garden of some extent to be formed; the surface gently undulated, or, if *very* extensive, rising and falling into hill and dale. So important is this irregularity of surface, that if not natural to the ground, it should be artificially attained; one view of the plants from the elevated points of view, when in bloom, compensating for any moderate trouble and expense.



Pernettya.
Mossman's.



Gypsocalis.
Mediterranean.

It occurs to us that there are two distinct styles in which the American garden may be framed according to what is in juxtaposition and the nature of the surrounding scenery. It may be in itself a highly finished garden ; or, if in conjunction with such, it may partake of the natural and wild. In choosing the site, any thing favouring coolness and moisture should be secured ; for instance, a northern or eastern exposure, or a position shaded by distant trees. Let us suppose the surface to be grass or lawn, laid out in beds of various forms and sizes, some to contain one large specimen only, others to be filled with masses of plants. If the beds are thrown into a series of groups, we strongly recommend the massing system, as practised with bedding plants. Let each bed be occupied with a separate sort, or a separate colour, as white, buff, yellow, orange, lilac, rose, crimson, purple, and the like, taking care to arrange the colours with taste, and placing together sorts which flower at one and the same time. In forming the beds, angles and straight lines should be avoided, circles, ovals, and other figures composed of gracefully curved lines being preferable. If borders are placed on the outskirts, the front line should be diversified with hollows, facing the entire line with miscellaneous *evergreen* American plants, as rhododendrons, Kalmias, heaths, Andromedas, arbutus, Gaultherias, Pernettyas, &c.

If water can be obtained, it is an advantageous circumstance. Rhododendrons may be drawn into knots or groups on the banks, where their gorgeous clusters of flowers will produce a fine effect.

A cool summer's retreat may be secured by planting an alcove in some commanding spot on the margin of the water. The back and sides may be completely closed in, confining the outlook to the lake ; or a double view may be

obtained by placing a window in the back of the alcove, to command a view of the garden. If the water is extensive, an island or islands may be formed and planted, and water-fowl, native and foreign, may be appropriately introduced to break the monotony of still life. Rockwork, if on an extensive scale, is nowhere in better character than in the American garden. And here the sharp lines and angular projections, held so objectionable in beds, may be resorted to with some or considerable effect. Many a spirited feature may be planted in a garden by the erection of rockwork. It is, however, necessary to guard against whimsical irregularities and violent contrasts, for nowhere in gardening is one so likely to overstep the modesty of nature: Contrast and effect should be secured, without disturbing the pervading soul of harmony. Among American plants suited for rockwork are heaths, Pernettyas, Gaultherias, arctostaphylos, and oxycoccus: the two latter genera may be encouraged to trail along and hang down over the face of the rock.

But we would recommend a still more extensive use of American plants in the formation of gardens on peaty or sandy soils. We would plant them in large quantities; rhododendrons in place of laurels; Kalmias in place of Portugal laurels; azaleas and hardy heaths instead of many of the usual flowering shrubs. But while the bulk of plants in a garden on such a soil should be American, for the sake of the superior beauty of their flowers, we would by no means exclude all others. To do so would be to limit the choice of materials. It must be remembered, too, that in a garden formed of American plants exclusively, there will be little in flower, except in the months of May and June. Tame therefore and monotonous at other periods of the year would be a *large* tract of ground so occupied.

We accept American plants as the groundwork of a large garden, where the soil is suitable for their growth, and shall now advance further, and pile feature upon feature, until we attain a whole that will combine to develop a series of varied and brilliant pictures, and render a garden interesting and agreeable at *every* season.

First, then, we have in the rhododendron, Kalmia, and others,

EVERGREENS WITH DARK FOLIAGE,

which are always rich and beautiful, producing gorgeous masses of flowers in May and June. But we want a greater variety of foliage here. Well, there is the phillyrea, whose small, dark-green, shining, oval-pointed leaves recommend it strongly for this purpose. The Irish yew, with its sentinel-like form, may also be appropriated occasionally with good effect. The taxus adpressa, the yellow-berried and Dovaston weeping yews, are also invaluable; so are many other coniferæ, as pinus, abies, picea, and the like. What can be better than the hederæ Rægneriana, or giant ivy, with its thick, dark, leathery leaves, if there are fences or rustic ornaments to climb, or rock-work and rough places to scramble over. And there are many others which might be appropriately introduced under this head, but which, possessing other and higher features as “spring flowering” or “berry-bearing” plants, are reserved for notice in another place.

Among

SUMMER-FLOWERING TREES AND PLANTS,

which group well with rhododendrons and azaleas, and flower at the same period, we should assign high positions to the scarlet and double pink thorns, the white and

red horse-chestnuts, the laburnum, white broom, *Wiegelia rosea*, double-blossomed furze, tree-pæony, guelder rose, and *viburnum plicatum*. Of others, blooming at an earlier or later epoch, there are *Cytisus*, *cistus*, and *helianthemums*, of various colours; *Fuchsias*, *spiræas*, and *syringas*, and the elegant *berberis Darwinii*. These may be considered the choicest of the choice.

Next, we have in the changing leaf of the azalea a glimpse of the

RICH, WARM, GLOWING TINTS OF AUTUMN,

which we seek also to extend. What more beautiful than the semi-transparent, flame-like leaves of the scarlet oak (*quercus coccinea*)? But the right one should be secured, as many sold under this name hardly reach the colour of a dingy brown. The champion oak (*quercus rubra*) is only a little less beautiful than the preceding, the leaves, instead of scarlet, dying of a fine blood red. Place yourself under that liquidambar on a bright day in autumn, and look through the tree at the sun: the leaves are purple, scarlet, green, and gold. Is it not a picture in itself, and one that warms you to look upon? The scarlet maple (*acer rubrum*) is also a beautiful tree in spring, summer, and autumn. The leaves of the stag's-horn sumach (*rhus typhina*) change to a rich brown and scarlet in October, the tufts of feathery flowers often standing erect throughout the winter months. The amber-brown of the larch is beautiful in autumn, and so is the tender green of the leaves in spring. Although it may be encountered in the commonest of places, it ranks high in the list of decorative plants. There are also many others here, as the tulip tree (*liriodendron tulipifera*), the Norway and sugar maples (*acer platanoides* and *saccharinum*), the common ash (*fraxinus excelsior*), the common

birch (*betula alba*), the Venice sumach (*rhus cotinus*), the Salisburia, *Kolreuteria*, &c., whose masses of golden foliage produce a fine effect late in the year.

We have already among

WINTER AND EARLY SPRING-FLOWERING PLANTS

the *Andromeda polifolia*, *Leucothoë floribunda*, *rhododendron dauricum*, *Magnolia conspicua*, and *gypsocallis carnea*. But we cannot stop here while we have access to such plants as *Garrya elliptica*, *Mahonia aquifolium*, *Fabiana imbricata*, *Forsythia viridissima*, *jasminum nudiflorum*, *ribes*, *Daphnes*, *Deutzias*, *Cydonias*, and lilacs, although they may grow in other soils than peat. Why should we exclude the single almond, the double Chinese almond, the double-blossomed cherry, and the cherry plum? There is also a new double plum; and the new varieties of double-blossomed peaches recently introduced from China are among the most beautiful of spring-flowering trees. And we would go yet further while on the track of spring flowers, admitting into our elysium certain early-flowering herbaceous plants, as Christmas roses, hepaticas, epimediums, gentians, trilliums, and even bulbous plants, as aconites, crocuses, and snowdrops, snowflakes, daffodils, and squills. Had we the forming of an American garden in accordance with our own views, we would make

THE FLOWERS OF SPRING AND LEAVES OF AUTUMN

features of intense interest at their respective seasons.

PLANTS BEARING BERRIES IN WINTER

deserve to be brought prominently into notice. The *arbutus*, *Pernettya*, *Gaultheria*, and *vaccinium*, justly belong to American plants. But there are others.

How bright and joyous is yon Minorca holly (*ilex ba-*

learica), studded with thick clusters of bright scarlet berries, displayed to the very best advantage by the back-ground of broad green leaves, a glimpse of which is sufficient to dispel the gloom of the thickest November fog. The silver-edged holly, too, is equally deserving of a passing word of commendation: the berries are perhaps not quite so brilliant, but the leaves are broadly margined with white, and this is a second point of beauty. And perhaps the yellow-berried variety, which is not half so much cultivated as it deserves to be, is not at all inferior to the other two: the leaves are dark green, the berries bright orange yellow, gathering in thick clusters around the slender stem. Nor must we overlook the common holly, the welcome inmate of every domicile at merrie Christmas, reminding us of happy homes and youthful gambols. Then there is a charming plant, the cotoneaster microphylla, equally suited for a weeping tree, a bush, a trailing or wall plant, and which deserves extensive patronage, if only for its accommodating disposition; but it possesses a higher claim to favour—intrinsic merit. The branches are clothed with small, round, dark, shining leaves, beneath and among which lie the scarlet berries. There is also another sort (cotoneaster thymifolia) which may be described as a miniature edition of the former, the berries a shade brighter in colour. These two are evergreen. There are also two or three berry-bearing deciduous species highly ornamental. The Skimmia japonica, an evergreen with scarlet berries, the snowberry with white, the Leycesteria with purple, and the different varieties of euonymus with white, red, and rose-coloured berries, are all desirable for the effect they produce in autumn and winter. Nor can we afford to overlook the sweet-brier, the common berberis, and the scarlet-fruited elder.

Among American

PLANTS OF A GOLDEN HUE

we have the variegated rhododendron *ponticum* only. But there are others available as aids in tiding over the dreary season of winter. The golden holly, the *aucuba japonica*, the golden yew, the *thua aurea*, are evergreens of great beauty. The golden ivy, and large-leaved gold-edged periwinkle (a plant hitherto little used), are also well suited for climbing or trailing. These, which are all evergreen, may be so disposed as to produce fine winter pictures, and there are many deciduous trees of like character, highly ornamental in summer, as the golden elder, variegated Turkey oak, variegated Spanish chestnut, *aucuba*-leaved ash, and variegated dogwood.

PLANTS OF A WHITISH OR SILVERY TONE

are also desirable for the sake of variety in winter scenery, and are very attractive during sunshine. The *abies alba glauca*, *pinus monticolor*, snow pine (*pinus nivea*), glaucous juniper (*J.* virginiana glauca*), silver juniper (*J. virginiana argentea*), variegated savin (*J. sabina variegata*), *astragalus tragacantha*, Jerusalem sage, (*phlomis fruticosa*), lavender cotton, (*santolina chamæcyparissus*), are evergreen, and among the best for winter use. But we would augment this feature by the addition of sundry deciduous trees, for this colour is even more desirable in summer, on account of the idea of coolness which it imparts. The *hippophæ rhamnoides*, *elæagnus argentea*, *acer negundo variegata*, variegated syringa, *Abele* poplar, willow-leaved pear, striped grass, silver bramble, *senecio cineraria*, and *cistus algarvensis*, are of the first order of merit. It must, however, be borne in mind, that the white-

* *J.* abbreviation for Juniper.

leaved and variegated trees do not look well planted singly, as in their case the sky forms a bad back-ground; but in the front of plantations with dark masses behind they produce an admirable effect.

On the other hand,

TREES WITH PURPLE LEAVES

are well suited to stand singly, the outline of the dark mass being well defined by the azure back-ground. Among trees of large size, the *real* purple beech is pre-eminent here; but there are many varieties in the country with leaves of various shades, from copper to blackish purple: the darkest is the best. The black oak is a rare and elegant tree, as yet but little known, though worthy of general culture. Then there is the purple maple and the purple elm, both good if further variety be wanted. Among shrubs of smaller growth the purple berberis and purple nut deserve to be freely introduced: they are striking and distinct, and not costly, the golden flowers of the former contrasting finely with its rich purple leaves in spring. If a few seeds of the *perilla Nankinensis* are sown early in spring, and the plants transplanted here and there in May, an abundance of this colour may be secured throughout the summer months. The last is an annual, and disappears on the approach of winter: the others are deciduous, that is, lose their leaves in winter, and are of the deepest hue in early spring.

PALE GREEN

is a colour we must not overlook in the composition of tree scenery. For summer pictures the deciduous cypress, (*taxodium distichum*), the *Gleditschias*, the one-leaved and cut-leaved walnuts (*juglans monophylla* and *J. laciniata*), the cut-leaved oak (*quercus laciniata*), the fringe-tree,

(*chionanthus virginica*), the Venice sumach (*rhus cotinus*), the *coriaria myrtifolia*, *hypericum kalmianum*, and *cistus capitatus* are very desirable. The five last named produce beautiful flowers in their season. Among evergreens, for effect in winter, the *pinus pyrenaica*, *abies orientalis*, junipers of sorts, *buxus balearica*, *ruscus racemosus*, *thua Wareana*, and *Mahonia fascicularis hybrida*, are excellent.

There are certain trees and shrubs with

WHITE, CRIMSON, AND GOLDEN BARK,

which it is cheering to look upon in winter when denuded of their leaves. The silver birch is one of these, and is too well known to require more than a passing word. The bark of the dogwood is blood-red; the plant is handsome when in foliage, and distinct and striking in winter after the leaves fall. It should be planted in masses, and pruned yearly, to induce a thick growth. The golden and purple willows may be similarly treated, and the golden weeping ash is a charming tree.

While engaged with trees and shrubs, we ought not to forget certain

CLIMBING PLANTS

as *clematis*, honeysuckles, Virginian creepers, roses, *jasmines*, *tecomas*, vines, ivies, and the like, the introduction of which produces a charming variety, presenting to the eye brilliant masses of flowers and foliage. Train them to larch poles rough from the woods, eight or ten feet high, and the picturesque is appropriately introduced: or cover with them any dead or dying trees, or old stumps, should such exist.

Among American plants there is little except the hardy heaths to supply the place of

AUTUMN FLOWERS.

We would therefore advocate the free use of autumnal roses and hollyhocks, *lilium lancifolium*, delphiniums, phloxes, foxgloves, and other autumn-flowering herbaceous plants.

One other feature, and we have done.

PLANTS OF LOWLY GROWTH, WITH RICH AND DISTINCT FOLIAGE.

High among these will rank the *farfugium grande* (if hardy), a plant recently introduced from China, with large green leaves, broadly blotched with yellow. The hardy bamboo, the holy thistle, the pampas grass, the *arundo donax*, the *acanthus*, *tritoma*, *eryngium*, *yucca*, *veratrum*, and sundry kinds of ferns, are of the class here alluded to.

The elucidation of these long-cherished views has led us far beyond what we originally intended, and yet, in looking forward, there is much remaining unnoticed. We have said nothing about form, although this important element of beauty has not been forgotten while preparing the preceding lists. The subject is indeed inexhaustible. We have but glanced at a few prominent features, and the plants so briefly described must be considered but as examples drawn from the vast repertory of nature. Any or all of them may be introduced to the American garden, not only with propriety, but with effect. Plant them singly, if the space be limited, or in masses, if of large extent.

But it may perhaps be said that we have already dwelt long enough in this ideal world of floral beauty, so let us glance briefly at those combinations of American plants which actually exist. We have already alluded favourably to the collections in the Regent's park and at Chelsea, but to thoroughly appreciate the beauty of American plants, one should visit them on their own soil, where they are spread abroad over an extended surface, with ample space of lawn, and full-grown trees between them.

The nursery-grounds in the neighbourhood of Woking and Bagshot, where the natural soil is peat, are both numerous and extensive. Those of Messrs. Waterer and Godfrey, at Knap Hill, near Woking, and Mr. John Waterer of Bagshot, contain many rare and beautiful plants; and Mr. Standish has of late exhibited some fine new varieties.

There are fine masses of rhododendrons at * * *, the seat of * * *, situated near the pretty and retired village of * * * *. It is approached from the east through woods and quiet lanes, with ample margins of turf and high leafy hedges, bearing on their front a profusion of viburnums, dog-roses, and wild honeysuckles,—such lanes and hedges as one seldom meets with, except in Hertfordshire, converting the whole county into one extensive park.* Alas! that some of our writers on rural economy should contend for their destruction. From the utilitarian point of view they are doubtless right; but this is only one side of the question: there are other and perhaps higher instincts to gratify—for instance, the love of the beautiful,—and should they not be taken into account?†

While turning this question in the mind, we passed the lodge gates, and came soon at the north front of the house, in view of two magnificent clumps of mixed rhododendrons. In the park immediately before us was a well-disposed group of aged poplars, a herd of cattle reclining be-

* The description of this place is literal; but we have some reason to doubt whether the proprietor would approve of its publication, and therefore withhold the name.

† Certainly, yes. At least, such is our conclusion at the moment, while enjoying their shade under a June sun, and inhaling the fragrance of the way-side flowers. Now, too, we catch a glimpse of some almost forgotten favourite, recalling the woodland and forest rambles of boyhood, with all their gay companionships and bright associations.

neath their shade: there was also a fine distant view of a neighbouring park. Another prominent feature was a piece of water, with two huge rhododendrons on the opposite bank, their images on the surface of the water glittering with a fresher radiance than the forms whence they proceeded. Passing to the west and south fronts of the house we found beds of rhododendrons, containing various sorts, azaleas, Kalmias, and heaths, all growing in the natural soil, which is a sharp sandy peat, containing far more sand than humus, and abounding in stones. There were also single specimens of rhododendrons on the lawn, another piece of water, containing an island planted with rhododendrons, &c.; while the outskirts of the woods, which almost touch the house on the east side, were fringed and dotted with the same plants. Looking to the north-west over a deep-wooded ravine, we descry the town and abbey of * * * * * nine miles distant. The landscape spread before us is of no common order. The distant town is, at this moment, half shrouded in mist; but the foreground of the picture is full of freshness, life, and beauty, irradiated by the glow of a cloudless sun. We enter the woods and are struck by the contrast to the scene just quitted. Here the picturesque, the natural, the wild, exist side by side with the highly finished garden. As we follow the shady walks fringed with rhododendrons, heather, fox-gloves, ferns, and partly overhung with pines and other huge forest trees, we occasionally pass what were formerly open spaces, but now covered with rhododendrons, in some cases grouped in large masses. As we approach, the rabbits run helter-skelter in every direction; the owl and the wood-pigeon take wing; while the shrill cry of the cuckoo and the song of the nightingale are heard in the distance. Around us is an impenetrable shade, the air cool, moist,

and resinous, in agreeable contrast with the sun-lit fields and trees, glimpses of which are now and then seen in the distance. The largest mass of rhododendrons is more than an acre and a-half in extent, and was originally planted as cover for game: when the plants touched each other, some were drawn out and dispersed through the woods. Around some of the old plants were numbers of seedlings, as yet only a few inches high, vegetating alike in walks and wilds, wherever the seed might chance to fall.

As a proof of the value of this plant for cover, it was mentioned that above one hundred rabbits were killed by six guns, in twenty minutes, yet the rhododendrons are untouched, while the neighbouring ground has been planted over and over again with other trees, which have been repeatedly destroyed.

On examining the natural soil in which they grew, it was found to vary considerably: in some places it was almost pure sand; in others the element termed humus, or black mould, superabounded: the general depth was about fourteen inches, resting on gravel.

Highclere castle, the seat of the Earl of Carnarvon, has a world-wide reputation for its American plants. It may be reached by a drive of six miles from the Newbury station of the Great Western Railway. The situation is every thing that could be wished, reminding one of Beaudesert, near Lichfield, by its beautiful undulations and magnificent distant scenery. It was here Mr. Carton commenced hybridizing the *R. catawbiense* with *R. arboreum*, some thirty years ago, and the work has been successfully followed up by Mr. Lindsay, Mr. Gowen, and others, resulting in the production of some of our finest garden hybrids. The drives on the estate extend for miles, faced with rhododendrons, and supported by Scotch firs. The

American garden which surrounds the house is sixteen acres in extent, clay on chalk; and offers a rare example of difficulties successfully overcome. The natural soil has been removed to the depth of eighteen inches, and replaced by peat. The plants are disposed in circular, oval, and curvilinear groups, on grass, interspersed with noble specimens of choice ornamental trees, deciduous and evergreen. Of those more immediately connected with our subject, although by no means the largest, we encountered *Magnolias* twenty to thirty feet high, rhododendrons fifteen to twenty feet, azaleas ten to twelve feet, the latter loading the air with their delicious breath. On them were thousands of heads of blossom, in many so closely approximating as to form unbroken masses of colour. In contradistinction, however, to the collections of American plants, as exhibited in London, they are not all embraced from any one point of view. There is not that surfeit of rich colours which we have heard some find fault with when criticising the London exhibitions, but which is almost unavoidable in temporary arrangements on a limited scale. There is more green in the shape of lawn and trees, and at almost every step the scenery, both near and distant, changes.

You pause: look to the right, there is a bank of rhododendrons, small trees of varied beauty, in which the purple and scarlet kinds, elsewhere rare, almost superabound. To the left are various groups of American plants, tree pæonies, &c., partly concealed from view by the large trees and rising ground: here is a bed of *R. Victoria* (purple), nine feet high; near to it, and in good contrast a bed of hybrid *arboreum* (scarlet), of nearly equal height. You also encounter in your progress a bed of *Kalmia latifolia*, another of *K. angustifolia*, and one of *Leucothoë axillaris*. Behind you is the castle, a modern structure of rare beauty, surrounded

with ancient cedars and other noble trees, which the present possessor could only have inherited through the taste, forethought, and unselfishness of bygone generations. Before you is the park, containing a splendid avenue of limes and beautiful groups of lime, beech, oak, cedar, and thorn. Then, if you raise your eyes from the objects immediately before you, and scan the horizon, the distant scenery is rich, varied, and sublime. From the American garden you pass to the Milford Lake, which is something like a mile distant. It consists of several acres of water, the banks fringed with rhododendrons and azaleas, some ten to twelve feet high, growing in the natural soil. A sheltered corner is reserved here, open to the south-west, for the Sikkim and Bhotan rhododendrons, which have not yet been planted out of doors. On the lake are islands, planted with rhododendrons, azaleas, vacciniums, Andromedas, and similar plants fringe the margins of varied promontories, hanging over the edges of the ground, almost dipping into the water. Leaving the border of the lake, you enter the Milford drive, which is completely lined with rhododendrons. The ground rises gradually. On the right hand is the lake, and on the left are huge sloping banks of rhododendrons and azaleas of various colours, the top of the plants, in some instances, more than twenty feet above the level of the road. One plant, of a scarlet hybrid, was observed, twenty feet high, thickly clothed with handsome foliage and flowers; and there were numbers almost equal in size, scarlet, lilac, yellow, and brilliant indeed were the fiery colours, viewed under the glare of a noonday sun. You gaze in ecstasy till the oppressed sight, wandering mechanically along the line of flowers, at last finds a glad repose on the cool bosom of the lake below. These enormous masses are planted in the natural soil, which is a sort of peat, varying in depth from nine inches to two feet.

While passing through the American ground, we were much struck with the size and beauty of the flowers of many of the azaleas. These, we were informed, are mainly due to the skilful manipulation of Mr. Gowen, formerly Treasurer to the Horticultural Society of London. There were also various hybrids between the rhododendron and azalea, sub-evergreen, and highly interesting. Mr. Phipps, the present intelligent gardener, is not indifferent to the fame of the place. He has taken up the work of his predecessors, and has some seedling rhododendrons raised between *arboreum* and *javanicum*, which have remained out of doors during winter, uninjured by frost. In the conservatory were some fine specimens of the true *arboreum*, with flowers really *scarlet*, not the crimson variety often met with under that name. *R. Edgworthii* was also in bloom there, demonstrating its presence by its rich odour long before the plant was seen. The original plants of many of our most valued garden kinds are still in the ground, among which the "Soleil d'Austerlitz," six feet high, with numerous heads of crimson blossoms, was most conspicuous. It is the custom here to rub out the centre *growing* shoots of the rhododendrons when of straggling habit, by which means the growth is kept close and compact. Old worn-out scrubs of azaleas have also been cut down level with the ground, and found to shoot forth abundantly, recovering their pristine vigour.

There are many other features in the garden at Highclere Castle well worthy of comment, but they do not intimately pertain to the subject now under consideration. There are also other places in the vicinity where American plants are grown both extensively and well, which we would gladly notice, did we not fear that the repetition might become irksome to our readers.



Azalea



Camellia

There are many places in the neighbourhood of London where the rhododendron figures as the chief of plants in early summer. Beech Hill, the seat of Richard Arabin, Esq., is charmingly situated on the borders of Epping Forest. The road from Waltham Abbey leads through sundry leafy lanes, with broad margins of turf dotted with luxuriant clusters of the hawthorn, the sloe, and the wild rose. Near the house are clumps of rhododendrons and azaleas, and the drive, which is of considerable extent, is faced with rhododendrons, supported and backed with various evergreens. The double furze is also introduced with good effect, its rich golden blossoms contrasting well with the more delicate colours of the rhododendrons. Although there is less variety here than might be expected, owing to the absence of the modern and improved kinds, the effect in the blooming season is truly magnificent. The natural soil, which is a stiff clay, was removed before planting, and replaced with peat.

There is a very choice collection of rhododendrons and azaleas in the flower-garden at the Frythe, near Welwyn, the seat of W. Wilshere, Esq. There is one very pretty group of eleven clumps, with ample space of lawn between: five are filled with rhododendrons, and six with heaths, while *Kalmias*, azaleas, &c., figure in the adjacent parts of the garden. The soil was, in one instance, brought from Surrey; in another, river soil dug from the bed of the Lea; and in another, decayed wood and sand, collected in the neighbourhood. Judging from the health and flowering of the plants, they seemed to thrive equally well in every case. We need not stop to speak of names in this place, as it is intended to bring the best sorts together by-and-by, with fuller descriptions than could be inserted here.

American plants are also cultivated extensively in Scot-

land, the climate of which country seems particularly favourable to their development.

Our old and esteemed friend, the late Mr. Cunningham, of Comely Bank, Edinburgh, was one of the first and most successful hybridists of this flower. He parted with many of his seedlings before propagating or even naming them, the fame and profit passing with them into other hands. *Albertus*, *coriaceum*, Cunningham's white, and Sir W. Scott, which originated with him, still hold a position among modern kinds, and were, in their day, far in advance of every thing. At Dysart House, the seat of the Earl of Rosslyn, there is a magnificent collection of rhododendrons, the condition of which reflects great credit on the management of Mr. Laing.

In reply to a recent inquiry, Mr. Laing has obligingly favoured us with the following particulars:—"The formation of the collection of American plants at Dysart was commenced about the year 1834, by the present Countess of Rosslyn, whose good taste in selecting so handsome a plant, then little patronized or known, is now everywhere admitted and admired. The plants were chiefly purchased of Mr. Knight and Mr. Cunningham, at very high prices. Many of them have now attained considerable size, as will be seen from the following statement:—

Smithii (a crimson hybrid between *ponticum* and *arbo-
reum*): height 15 feet; diameter of branches, 20 feet; girth of stem level with the ground, 4 feet.

Altaclarensis, *Russellianum*, and other crimson hybrids between *Catawbiense* and *arbo-
reum*: height, 10 feet; diameter of branches, 10 feet.

Campanulatum: height, 10 feet; diameter of branches, 10 feet.

"Many of the older and commoner sorts have increased in proportion, and there are plants of *ponticum* even 20 feet high.

The rhododendrons are chiefly planted in borders and beds, backed by Portugal laurels and other evergreens, which partially shade them from the sun, and break the force of the wind. A great many hybrids have been raised at Dysart, some of which have flowered, and are of great merit. There are several admirers and collectors of rhododendrons in Scotland, foremost among whom may be mentioned Mr. Adie, of Linlithgow, and Mr. Gorrie, of Dalkeith.

But we have something more to say on cultivation. The common kinds of American plants, as the rhododendron *ponticum*, and azalea *pontica*, thrive in a variety of soils, preferring, next to peat, a sandy loam, and often growing well in a moist clay. For planting in masses, no plant is more beautiful than the former, and, as we have already shown, none is more suitable as cover for game. Not only is it free from the attacks of hares and rabbits, but it is both warm and dry in winter. The seeds ripen, fall to the ground, and vegetate by thousands, forming a dense and almost impenetrable grove, or low wood. When once planted, the routine of culture differs little from that of evergreens generally. An annual pruning, immediately after the flowering in summer, is sufficient to preserve the dense masses of foliage so desirable in woods and pleasure-grounds. The soil should be forked over once a year, and the hoe used occasionally to loosen the surface of the soil and destroy weeds. If a scarcity or poorness of bloom is observed at any time, arising from debility, an occasional dressing of *thoroughly decayed* manure will quickly restore the plants to health and vigour. If growing in a moist clay, burnt earth, decayed wood, and black vegetable mould called "humus," are alike excellent.

The late-blooming species, *R. maximum* and its varieties,

are found to grow better in a loamy soil than some others, and as the leaves are readily injured by cutting winds, a sheltered situation is generally preferable.

Where seed is not required, the seed-vessels of American plants should be removed immediately after the flowering is over, for they interfere with the bloom of the coming year. If dry weather sets in during the *growing* season, which is not unfrequent in June and July, and water be conveniently at hand, use it abundantly during those months—rain or pond water in preference, especially avoiding water containing lime. If the peat is poor, weak liquid manure may be used with advantage. But watering should be discontinued so soon as the wood is set, and shows signs of hardening. Drought is then favourable, for moisture combined with warmth in autumn will force the plants into premature bloom.

Never raise the soil of American beds above the surrounding level. Sink it rather, that the plants may receive the full benefit of every shower. If, after fresh planting, dry weather set in, mulching is desirable, as it prevents a too rapid evaporation of moisture, and saves much labour in watering.

The rhododendron arboreum is a gorgeous plant for the conservatory in winter, producing its noble trusses of crimson-scarlet flowers in January and February. The white variety, and certain hybrids which flower too early out of doors, are also in good keeping there. Then there are some yellow kinds; and the Sikkim and Bhotan species are equally suitable. But it is a common practice to force the hardy kinds of American plants, and nothing produces a finer display in winter than rhododendrons, azaleas, and Kalmias. They may be potted at any time from November onward, and put in the forcing-house a month before required to bloom. As they rise from the ground with balls

of earth, if not wanted for decoration, but merely for cut flowers, the potting may very well be dispensed with.

This brochure would be very incomplete, were we to omit saying a few words on propagating. This may be done in various ways. The common kinds are usually raised from seed, gathered late in autumn and sown in pans or frames, in light sandy soil, about the month of April. When the seed is sown, press it firmly into the soil with a perfectly smooth piece of wood, placing no other covering on it than a little silver sand, just sufficient to fill in the holes on the surface. If placed on a gentle bottom heat, the bulk of the seedlings will have risen in a month, but some will continue springing at intervals during summer. From the time of sowing, the pans should be kept regularly moist and shaded till the seedlings have three or four leaves, when they may be "pricked off" into other pans or frames. The Sikkim, Bhotan, and other tender kinds, may be potted off singly, and kept constantly under glass. In the spring following, transplant the hardy kinds into beds of peat out of doors, watering and shading them carefully till they obtain a firm hold of the soil. A north border which secures a natural shade is an excellent position for young seedlings. New varieties are obtained by saving seed from the choicest kinds only, and hybridizing them (of which we have already spoken), in order to ensure the fullest measure of success. But when new and improved varieties of rhododendrons are obtained, it is desirable to perpetuate them, and this is done by layering, grafting, and striking cuttings. You never can rely on obtaining precisely the same variety from seed.

Layering, which is best performed at the end of summer, when the new growth is hardening, is a slow process, but it is a sure one. Large handsome plants on their own

roots are obtained by this means. The operation is a simple one. Take a shoot in the left hand, cutting off the leaves close to the stem, commencing a few inches from the growing point, and proceed downwards till you obtain sufficient length of clear stem to insert three inches beneath the soil. With a sharp knife in the right hand, commence cutting on the upper or under side of this shoot, as may be most convenient, at the precise point where the bark is observed changing colour. The knife should pass easily from the surface of the shoot until half way through, then in a straight line upwards till the piece set free is from an inch and a-half to two inches in length. With a flat trowel in the right hand, make an opening in the soil, twist the shoot slightly that the tongue, set free, may not again cohere to the shoot, press the shoot under the soil, and fasten it there with a small wooden peg. The soil, is now pressed firmly over the inserted shoot, and all is finished. Watering should be attended to throughout the remainder of summer and spring following. Sometimes the layers may be taken off about twelve months from the time they are made, but often they require to remain on the parent plant for two years. When layering the heaths, tonguing may very well be dispensed with: if the shoots are pressed under the soil, and kept in a moist state, not wet, roots will form abundantly.

The best time for separating the layers is easily ascertained by raising one or two with a spade, without separating them from the parent, when they can be carefully set back again, if not rooted.

Grafting is the more general mode of increasing the stock of established favourites and new varieties. Some cultivators object to grafted plants; but we are satisfied, from long experience, that there is no valid objection to such

if a suitable stock is used. We would as soon have a grafted rhododendron, when united to a suitable stock, as a grafted apple or a grafted pear. But it is far otherwise when, from carelessness, ignorance, or greed of gain, unsuitable natures are united. Then debility and early death frequently ensue, and in such cases grafted plants are clearly of little value. As a rule, choose the stock as near in nature to the graft as possible. Grafting is best performed early in autumn, so soon as the young shoots become hard and solid. The simplest form of side-grafting answers every purpose. Pare through the bark, removing with it a thin slice of the wood from one side of the stock,* the length of an inch; then pare one side of the scion so that it will lay flat and close upon the stock, binding the two firmly together with bast. Thus far accomplished, the plants should be put in a close frame, or beneath a hand-glass, for about six weeks, when such as have succeeded may be untied and wintered there, taking care to protect them against frost. On the arrival of spring they may be planted out in peat beds rather closely, that the foliage may shade the ground. When growth commences, the stock must be checked by pinching off the young shoots, which will induce a vigorous development of the graft. But it is not yet time to cut away that portion of the stock left growing above the graft at the time the latter was laid on: wait till the summer's growth is finished, and then, with a sharp knife and skilful manipulation, cut off the top of the stock in an oblique direction, immediately above the point of junction. Twelve months have now elapsed since the graft was laid on, and the result is, or

* The stock is the plant grafted; the scion or graft, a shoot of the finer kind, into which it is the object of the operator to convert the commoner kind.

should be a perfect plant, in some instances with one or more flower-buds.

Another method of propagating American plants is by Division. Certain of them, as the heaths, Gaultherias, vacciniums, oxycoccus, and the like, consist of a series of rooted stems springing from under ground, which may be pulled asunder in spring or autumn, till one plant is divided into several. This is the readiest of all means of propagating, and should be chosen in preference to all others, where the nature of the plant will admit of it.

Propagating by cuttings is perhaps less resorted to in actual practice with American plants than any of the former methods. It is slower and less certain, but may in some cases, as with the heaths, Dabæcias, Pernettyas, &c., be followed with a fair measure of success. Take small pieces of newly-ripened wood in autumn, and place them under a hand-glass, in a shady border of peat soil.

We shall now proceed to offer an arrangement of the different species and varieties, with brief descriptive remarks. American plants are thus arranged under the natural order "Ericaceæ," in the "Arboretum et Fruticetum Britannicum":—

SECT. I.—ERICÆÆ.

§ 1.—*Ericææ normales.*

Erica.

Gypsocallis.

Calluna.

§ 2.—*Andromedæ.*

Andromeda.

Cassiope.

Cassandra.

Zenobia.

Lyonia.
 Leucothoë.
 Pieris.
 Phyllodoce.
 Bryanthus.
 Dabæcia.
 Arbutus.
 Arctostaphylos.
 Pernettya.
 Gaultheria.
 Epigæa.
 Phalerocarpus.
 Clethra.

SECT. II.—RHODOREÆ.

Rhododendron.
 Kalmia.
 Menziesia.
 Azalea.
 Leiophyllum.
 Ledum.

GENUS I.—*Erica*. *The Hardy Heath*.

There is not, perhaps, a prettier family of dwarf evergreen flowering plants than that known as Hardy Heaths. They will be comprised here under three different genera, viz. 1. *Erica*, the Hardy Heath; 2. *Gypsocallis*, the Moor Heath; 3. *Calluna*, the Ling or Heather. All should be pruned annually, to keep them in form, health, and vigour. The first are diminutive evergreen bushes, with needle-shaped leaves, ranging chiefly between six inches and one foot in height, one or two reaching the height of six feet. They are found growing throughout Europe in boggy

and moory soils, many of them plentiful in Britian. The flowers are white, flesh-colour, red, and purple, produced from February to September. All are good for forming masses of mixed or separate colours: the dwarf growers excellent for edgings to beds containing American plants of larger growth. There is a group of seventy beds filled with Heaths in the garden of His Grace the Duke of Bedford, at Woburn Abbey, termed the Ericetum: they are not, however, formed exclusively of the hardy kinds, certain Cape species being introduced among them in the summer time for the sake of variety. The following are among the best of the hardy kinds:—

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Erica</i> —				
<i>Actæa</i> . . . . .	. . . . .	2 feet	May & June	
<i>arborea</i> . . . . .	. tree heath	4-6 feet	April	white
<i>australis</i> . . . . .	. southern ditto	4-6 feet	April to Aug.	purp. red
<i>ciliaris</i> . . . . .	. ciliate-leaved do.	1 foot	August	purplish
<i>codonodes</i> . . . . .	. bell-shaped ditto	3-6 feet	Feb. to May	pale rose
<i>cinerea</i> . . . . .	. grey ditto	6in.-1 ft.	August	purple
<i>alba</i> . . . . .	. white ditto	1 foot	August	white
<i>atropurpurea</i> . . . . .	. dark purple do.	1 foot	August	purple
<i>coccinea</i> . . . . .	. scarlet	1 foot	August	dark red
<i>scoparia</i>				
<i>stricta</i> . . . . .	. upright heath	2-3 feet	September	purp. red
<i>Tetralix</i> . . . . .	. four-leaved ditto	1 foot	July	flesh-col.
<i>alba</i> . . . . .	. white ditto ditto	1 foot	July	white
<i>Mackaiana</i> . . . . .	. Mackay's do. do.	1 foot	July	flesh-col.
<i>rubra</i> . . . . .	. red ditto ditto	1 foot	July	red

GENUS 2.—*Gypsocallis*. *The Moor Heath*.

These also are evergreen bushes, varying in height from six inches to six feet: natives of Europe and the North of Africa, often inhabiting calcareous districts. The flowers are white, red, and purple.

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Gypsocallis</i> —				
<i>carnea</i> . . . . .	. flesh-coloured moor heath	6 inches	February	red
<i>Mediterranea</i> . . . . .	. Mediterranean ditto	4-6 feet	April	pink

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Gypsocallis</i> —				
<i>Hibernica</i> . . .	Hibernia ditto	1-2 feet		pink
<i>nana</i> . . .	dwarf ditto	6 inches		
<i>multiflora</i> . . .	many flowrd. do.	2 feet	May to Dec.	red
<i>vagans</i> . . .	Cornish ditto	1-3 feet	July to Oct.	red
<i>alba</i> . . .	white ditto	1-3 feet	July to Oct.	white
<i>purpurascens</i> . .	purple ditto	1-3 feet	July to Oct.	purple

GENUS 3.—*Calluna*. *The Ling or Heather*.

The Ling is a well-known, small, spreading, evergreen shrub, growing naturally throughout Europe, plentiful in Britain in poor peaty and sandy soils, often covering miles of the mountain sides in Scotland. The golden heather (*Calluna vulgaris aurea*) forms masses of rich beauty in the American garden.

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Calluna</i> —				
<i>vulgaris</i> . . .	Ling or Heather	1-4 feet	April	purple
<i>alba</i> . . .	white ditto	1-2 feet	"	white
<i>aurea</i> . . .	golden ditto	1-2 feet	"	pink
<i>Allportii</i> . . .	Allport's ditto	1-2 feet	"	pink
<i>coccinea</i> . . .	scarlet ditto	1-2 feet	"	scarlet
<i>decumbens</i> . . .	decumbent ditto	1 foot	"	red
<i>elata</i> . . .	tall ditto	1-2 feet	"	
<i>flore pleno</i> . . .	double ditto	1-2 feet	"	purple
<i>Hammondii</i> . . .	Hammond's do.	1-2 feet	"	pink
<i>pygmæa</i> . . .	pygmy ditto	6 inches	"	
<i>spicata</i> . . .	spiked ditto	1-2 feet	"	red
<i>spuria</i> . . .	spurious ditto	1 foot	"	purp. red
<i>tomentosa</i> . . .	downy ditto	2 feet	"	red
<i>sordida</i> . . .		2 feet	"	pink

GENUS 4.—*Andromeda*. *The Moorwort*.

Evergreen spreading under shrubs, six inches to one foot high, natives of Europe and America. Linnæus, who named this genus, describing *A. polifolia* in its native habitats, says—"This plant is always fixed on some little turfy hillock in the midst of swamps." Exceedingly pretty plants, bearing white flowers exquisitely tinged with red, produced from May to September. They require a moister soil than the Heaths.

Botanical Names.	English Names.	Height.	Season.	Colour.
Andromeda—				
polifolia	moorwort	1 foot	May to Sept.	wh. & red
angustifolia . . .	narrow-leaved do	1 foot	"	"
latifolia	broad-leaved do.	1 foot	"	"

GENUS 5.—*Cassiope*. (*Andromeda of some*).

Small, moss-like, creeping shrubs, six inches in height, possessing little floral beauty, and somewhat difficult of cultivation.

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Cassiope tetragona</i>	four-cornered Cassiope.	6 inches	Mar. & April	white

This plant likes a sandy, yet rather close moist peat, and will scarcely live the winter out of doors.

GENUS 6.—*Cassandra* (*Andromeda of some*).

Evergreen under-shrubs, one to two feet in height, bearing white flowers from February to April: natives of Europe, Asia, and North America, on mountains and in low marshy ground, or in swamps.

Botanical Name.	English Name.	Height.	Season.	Colour.
Cassandra—				
calyculata	calyculated Cas- sandra	1-2 feet	Feb. to April	white
angustifolia . . .	narrow leaved do	1 foot	"	"
nana	dwarf ditto	1 foot	"	"

GENUS 7.—*Zenobia* (*Andromeda of some*).

A pretty, deciduous shrub, growing naturally in the swamps of North Carolina.

Botanical Name.	English Name.	Height.	Season.	Colour.
Zenobia—				
speciosa	showy-flowered Zenobia	2-3 feet	June	white
pulverulenta . . .		2 feet.	June	white

GENUS 8.—*Lyonia* (*Andromeda of some*).

Evergreen and deciduous shrubs and low trees, natives of

North America, in forests, woods, and swamps, especially in sandy soil.

Botanical Name.	English Name.	Height.	Season.	Colour.
Lyonia—				
<i>marginata</i> . . .	. marginated-leaved Lyonia	2 feet	June & July	red
<i>Mariana</i> . . .	. Maryland ditto	2 feet	May to Aug.	white
<i>paniculata</i> . . .	. panicled ditto	3-4 feet	June & July	white
<i>racemosa</i> . . .	. racemose-flowered ditto	3-4 feet	June & July	white

GENUS 9.—*Leucothoë* (*Andromeda* of some).

Low evergreen shrubs, ranging between two and three feet. Natives of North America, in mountains and in sandy swamps. *L. floribunda* is one of the most beautiful of American plants, but the young plants should be raised from layers, and not from seed. Not only are seedlings shy in blooming when young, but they are often short-lived.

Botanical Name.	English Name.	Height.	Season.	Colour.
Leucothoë—				
<i>acuminata</i> . . .	. acuminate-leaved <i>Leucothoë</i>	3-5 feet	July & Aug.	white
<i>axillaris</i> . . .	. axillary racemed ditto	2-3 feet	June	„
<i>floribunda</i> . . .	. numerous-flowered ditto	2-3 feet	May & June	„
<i>spinulosa</i> or <i>Catesbei</i>	. spinulose ditto	2 feet	May & June	„

GENUS 10.—*Pieris* (*Andromeda* of some).

A low evergreen tree, a native of Nepal, where it grows twenty to forty feet high; *P. ovalifolia* is of little value in British gardens, rarely exceeding six feet. *P. formosa* is a very handsome kind.

Botanical Name.	English Name.	Height.	Season.	Colour.
Pieris—				
<i>formosa</i> . . .	. beautiful <i>Pieris</i>	6 feet		white
<i>ovalifolia</i> . . .	. oval-leaved do.	6 feet	May	flesh

* * * The whole of the last seven genera are popularly known as *Andromedas*.

GENUS 11.—*Phyllodoce*.

Low, trailing, heath-like shrubs; evergreen; natives of Europe, Asia, and North America. Thrive best in a moist peaty soil.

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Phyllodoce taxifolia</i> (<i>Menziesia cœrulea</i> of some)	yew-leaved Phyllodoce	6 inches	June & July	red

GENUS 12.—*Bryanthus*.

Small evergreen shrubs, natives of Asia and North America, growing chiefly in thick masses in mosses, bogs, and other places.

Botanical Name.	English Name.
<i>Bryanthus erectus</i> ,	erect <i>Bryanthus</i>

GENUS 13.—*Dabæcia* (*Menziesia* of some).

Very pretty evergreen bushy shrubs, growing one to two feet high: natives of Ireland and the Pyrennees, on the sides of mountains and dry heaths. These plants resemble the Heaths, but are more showy: the flowers and leaves are larger, the latter of a brilliant dark green.

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Dabæcia</i> — <i>polifolia</i>	many-leaved <i>Dabæcia</i>	1-2 feet	June to Oct.	purple
<i>flore albo</i>	wt.-flowered do.	1-2 feet	June to Oct.	white

GENUS 14.—ARBUTUS. *The Strawberry Tree*.

Evergreen trees and shrubs of exceeding beauty, natives of Europe, Asia, and America. *A. unedo* is found in the west of Ireland, growing on barren lime-stone rocks. The species and varieties vary in height from three to twenty feet; the flowers, which are white or reddish, are produced in autumn, winter, and early spring. The arbutus deservedly ranks as a first-class ornamental tree; the straw-

berry-like fruit hanging in conjunction with the clusters of white flowers amid a profusion of red-barked shoots and dark, shining foliage, cannot fail to strike every lover of the beautiful; and this is seen in autumn and early winter. The arbutus is less a peat plant than many of its order, thriving well in ordinary loam, liking shelter, but not shade.

Botanical Name.	English Name.	Height.	Season.	Colour.
Arbutus—				
Andrachne . . .	Andrachne arbutus	10–20 ft.	Mar. & Apr.	white
hybrida . . .	Hybrid ditto	10–20 ft.	Sept. to Dec.	„
procera . . .	tall ditto	10–20 ft.	May	„
unedo . . .	common ditto	10–20 ft.	Sept. to Dec.	„
crispus . . .	curled-leaved do.	3–5 feet	„	„
Croomii . . .	Croom's ditto	10–20 ft.	„	red
integrifolius . . .	entire leaved do.	3–5 feet	„	white
Millerii . . .	Miller's ditto	10–20 ft.	„	red
plenus . . .	double ditto	10–20 ft.	„	white
Rollissonii . . .	Rollisson's ditto	10–20 ft.	„	red
ruber . . .	scarlet ditto	10–20 ft.	„	red
salicifolius . . .	willow-leaved do	3–5 feet	„	white

GENUS 15.—ARCTOSTAPHYLOS. *The Bearberry.*

Evergreen trailing shrubs, natives of Europe and America; A. Uva-ursi is common on dry heathy mountains in England, Scotland, and Wales, growing about one foot high. The flowers, which are white, or reddish white, are produced in May and June, and the red berries which succeed them, and ripen in September, serve as food for grouse and other birds. Both the species make excellent rock-plants if planted in peat.

Botanical Name.	English Name.	Height.	Season.	Colour.
Arctostaphylos—				
alpina . . .	alpine Bearberry	1 foot	April to June	white
Uva-ursi . . .	common ditto	1 foot	May & June	red

GENUS 16.—*Pernettya.*

Neat evergreen spreading shrubs of considerable beauty, six

inches to two feet in height; flowers white, produced in May, sometimes followed by rich red berries late in autumn; leaves small, dark, and shining: natives of Europe and America. Good either for the front of shrubberies or for rockwork, thriving in peat or light loam.

Botanical Name.	English Name.	Height.	Season.	Colour.
Pernettya—				
<i>angustifolia</i> . . .	narrow leavedP.	3 feet	May	white
<i>Cummingii</i> . . .	Cumming's ditto	2 feet	„	„
<i>mucronata</i> . . .	mucronate-leav-			
	ed ditto	2-3 feet	„	„
<i>pilosa</i>	hairy ditto	1 foot	„	„

GENUS 17.—GAULTHERIA.

Dwarf, close-growing, evergreen shrubs, from six inches to two feet in height; flowers, white, produced in July and September, and succeeded by red berries in winter. Natives of America, preferring a moist, shady soil. *G. Shallon* thrives well under trees, in peat or sandy loam; the fruit makes excellent tarts, and is prized in plantations as food for game.

Botanical Name.	English Name.	Height.	Season.	Colour.
Gaultheria—				
<i>procumbens</i> . . .	procumbent G.	6 inches	July to Sept.	white
<i>Shallon</i>	shallon	2 feet	September	white

GENUS 18.—EPIGÆA.

An evergreen creeping shrub, rarely exceeding six inches in height: native of North America, growing on shady rocks, in stony woods, and at the roots of pines. Flowers white, fragrant, produced from May to July. Requires protection in severe weather, unless covered with snow.

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Epigæa repens</i> . . .	creeping epigæa	6 inches	May to July	white

GENUS 19.—PHALEROCARPUS.

A small evergreen creeping plant, resembling the wild

thyme. Height, six inches: native of North America, growing amidst sphagnum: flowers white, produced in April and May, succeeded by berries of the same colour.

Botanical Name.	English Name.	Height.	Season.	Colour.
Phalerocarpus— serpyllifolius	. . thyme-leaved P.	6 inches	April & May	white

GENUS 20.—CLETHRA.

Deciduous shrubs, natives of North America, thriving best in moist peat soil.

Botanical Name.	English Name.	Height.	Season.	Colour.
Clethra— alnifolia . . .	. alder-leaved cle- thra	3-4 feet	July to Sept.	white
tomentosa . . .	. downy ditto	3-4 feet	„	white

GENUS 21.—THE RHODODENDRON.—*Group 1.*

Evergreen shrubs of matchless beauty, densely clothed with handsome foliage; natives of Europe, Asia, and North America; growing in barren soils, on rocks, the borders of rivers, lakes, and swamps, and some on trees, varying in height from one foot to forty feet. The English hybrids possess the highest claim to distinction: the flowers are white, lilac, rose, crimson, purple, lemon, with the usual intermediate shades, produced for the most part from April to June: *R. dauricum* flowers from January to March; *R. Nobleanum* and a few others, from February to April. All *prefer* a sandy peat or deep sandy loam, the common sorts thriving in a tenacious loam.

The following arrangement of species is from the “Arboretum et Fruticetum Britannicum,” with the exception of the section “Pentanthera,” which we shall class under its more generally known name of Azalea.

Botanical Name.	English Name.	Height.	Season.	Colour.
Rhododendron --				
ponticum . . .	. pontic R.	10-12 ft.	May	purple
maximum . . .	. largest R.	10-15 ft.	June	red
purpureum . . .	. purple R.	20 feet	May	purple
Purshii . . .	. Pursh's R.	6-8 feet	June	white
Catawbiense . . .	. Catawba R.	4 feet	"	purple
chrysanthum . . .	. golden R.	6in.-1ft.	"	yellow
Caucasicum . . .	. Caucasian R.	1 foot	August	w. or purp
punctatum . . .	. dotted R.	4 feet	July	pink
ferrugineum . . .	. rusty R.	1 foot	May	rose
hirsutum . . .	. hairy R.	1-2 feet	"	red
setosum . . .	. bristly R.	6in.-1ft.	"	purple
campanulatum . . .	. bell-shaped R.	3-5 feet	April	white
arboreum . . .	. tree R.	20 feet	"	scarlet
anthopogon . . .	. bearded R.	1 foot	"	yellow
Lapponicum . . .	. Lapland R.	6in.-1ft.	May	crimson
dauricum . . .	. dahurian R.	2-6 feet	March	purple
Camschaticum . . .	. Kamtschatka R.	6in.-1ft.	July	purple
chamæcistus . . .	. ground cistus R.	6 inches	May	purple
rhodora . . .	. Canada rhodora	2 feet	April	purple

The following arrangement of the Sikkim and Bhotan species is taken from Dr. Hooker's beautiful work, entitled "The Rhododendrons of the Sikkim Himalaya," in which more than twenty of the species are figured. The descriptions are, in most cases, taken from the same source condensed, or abbreviated to suit the character of this work.

1. *Rhododendron Falconerii*, a tree 30 ft. high; flowers white or pale purple, leaves often 15 in. long and 8 in. broad, resembling those of the *Magnolia grandiflora*.
2. — *argenteum*, a tree 30 ft. high; flowers white, 2 to 3 in. long, 2 to 2½ in. broad.
3. — *Hodgsonii*, height 12 to 20 ft.; flowers lilac, leaves 12 to 18 in. in length, of a brilliant deep green.
4. — *grande*.
5. — *Aucklandii*, height 4 to 8 ft. in dry sunny

places; flowers white tinged with pink, 3 to 5½ in. in diameter, very sweet, the largest of the genus.

6. — Griffithii.
7. — Thomsonii, height 15 ft. in damp woods; flowers deep blood red, surface glossy.
8. — candelabrum; flowers straw colour edged with salmon rose; probably a pale-flowered variety of *R. Thomsonii*.
9. — Dalhousiæ;* flowers white, with an occasional tinge of rose, very large.
10. — Edgeworthii, grows as an epiphyte; flowers white, often tinged with blush and pale yellow, large and very showy.
11. — barbatum; flowers deep puce or blood, 4 to 5 in. in diameter.
12. — lancifolium; flowers rich puce.
13. — ciliatum, grows in moist rocky places, height 2 ft.; flowers lilac and white, very sweet.
14. — glaucum, a small shrub, height 2 ft.; flowers pale pinkish purple.
15. — vaccinioides, grows on moist rocks, in very damp places.
16. — pumilum; flowers rose colour, very delicate: the smallest of the Sikkim rhododendrons.
17. — arboreum; flowers scarlet.
18. — Campbelliæ, height 40 ft., flowers scarlet, probably the same as *nilagiricum*, *cinnamomum*, and *nobile*.

* A seedling from this species bloomed in these nurseries in May last: the flowers were 4½ in. long, 5 in. broad, of a beautiful yellow colour, highly fragrant in the evening. It was exhibited at the Royal Botanic Society's show, and awarded a medal.

19. *Rhododendron nilagiricum*.
20. — *nobile*.
21. — *niveum*.
22. — *formosum*.
23. — *campanulatum*; flowers white or lilac.
24. — *Wallichii*; flowers lilac, large, and handsome.
25. — *Wightii*; flowers primrose yellow marked with blood-red spots.
26. — *lanatum*; flowers pale sulphur, the upper lobes sprinkled with red dots.
27. — *fulgens*; flowers deep bright blood-red, highly polished and shining.
28. — *æruginosum*; flowers red and lilac.
29. — *campylocarpum*; flowers sulphur, 2 in. long, and more across. Dr. Hooker describes this as the most charming of the Sikkim species. It is perfectly hardy, plants having stood three winters uninjured in the open ground here.
30. — *Maddenii*; flowers pure white, with faint blush chiefly on the upper lobe, $3\frac{1}{2}$ to 4 in. long, and as much across.
31. — *cinnabarinum*; flowers cinnabar-coloured.
32. — *Royleii*; flowers brownish red, points tipped with bluish green.
33. — *Camelliæflorum*; flowers pure white, with a faint rosy tinge. The plant generally found pendent from the trunks of trees, sometimes from rocks.
34. — *pendulum*; flowers white, about an inch in diameter. The plant grows in gloomy and almost impenetrable forests.
35. — *salignum*, height 2 to 4 ft.; flowers yellow.
36. — *eleagnoides*; flowers bright yellow or purple.

37. *Rhododendron lepidotum*; flowers varying from a very fine red to a dingy yellow.
38. — *triflorum*, height 4 to 6 ft.; flowers greenish yellow.
39. — *virgatum*; flowers pale red purple.
40. — *nivale*; flowers purple, very sweet. The plant grows on the loftiest bare slopes of the Tibetan frontier.
41. — *setosum*; flowers bright red rose. The plant grows in open, stony, rocky places, and resembles the rhodora.
42. — *anthopogon*; flowers open blush, insensibly passing into snowy white, then faintly tinged with sulphur; all colours seen on one and the same plant. This species grows in rocky, open, and especially gravelly places.

In addition to the above, the following Bhotan species have been recently introduced:—*Boothii*, *calophyllum*, *eximeum*, *Hookerii*, *Jenkinsii*, *Kendrickii*, *Keysii*, *longifolium*, *Nuttalii*, *Windsorii*, and eight unnamed species. The late Mr. Griffith, writing to Dr. Wight, from Gorruckpore, says, "Of the rhododendrons I cannot speak in terms of sufficient ecstasy. I have upwards of fifteen species, which number might perhaps be doubled by a longer residence."

But it is to the garden hybrids of rhododendron we look for the principal effect out of doors, and we shall cast these into a series of groups for use in planting.

A FEW CHOICE NEW RHODODENDRONS.

Alarm, flowers blush, carmine edges (see plate).

Arabella, cream, top petals yellow, large flower, and fine truss.

- Archimedes, bright rose, lighter centre.
Atrosanguineum, dark scarlet, fine foliage.
Barclayanum, fine rosy crimson.
Brayanum, bright vivid scarlet, flame-like, very showy.
Charlotte Bronte, fine dark scarlet.
Concessum, bright peach colour, very distinct.
Currieanum, purplish rose, flowers and truss large.
Desdemona, blush, finely and distinctly spotted.
Fleur de Marie, rosy crimson, light centre.
Gem, white edged with rose, delicate colour.
General Cabrera, crimson, much spotted.
Geranioides, peach-colour, fine dark eye.
John Waterer, fine bright scarlet crimson, flowers and
truss large and good shaped.
Lady Easthope, salmon rose, much spotted.
Lady Eleanor Cathcart, peach-colour, fine eye.
Lefeverianum, purplish crimson.
Lord John Russell, purple, very dark spots.
Manglesii, fine light rosy scarlet.
Minnie, white, deep bronze spots.
Mrs. John Waterer, cherry crimson.
Neptune, fine purple, very distinct.
Ne plus ultra, white, purple edges, dark spot.
Nero, dark purple, fine spot.
Perfection, lilac blush, fine shape.
Ponticum coccineum, bright scarlet.
Queen of Sheba, dark crimson purple, very fine.
Schiller, deep lilac, with white ring round a dark eye, shape
and truss good.
Star of England, white, edged with pink, much spotted,
very large.
William Downing, puce, with very dark blotch.

A few good and distinct kinds, exclusive of new ones—

- Album elegans, French white.
 Atrorubrum purpureum, fine purple, distinct.
 Blandyanum, deep crimson.
 Blatteum, dark purplish crimson, very large and showy.
 Broughtonii, rosy crimson, trusses fine.
 Bouquet de Flore, light rose, nicely marked.
 Delicatissimum, white, delicately tinged with pink.
 Erectum, light rosy crimson, good.
 Etoile de Flandres, light blush, spotted.
 Everestianum, rosy lilac, large truss.
 Grand Arab, fine dark showy crimson.
 Haidée, rich rosy cherry, good.
 Leopardii, rosy lilac, intensely spotted with crimson.
 Lindsayanum, brilliant rose, much spotted.
 Lowii, white, orange spots.
 Maculatum nigrum, dark purple, spotted.
 Mirandum, clear rose, good.
 Onslowianum, lilac, yellow eye.
 Poussin, fine flame-like scarlet.
 Purpureum elegans, purple.
 Reedianum, scarlet crimson, abundant bloomer.
 Roseum elegans, fine rose-colour.
 Rembrandt, scarlet, fine truss
 Sherwoodianum, light rose, finely marked.
 Sordans, rosy lilac, dark spot.
 Towardii, rosy lilac, truss and shape fine.
 Victoria, crimson tinged with purple.
 Victorine, fine bright crimson.

Rhododendrons suitable for planting in masses.

WHITE.

Album elegans.
 Cunninghamii.
 Delicatissimum.
 Guttatum.
 Lowii.
 Nivaticum.
 Ponticum album.

LILAC.

Atrouvirens.
 Catawbiense.
 Everestianum.
 Ponticum.
 — versicolor.
 Vervaneanum fl. pleno.
 Catawbiense bicolor, rose and white.

CRIMSON AND SCARLET.

Atrosanguineum.
 Blandyanum.
 Brayanum.
 Erectum.
 Hendersonii.
 Reedianum.

PURPLE.

Atrorubrum purpureum.
 Blatteum.
 Maculatum grandiflorum.
 Maximum purpureum.
 Ponticum atropurpureum.
 Purpureum elegans.
 Victoria.

*Single specimens of Rhododendrons for Lawns, as Standards
or otherwise.*

- Album elegans, white.
 Blandyanum, deep crimson.
 Delicatissimum, white.
 Blatteum, purplish crimson.
 Erectum, rosy crimson.
 Everestianum, rosy lilac.
 Maculatum purpureum, purple.
 Reedianum, scarlet.
 Hendersonii, crimson, dark edges.
 Jacksonii, crimson scarlet.
 John Waterer, scarlet crimson.
 Leopardii, rosy lilac, intensely spotted.
 Lady Eleanor Cathcart, peach-colour.
 Lindsayanum, brilliant rose, much spotted.
 Pictum, white, orange eye.
 Roseum elegans, fine rose-colour.
 Sherwoodianum, light rose, finely marked.
 Victoria, crimson tinged with purple.

*Dwarf-growing kinds, suitable for the edgings of large
beds, or the front of a shrubbery.*

- Ferrugineum.
 Hirsutum.
 variegatum.
 Hybridum.
 Odoratum.
 Wilsonianum.

Early-flowering kinds, suitable for warm sheltered situations, or for blooming in the Conservatory in winter.

Arboreum.

album.

Altaclarensis.

Campanulatum.

Ignescens.

Nobleanum.

Smithii.

Victoria regina.

Yellow kinds, for the Conservatory only.

Aureum, fine yellow.

superbum, fine yellow, deeply spotted.

Cupreum elegans, deep copper orange, darkly spotted.

Flavum grandiflorum, large yellow.

Luteum splendens, fine yellow, spotted with buff.

Macranthum flavum, yellow, very large.

Also the yellow species of Sikkim, see pp. 51, 52, 53.

GENUS 21. THE RHODODENDRON. *Group 2. The Azalea* of gardens, but considered to belong to Rhododendron by botanists, is a deciduous shrub, the species and varieties usually cultivated in British gardens varying in height from 2 to 6 ft. We retain them here under their original and popular name, for convenience sake.

Botanical Name.	English Name.	Height.	Season.	Colour.
<i>Azalea</i> —				
pontica . . .	common azalea	4-6 feet	May & June	yellow
nudiflorum . . .	naked-flowered	3-4 feet	April to June	various
bicolor . . .	two-coloured	ditto	May	red & wt.
calendulacea . . .	marigold	2-6 feet	May & June	various
canescens . . .	canescent	3-4 feet	„	rose
viscosa . . .	clammy	2-6 feet	July & Aug.	white
glauca . . .	glaucous	2 feet	June & July	white
hispid . . .	hispid	10-15 ft.	July & Aug.	white
nitida . . .	glossy	2-4 feet	June & July	white
speciosa . . .	the showy	2-6 feet	„	scarlet
arborescens . . .	the tree	10-15 ft.	„	rose

But here, as with the rhododendron, the garden hybrids are the most striking, and the following may be reckoned as some of the best.

GARDEN VARIETIES OF AZALEA.

NAME.	COLOUR.
Ambrosia,	red, orange blotch.
Aurantia major,	orange scarlet
elegans,	fine orange buff.
Beauty of Flanders,	fawn and pink, orange blotch.
Buckii,	fine scarlet.
Comte de Flandre,	red, orange blotch.
Coccinea major,	fine scarlet.
Cuprea splendens,	copper, orange blotch.
Emperor of Russia,	pink, fawn blotch.
Gloire de Verschaffelt,	bright orange yellow.
Honneur de la Belgique,	bright orange.
Julius Cæsar,	dark crimson.
Louis Bonaparte,	fawn and yellow.
Macrophylla,	fawn, orange blotch.
Marie Dorothée,	white shaded with pink, upper petal yellow.
Minerva,	salmon, upper petal yellow.
Nudiflora colorata,	bright pink, distinct.
Perle de printemps,	reddish salmon, yellow blotch.
Pontica,	large yellow, very showy.
alba,	lemon, fading to white.
Prince Henri,	blush pink, yellow blotch.
Princess of Orange,	fine orange yellow.
Reine d' Angleterre,	pink, orange blotch.
Louise	salmon, yellow blotch.
Recurva bicolor,	white and pink.
Rosea rotundifolia,	rosy buff, yellow blotch.
Sinensis striata,	pink and white, yellow blotch.

NAME.	COLOUR.
<i>Speciosa coccinea</i> ,	fine scarlet.
<i>Souvenir de Mortier</i> ,	red, orange blotch.
<i>Triomphe de Royghem</i> ,	red, yellow blotch.

DOUBLE GHENT AZALEAS.

These varieties have been obtained in Germany: we have not yet seen enough of them to recommend them with any degree of confidence. Their names are—

NAME.	COLOUR.
<i>Arethusa</i> ,	creamy white.
<i>Bartolo Lazzaris</i> ,	dark brick red.
<i>Chromatella</i> ,	deep yellow.
<i>Doctor Streiter</i> ,	clear chamois.
<i>Graftan Meran</i> ,	delicate rose.
<i>Heroine</i> ,	flesh-coloured fawn.
<i>Leibnitz</i> ,	yellow, changing to red.
<i>Maja</i> ,	red.
<i>Narcissiflora</i> ,	sulphur.
<i>Ophirie</i> ,	clear yellow.
<i>Rosetta</i> ,	white, dashed with rose.

GENUS 22.—KALMIA.

Low evergreen shrubs, varying in height from 1 to 10 ft. : natives of N. America, generally found growing on rocky or stony soils near water, sometimes in bogs, swamps, and on the borders of mountain lakes. The flowers of *K. latifolia*, and its variety, *K. myrtifolia*, are the largest and most showy of the whole, are white, delicately tinted with pink, and finely spotted, produced in large closely-packed clusters. *K. angustifolia nana* is also a charming little plant.

Botanical Name.	English Name.	Height.	Season.	Colour.
Kalmia—				
latifolia . . .	broad-leaved K.	3-10 feet	June & July	white
myrtifolia . . .	myrtle-leaved	3-6 feet	„	white
angustifolia . . .	narrow-leaved	1-2 feet	May to July	red
nana . . .	dwarf,	1-2 feet	„	red
glauca . . .	glaucous	2 feet	April & May	red
cuneata . . .	wedge-shaped	1-2 feet	May & June	white
hirsuta . . .	hairy	2-3 feet	June to Aug.	red

GENUS 23.—MENZIESIA.

Deciduous under-shrubs, natives of N. America.

Botanical Name.	English Name.	Height.	Season.	Colour.
Menziesia—				
ferruginea . . .	rusty M.	3-4 feet	May & June	brown
globularis . . .	globular M.	3-5 feet	„	„

GENUS 24.—AZALEA.

The azalea of botanists is a small evergreen procumbent shrub, resembling the wild thyme. Native of Europe and N. America, plentiful on the tops of mountains in Scotland, rare in England.

Botanical Name.	English Name.	Height.	Season.	Colour.
Azalea procumbens	procumbent A- zalea	6 inches	Apl. & May	rose

GENUS 25.—LEIOPHYLLUM (*Ledum of some*).

An elegant little evergreen shrub, rarely attaining 1 ft. in height, producing a profusion of white flowers in May and June. Native of N. America, growing on mountains.

Botanical Name.	English Name.	Height.	Season.	Colour.
Leiophyllum—				
thymifolium . . .	thyme-leaved Leiophyllum	1 foot	May & June	white

GENUS 26.—LEDUM.

Dwarf evergreen shrubs, 6 in. to 3 ft. in height. Natives of Europe and N. America, growing in swamps, and on

the borders of mountain lakes. Excellent for masses, or for edgings in the American Garden.

Botanical Name.	English Name.	Height.	Season.	Colour.
Ledum—				
palustre . . .	marsh Ledum	2 feet	April & May	white
latifolium . . .	broad-leaved	2-4 feet	„	white
canadense . . .	Canadian	6 inches	„	white

GENUS 27.—VACCINIUM.—*The Whortleberry.*

Deciduous and evergreen shrubs, natives of Europe, Asia, and N. America, some species plentiful in Britain; found growing on dry heaths, stony moors, and in mountain woods and bogs. The flowers are succeeded by berries, black, purple, bluish, red, or white, in *some* cases excellent for tarts, and in *many* valuable as food for game. There are a great many species and varieties, some of little value from the ornamental point of view: we therefore describe only a few of the best.

Botanical Name.	English Name.	Height.	Season.	Colour.
Vaccinium—				
arctostaphylos . . .	Bear's grape whortleberry	8 feet	May & June	white
crassifolium . . .	thick-leaved do.	6 inches	„	pink & wh
frondosum . . .	frondose ditto	3 feet	„	white
ovatum . . .	ovate-leaved do.	2-3 feet	May	pink
Vitis Idæa . . .	Mount Ida ditto	1 foot	May & June	„
minor . . .	„	„	„	„

GENUS 28.—OXYCOCCUS.—*The Cranberry.*

Small creeping shrubs, 6 in. to 2 ft. in height, natives of Europe and N. America: one species, *O. palustris*, plentiful in Britain. These plants grow naturally in mountain bogs mingled with moss: the flowers, which are pink, are produced in May, June, and July, and succeeded by red berries in August and September. Loudon, in the “*Arboretum et Fruticetum Britannicum*,” speaking of *O. palustris*, says, “During the latter end of the last